

**BRIDGING THE HEALTHCARE QUALITY, PATIENT SAFETY, AND
COMPETENCY GAPS IN SOUTH AFRICA: A STUDY OF CLINICIANS
AND QUALITY MANAGERS**

By: Winnifred Moleko

Student No: 222886528

**Thesis Submitted in Fulfilment of the Requirements for the Degree Doctor of
Public Administration in the Faculty of Business and Management Sciences at
the Cape Peninsula University of Technology**

Supervisor: Prof Visvanathan Naicker

DECLARATION

I, Winnifred Mamokoena Moleko, hereby declare that this thesis is my own work, and all my sources have been acknowledged. No part of this work has been submitted before in support of an application for a degree, or for examination towards any qualification, at any other university.

Signature of candidate

Date

ABSTRACT

Background: The public health sector in South Africa faces significant challenges rooted in poor governance, inadequate management capacity, and ineffective administrative systems alongside socio-political factors, resulting in inequitable funding, resource shortages, and misaligned skill distribution. These systemic issues undermine healthcare quality and compromise patient safety. Quality improvement methodologies offer a practical approach to address these challenges; however, access to formal quality improvement training remains limited for the healthcare workforce. Enhancing competency through targeted training is essential to empower healthcare professionals, improve system performance, and ultimately ensure safer, higher quality care for all patients.

The objective of the study is to bridge the competency gaps in healthcare quality and patient safety among clinicians and quality managers by training them using levels 1 and 2 of the Kirkpatrick model of evaluation.

This study investigates the effectiveness of a hybrid model training intervention to address competency gaps in healthcare quality and patient safety amongst clinicians and quality managers.

Methods: A quantitative and qualitative analysis was implemented to analyse the pre- and post-assessment survey data. Levels 1 and 2 of the Kirkpatrick model were used to evaluate the effectiveness of the training intervention to close the healthcare quality and patient safety competency gaps amongst clinicians and quality managers. A one-sided T-test was conducted to compare the levels of understanding of key quality management principles pre- and post-training. The data collected from participants' responses was analysed using Microsoft Excel and R Version 4.0.

Results: The results showed significant gaps in formal training on healthcare quality and patient safety, with the majority of respondents citing insufficient resources and challenges in organisational culture as barriers to quality improvement. Despite these

challenges, key findings indicate that targeted training initiatives significantly enhanced understanding of quality management principles, emphasising the critical role of competency development in healthcare delivery. All nine hypotheses yielded p-values less than 0.05, indicating that the training significantly improved the participants' understanding of key quality management principles.

Conclusion: The study demonstrates that a hybrid model training intervention effectively addresses competency gaps in healthcare quality and patient safety among clinicians and quality managers. The application of Levels 1 and 2 of the Kirkpatrick model confirmed significant improvements in participants' understanding and engagement. These findings underscore the importance of formalised training programmes in enhancing workforce competency and advancing sustainable quality improvement in healthcare.

Keywords: Healthcare quality, patient safety, clinicians' and quality managers' competency, quality management.

ACKNOWLEDGEMENTS

- Prof Visvanathan Naicker, what an honour to have had you as my supervisor! Your unwavering support, guidance and mentorship has brought me to this moment of accomplishment. I truly thank you.
- Prof Rubin Pillay of the University of Alabama, a highly experienced instructor of healthcare quality training programme with extensive international teaching, who allowed me to work with him during the piloting of the content of the training programme. The research study was also made possible because of his innovative approach to teaching and learning.
- To the clinicians and quality managers who participated in the healthcare quality training pilot programme and took their time to provide valuable information and feedback. My greatest wish is to see the health system improve over time because of your contribution.
- To my employer, the Office of Health Standards Compliance (OHSC) – thank you for the encouragement and the opportunity by allowing me to take the study leave days throughout my years of studying.
- Dr Grace Labadarios, Dr Sue Armstrong, Dr Thabiso Makola, your passion for high quality healthcare services, your wide-ranging advice and your support during the validation of the research questionnaire, made it possible for me to achieve this end.
- To Innocent Maluleka, Mantokeleng Matsaneng, Emmah Ramphele and Medupe Simasiku, my colleagues from the OHSC, thank you for all your technical support and words of encouragement throughout my journey.
- To Khumo Myezo, who assisted me with literature search, referencing and was always willing to assist.
- I am immensely grateful to my family and friends who were always there to support and encourage me during my lowest moments of the study journey.
- I am grateful for the funding support from the Health & Welfare SETA during the first two years of my studies.

DEDICATION

I dedicate this study to my late parents, my sisters and brothers who continued to be my angels and were looking upon me during this difficult journey. When I wanted to give up, their silent voices made me to believe that nothing was impossible. My husband and immediate family, thank you for your unwavering support and love.

TABLE OF CONTENTS

DECLARATION.....	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS.....	v
DEDICATION.....	vi
CHAPTER ONE.....	1
INTRODUCTION AND RATIONALE FOR THE RESEARCH STUDY	1
1.1 INTRODUCTION	1
CHAPTER TWO	22
2.1 INTRODUCTION	22
2.1.1 The historical background of South African healthcare	22
2.2 SOUTH AFRICAN HEALTHCARE QUALITY.....	23
2.3 MODELS OF HEALTHCARE QUALITY.....	24
2.3.1 A Learning Collaborative Model.....	25
2.3.2 Plan-Do-Study-Act Model for Improvement	27
2.3.3 Donabedian Model	30
2.3.4 Competency-Based Model.....	34
2.3.5 Kirkpatrick Model of Training Evaluation	40
2.4 THEORIES OF HEALTHCARE QUALITY	45
2.4.1 Systems Thinking Theory.....	45
2.4.2 Theory of Knowledge.....	47
2.4.3 Theory of Change.....	47
2.5 SUMMARY	52
LITERATURE REVIEW	53
3.1 INTRODUCTION	53
3.2 HEALTHCARE QUALITY IN SOUTH AFRICA.....	55
3.3 PATIENT SAFETY.....	56
3.4 CLINICIANS' COMPETENCY IN QUALITY HEALTHCARE AND PATIENT SAFETY	56
3.5 INTERSECTIONS AND INTERDEPENDENCIES	57
3.6 PERSPECTIVE: HEALTHCARE QUALITY GLOBALLY.....	58
3.7 PERSPECTIVE: HEALTHCARE QUALITY IN SOUTH AFRICA.....	60
3.8 UNDERSTANDING THE ROLE OF QUALITY MANAGEMENT IN HEALTHCARE QUALITY	63
3.9 PATIENT SAFETY FRAMEWORKS.....	65
3.10 FRAMEWORKS OF PATIENT SAFETY IN THE SOUTH AFRICAN HEALTHCARE CONTEXT	68

3.10.1 Socio-Cultural Factors	70
3.10.3 Systemic Failures	70
3.11 EXISTING PATIENT SAFETY INITIATIVES IN SOUTH AFRICA	71
3.11.1 Effectiveness of Patient Safety Initiatives	74
3.11.2 Current Patient Safety Initiatives in South Africa	75
3.11.3 Patient Safety Culture Assessments	77
3.11.4 Root Cause Analysis Protocols	78
3.12 CLINICIANS' COMPETENCY IN HEALTHCARE QUALITY AND PATIENT SAFETY	78
3.12.1 Defining Clinician Competency	79
3.12.2 Challenges in Ensuring High-Quality Nursing Practice	81
3.12.3 The Role of Competency and Competency-Based Education for Clinicians in Healthcare	84
3.12.4 Competency-based Education in Practice	89
3.12.5 The Role of Competency for Managers in Healthcare	90
3.13 IMPACT OF MANAGERIAL COMPETENCY DEFICITS ON HEALTHCARE QUALITY IN SUB-SAHARAN AFRICA AND SOUTH AFRICA	92
3.13.1 Specific Impact in South Africa	93
3.14 THE NEED FOR CONTINUOUS TRAINING AND TRAINING EVALUATION MODELS	96
3. 14.1 A Summary of the Literature Review on Healthcare Quality and Patient Safety	98
CHAPTER FOUR	117
RESEARCH METHODOLOGY	117
4.1 INTRODUCTION	117
4.2 AIM OF THE STUDY	120
4.3 OBJECTIVES	120
4.4 RESEARCH QUESTIONS	121
4.5 MIXED METHODOLOGY RESEARCH	121
4.6 PHILOSOPHY UNDERLYING THIS RESEARCH	125
4.7 PRAGMATISM AS A RESEARCH PARADIGM	126
4.8 RESEARCH DESIGN AND METHODOLOGY	128
4.8.1 Research Methodology	129
4.8.2 The South African Health Landscape and Setting	129
4.8.3 The Study Population	131
4.9 SAMPLING METHOD	132
4.9.1 Probability or Random Sampling	132
4.9.2 Non-Probability Sampling	133
4.10 QUESTIONNAIRE DESIGN	135

4.11 THE PILOT TRAINING PROGRAMME	137
4.12 THE MANUAL/HANDBOOK FOR TRAINING	139
4.12.1 The questionnaire topics	139
The first section included questions about the participants:.....	139
4.12.2. Pilot Testing and Distribution of the Survey Tool.....	148
4.13 VALIDITY AND RELIABILITY IN THE DEVELOPMENT OF THE RESEARCH QUESTIONNAIRE	150
4.13.1 Validity of the Questionnaire.....	150
4.13.2 Reliability of the Questionnaire.....	151
4.14 DATA COLLECTION	152
4.15 DATA ANALYSIS METHODS AND INTERPRETATION.....	154
4.15.1 Methods of Analysis	154
Hypotheses	155
Statistical Software Used	155
4.16 DATA MANAGEMENT	155
4.17 QUANTITATIVE DATA ANALYSIS TECHNIQUES.....	155
4.17.1 Qualitative Data Analysis Techniques.....	156
4.18 ETHICS.....	156
4.19 INFORMED CONSENT.....	157
4.19.1 Protecting confidentiality and anonymity	158
CHAPTER FIVE.....	159
QUANTITATIVE DATA ANALYSIS AND DISCUSSIONS	159
5.1 INTRODUCTION	159
5.2 POPULATION AND SAMPLE SIZE	160
5.3 THE RESEARCH INSTRUMENT.....	161
5.4 DEMOGRAPHIC RESULTS	161
5.4.1 Gender	162
5.4.2 Age of Respondents	162
5.4.3 Primary Role Proportions.....	163
5.4.4 Sphere of Health Care Service Delivery.....	164
5.4.5 Level of Seniority	165
5.4.6 Involvement in healthcare quality and patient safety activities.....	166
5.4.7 Type of Training	167
5.4.8 Credit-Bearing Course	168
5.4.9 Informal Training.....	168
5.5 SECTION B: PARTICIPANTS' ORGANISATION AND QUALITY WORK.....	169
5.5.1 Respondents per Facility Type	170

5.5.2 Improving the quality of healthcare in my workplace is not easy	172
5.5.3 Leadership is solely responsible for quality improvement initiatives.....	174
5.5.4 In my workplace quality improvement is valued.....	175
5.5.5 In my workplace, not all employees are involved in the development of quality improvement plans.....	175
5.5.6 Comprehensive consultation with all employees contributing to the issue to be improved is necessary	176
5.5.7 Quality improvement is only the responsibility of the Quality Managers/Quality Improvement Coordinators.....	176
5.5.8 In my workplace, all individuals affected by the issue to be improved are included in the quality improvement process.....	177
5.5.9 Developing quality improvement plans is frustrating to me	177
5.5.10 In my workplace, the resources necessary for quality improvement are allocated for other purposes	178
5.5.11 In my workplace, quality improvement is not prioritised	179
5.5.12 In my workplace, key individuals resist any new ideas.....	179
5.5.13 The organisational culture where I work values change in the quality of healthcare services.....	179
5.5.14 In my workplace quality improvement takes place in silos.....	180
5.5.15 The organisational environment where I work values change to the quality of healthcare services	181
5.5.16 In my workplace, key individuals obstruct change.....	181
5.5.17 My organisation supports change in the quality of healthcare services ..	182
5.5.18 In my workplace, there is no incentive to implement quality improvement activities	182
5.5.19. Summary of the findings from Section B	183
5.6 CHALLENGES TO IMPLEMENTING QUALITY IMPROVEMENTS	183
5.6.1 Lack of infrastructure and resources emerged as major challenges to implementing quality in the workplace.....	185
5.6.2 Existing workload	186
5.6.3 Lack of managerial skills and capacity.....	187
5.6.4 No support from the staff	188
5.7 ENABLERS FOR QUALITY IMPROVEMENT	189
.....	190
5.7.1 Strong leadership support for the team	190
5.7.2 Teamwork for Quality Improvement	191
5.7.3 Having a team leader/champion to drive quality improvement work	192
5.7.4 Scheduled quality improvement meetings.....	192
5.7.5 Frequent monitoring and reporting of quality improvement activities.....	192
5.7.6 Quality management system.....	193

5.7.7 My organisation has a quality management system that works.....	194
5.7.8 In my organisation, we intend starting a quality management system.....	194
5.7.9 My organisation had a quality management system, but it failed to make improvements	194
5.7.10 In my workplace, there are no resources (time/money/people) for quality management system.....	195
5.7.11 We need someone to train us on how to implement a quality management system	196
5.8 SECTION C: PRE-AND POST-TRAINING KNOWLEDGE ASSESSMENT	220
5.8.1 Introduction to Healthcare Quality Management: Seven dimensions of quality	221
5.8.2 Introduction to Healthcare Quality: Understanding of quality and related concepts	222
5.8.3 Level of Understanding of Roles of Various Stakeholders within the Health System	223
5.8.4 Performance Measurement	224
5.8.5 Obtaining Measurement Data.....	226
5.8.6 Performance Evaluation	227
5.8.7 Improving Performance	228
5.8.8 Improvement Tools and Techniques	229
5.8.9 How to use quantitative and qualitative tools to generate ideas and understand the root cause of a problem	232
5.8.10 Patient Safety and Risk Management	233
5.8.11 Managing the patient safety and staff experience	234
5.8.12 High-reliability organisations	235
5.9 POST-TRAINING SURVEY ANALYSIS	237
5.9.1 Introduction to Healthcare Quality Management	238
5.9.2 Performance Measurement	239
5.9.3 Obtaining Measurement Data.....	241
5.9.4 Evaluating Performance	241
5.9.5 Improving Performance	243
5.9.8 Managing Patient and Staff Experience.....	246
5.9.9 High-Reliability Organisation	246
5.10 POST-ASSESSMENT SURVEY FINDINGS	247
5.11 SUMMARY OF THIS CHAPTER	248
CHAPTER SIX.....	249
QUALITATIVE FINDINGS AND DISCUSSIONS	249
6.1 INTRODUCTION	249
6.2. METHODOLOGY FOR QUALITATIVE ANALYSIS	250

6.3 TRAINING CONTENT AND THEMES	251
6.3.1 High-Reliability Organisations	251
6.3.2 Improvement Tools and Techniques	253
6.3.3 Managing Patient Safety and Risk	254
6.4 CONTEXTUALISATION OF THE TRAINING MANUAL	257
6.5 PARTICIPANTS' SELF-PERCEPTIONS	259
6.5.1 Pre-Training Self-Perceptions: Identifying Competency Gaps	259
6.5.2 Post-Training Self-Perceptions: A Shift in Confidence and Understanding	260
6.5.3 Barriers to Training Implementation	264
6.6 IMPLICATIONS FOR PRACTICE	267
6.6.1 Increased Awareness and Professional Responsibility	269
6.6.2 Changes in Workplace Practices	270
6.6.3 Impact on Organisational Culture	271
6.6.4 Challenges in Practical Application	271
6.6.5 Relevance and Quality of Content	274
6.6.6. Assessment of the Instructor/Facilitator	275
6.6.7 Overall Learning Experience	275
6.6.8 Participants' Recommendations for Future Research	276
6.7 WORD CLOUD ANALYSIS: INTERPRETING PARTICIPANT FEEDBACK	278
6.8 SUMMARY OF THIS CHAPTER	282
CHAPTER SEVEN	283
CONCLUSIONS AND RECOMMENDATIONS	283
7.1 INTRODUCTION	283
7.2 SUMMARY OF THE PREVIOUS CHAPTERS	284
7.3. CONNECTING THE AIM, OBJECTIVES AND THE RESEARCH QUESTIONS	288
7.4 KEY INSIGHTS AND LESSONS FROM THE RESEARCH STUDY	293
7.5 SYNTHESIS OF KEY FINDINGS / IMPLICATIONS FOR POLICY AND PRACTICE	294
7.6 LIMITATIONS OF THE STUDY	296
7.7 RECOMMENDATIONS FOR FURTHER RESEARCH	297
7.7.1. Incorporating Levels 3 and 4 of the Kirkpatrick Model	298
7.7.2. Conducting Longitudinal Studies to Assess Behavioural and Systemic Outcomes	298
7.7.3: Exploring Barriers and Facilitators to Training Implementation	299
7.7.4: Assessing Alternative Training Modalities and Their Effectiveness	299
7.7.5: Investigating the Interplay Between Training and Institutional Policies	300
7.8 PUBLIC HEALTH RELEVANCE	301
7.9 RECOMMENDATIONS	301

7.9.1 Recommendation One	301
7.9.2 Recommendation Two	302
7.9.3 Recommendation Three	302
7.9.4 Recommendations Four	302
7.10 CONTRIBUTION TO THE BODY OF KNOWLEDGE	302
7.11 DISSEMINATION.....	304
7.12 CONCLUSION	304
8. REFERENCES	306
ANNEXURES	321
ANNEXURE A: ETHICS APPROVAL	321
ANNEXURE B: LETTER OF SUPPORT	322
ANNEXURE C: MEDIA ALERTS RELATED TO QUALITY AND PATIENT SAFETY INCIDENTS	323
ANNEXURE D : PRE- TRAINING ASSESSMENT QUESTIONNAIRE PILOT.....	335
ANNEXURE E: INFORMATION SHEET.....	391
ANNEXURE F: PRE-TRAINING ASSESSMENT QUESTIONNAIRE	391
ANNEXURE G: POST-TRAINING ASSESSMENT QUESTIONNAIRE.....	412
ANNEXURE H: DATA MANAGEMENT PLAN.....	419
ANNEXURE I: CODING	424
ANNEXURE J: TURNITIN REPORT	427
ANNEXURE K: EDITING CERTIFICATE.....	427
ANNEXURE L: EDITOR’S AI DECLARATION FOR THESES, DISSERTATIONS, OR RESEARCH ARTICLES	428

LIST OF FIGURES

Figure 1: PDSA and model for improvement	28
Figure 2: Donabedian Model (Researcher's own graphic)	32
Figure 3: Kirkpatrick's four basic categories of outcome	43
Figure 4: Map 1. Distribution and type of public health establishments and services in South Africa (WHO, 2003)	130
Figure 5: Five stages of questionnaire design and testing (adapted from Brancato et al., 2006)	137
Figure 6: Age distribution by gender	163
Figure 7: Challenges to implementing Quality Improvements in the workplace	185
Figure 8: Enablers to Implement Quality Improvement in the workplace	190
Figure 9: Organisation's approach to quality and patient safety	197
Figure 10: The role of the governance structure in the organisation's quality and safety programmes	198
Figure 11: The role the CEO or operational manager plays in quality and safety programmes	199
Figure 12: The frequency doctors LEAD quality improvement initiatives, when appropriate, throughout the organisation	200
Figure 13: Characterising doctor's participation in quality improvement activities in their organisation	201
Figure 14: Priority to improving patient safety and quality issues	202
Figure 15: Approach to measuring different aspect of quality and safety	203
Figure 16: Organisation's approach to reporting or displaying data on quality measures	204
Figure 17: Organisation's approach to making the public aware of measures of quality-of-care of the organisation	205
Figure 18: Inclusion of improvement on quality measures in key performance areas for different staff categories	206
Figure 19: Level of support that IT provides for quality and safety improvement programmes	207
Figure 20: Organisation's approach to measuring the degree to which your safety culture is established	208
Figure 21: Circumstances under which organisations conduct root cause analysis	209
Figure 22: Combination of information from comprehensive systematic analysis of several different events to identify system problems.....	210
Figure 23: System problems revealed by analysis of different events	211
Figure 24: Members of the cleaning staff in the room speaking up when doctors or nurses do not wash hands	212
Figure 25: Measurement of specific attributes of trust	213
Figure 26: Integrated Competency Development Framework for Healthcare Quality Training	213
Figure 27: Policies and procedures that evaluate patterns of behaviour and routine causes of patient safety incidents	214
Figure 28: Organisations approach to quality improvement	215
Figure 29: Quality improvement methods widely used across the organisation	216

Figure 30: Organisation's involvement of patients in efforts to redesign and improve processes of care	217
Figure 31: Process improvement required (pay increases and promotions of managers, doctors and staff)	218
Figure 32: Barriers experienced to communication and collaboration with the different categories of staff in the workplace	219
Figure 33: Introduction to Healthcare Quality Management: Seven Dimensions of Quality (Pre-Training)	221
Figure 34: Introduction to Healthcare Quality: Understating of Quality and Related Concepts (Pre-Training)	222
Figure 35: Roles of Various Stakeholders within the Health System (Pre-Training)	223
Figure 36: Performance measurement	224
Figure 37: Data Collection and Management (Pre-Training)	226
Figure 38: Understanding Performance Evaluation (Pre-Training)	227
Figure 39: Improving Performance (Pre-Training)	228
Figure 40: Improvement Tools and Techniques (Pre-Training)	230
Figure 41: Level of understanding of improvement Tools and Technology (Pre-Training)	230
Figure 42: Understanding Qualitative and Quantitative Tools (Pre-Training)	232
Figure 43: Patient Safety and Risk Management (Pre-Training)	233
Figure 44: Patient and Staff Experience (Pre-Training)	235
Figure 45 High Reliability Organisation (Pre-Training)	236
Figure 46: Respondents' Self-Rating Post-Training	238
Figure 47: Performance Measurement (Post-Training)	239
Figure 48: Obtaining Measurement Data (Post-Training)	241
Figure 49: Evaluating Performance (Post-Training)	241
Figure 50: Improving Performance (Post-Training)	243
Figure 51: Improvement Tools and Techniques (Post-Training)	244
Figure 52: Managing Patient Safety and Risk (Post-Training)	245
Figure 53: Managing Patient and Staff Experience (Post-Training)	246
Figure 54: High-Reliability Organisations (Post-Training)	246
Figure 55: Participants #1	279
Figure 56: All Participants #1	281
Figure 57: Integrated Competency Development Framework For Healthcare Quality Training	295

LIST OF TABLES

Table 1: Theories and models of healthcare quality.....	49
Table 2: OHSC List of Early Warning System Indicators, 2020.....	72
Table 3: Summary of training evaluation models and their pros and cons	101
Table 4: Questionnaire Statements and how they were created	141
Table 5: The grading scale for the self-assessment (Section C) questionnaire (Based on Dreyfus, 2004)	147
Table 6: Age range and gender distribution of the clinicians and quality managers	163
Table 7: Workplace-related practices	171
Table 8: Improvement Tools	231
Table 9: The five-stage model of adult skill acquisition (Dreyfus, 2004)	237
Table 10: Pre- and Post-Training Proportion	247

GLOSSARY OF TERMS

Clinicians:	A healthcare professional such as a general practitioner, physician or nurse involved in the care of patients.
Competency:	An observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes.
Healthcare quality:	The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.
Patient safety:	Reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum (National Department of Health, 2017: 10).
Quality:	Getting the best results possible with the available resources (Policy on Quality in Health Care for South Africa, National Department of Health, 2007) and conformance with standards from the point of view of the customers and congruent with current professional knowledge.
Quality Learning Centre's:	Health establishments that are the focal point of learning and development in a province to ensure that there is local capacity developed overtime, to support the poorest performing facilities in the province to improve to the required standards.
Quality manager:	A health professional such as nurse, doctor, or allied health professional responsible for overseeing quality work.
Quality Improvement:	An approach to the improvement of service systems and processes through the routine use of health and programme data to meet patient and programme needs (WHO, 2008).

ACRONYMS

AR	Action research
CBE	Competency-based education
CBM	Competency-based model
CBC	Competency-based curriculum
CPD	Continuous professional development
EWS	Early warning system
HAI	Healthcare-associated infection
HPCSA	Health Professions Council of South Africa
HRO	High-reliability organisation
ICRM	Ideal Clinic Realisation Maintenance Programme
IHI	Institute for Healthcare Improvement
IOM	Institute Of Medicine
LMICs	Low to middle-income countries
M&M	Mortality and morbidity
NCS	National Core Standards
NGOs	Non-governmental organisations
NDOH	National Department of Health
NHC	National Health Council
NHI	National Health Insurance
NHQIP	National Health Quality Improvement Plan
OHSC	Office of Health Standards Compliance
PDSA	Plan-Do-Study-Act
PSI	Patient safety incidence
QA	Quality assurance
QI	Quality improvement
QLCs	Quality learning centres
QMS	Quality Management systems
RCA	Root cause analysis
SANC	South African Nursing Council
SAPC	South African Pharmacy Council
UHC	Universal Health Coverage
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION AND RATIONALE FOR THE RESEARCH STUDY

1.1 INTRODUCTION

The origins and evolution of South Africa's healthcare system are deeply rooted in a complex and unequal history, marked by racially discriminatory policies and an over-reliance on hospital-centric curative models of care. Prior to 1994, healthcare access and quality were systematically skewed, resulting in stark disparities across racial and socio-economic groups. Since the dawn of democracy, there has been a concerted effort to redress these historical inequities and transform the health system into one that is more equitable, inclusive, and responsive to the needs of all South Africans.

Early reform efforts concentrated primarily on expanding access to healthcare services, a goal that has seen considerable progress through the implementation of the district health system and the adoption of a primary health care (PHC) approach. However, as the system matured, the focus has shifted toward enhancing the quality and safety of healthcare delivery. South Africa's health landscape is now increasingly defined by an ongoing commitment to ensuring that all individuals receive high-quality patient-centred and safe care.

This shift is driven by a broader recognition that healthcare systems must be dynamic, adaptive and continuously improving to meet the growing complexity of patient needs. Modern health reforms emphasise not only access but also the consistent delivery of evidence-based, safe and efficient care across all levels of the health system (Choudhry et al., 2005; Varkey et al., 2007). Within this evolving context, healthcare quality and patient safety have emerged as foundational pillars of health system strengthening, informing policy design, capacity-building efforts, and the development of training programmes that aim to close competency gaps among healthcare professionals.

There are many laws, regulations, and policies that aim to improve the standard of healthcare. The National Core Standards (NCS) for South African health establishments were created by the Office of Standards Compliance, which was established by the National Health Act (61 of 2003). In order to concentrate on service delivery, these standards assisted to establish a benchmark for high-quality care (Republic of South Africa, 2004). The National Core Standards for Health Establishments in South Africa were approved by the government in 2011 in order to ensure that South African healthcare facilities adhere to a set of high standards. To assist managers in developing good and efficient methods to improve the quality of healthcare facilities in order to comply with the National Core Standards, the National Department of Health (NDOH) produced the Quality Improvement Guide (National Department of Health, 2013).

In August 2011, a policy paper discussing the National Health Insurance for South Africa (NHI) as a means of achieving universal health coverage (UHC) was published by the National Department of Health (NDOH). The quality of care is a crucial component of transforming the health system to achieve UHC, as stated in the NHI policy paper. Additionally, it stated that all healthcare facilities—public and private—that wish to be eligible to offer services under the NHI must fulfil the necessary quality requirements (National Department of Health, 2011).

The National Health Act, 2003 (Act No. 61 of 2003) created the Office of Health Standards Compliance (OHSC) as an independent body to promote high-quality healthcare services as a critical part of transforming the health system. The NDOH also started the Ideal Clinic Realisation and Maintenance (ICRM) programme in July 2013 as a quality improvement initiative to systematically improve the deficiencies in public sector primary health care clinics and the quality of services provided.

The NHI policy published in June 2017 stated that the OHSC would be responsible for certification of health establishments to ensure that quality remains a prerequisite for accreditation and contracting with the NHI fund. The health facilities' inspection report released by the OHSC to the Parliamentary Portfolio Committee on Health showed that on average the inspected public health establishments met less than fifty percent of the requirements of the quality standards (OHSC, 2017). The report also highlighted

suboptimal performance in the leadership and corporate governance domain within the inspected health establishments in all nine provinces. This NCS measures compliance with aspects that relate to the capacity and ability of leadership to provide oversight and accountability, risk management, effective leadership, quality improvement, communication and public relations.

The South African Lancet Commission on High Quality Health Systems Report was published in 2019. This report gave a short analysis of the problems with the health system, such as the quality of the public health system. The NDOH and several members of the Lancet Commission developed a plan of action to make the health system better (South African Lancet National Commission, 2019). The National Health Council (NHC) came up with and adopted the National Health Quality Improvement Plan (NHQIP) in 2020. It sets explicit goals to improve the health system. The plan, amongst other aims, seeks to build capacity for improvement and prepare health establishments within the quality learning centres for certification by the OHSC and for NHI accreditation (NDOH, 2020).

1.2 PROBLEM STATEMENT

Despite ongoing efforts to reform and improve South Africa's public health system, significant systemic challenges continue to undermine the delivery of high-quality healthcare. Root causes of these challenges include weak governance structures, limited management capacity and inefficient administrative systems that hinder effective oversight and accountability. These structural issues are further compounded by historical and contemporary socio-political factors, which contribute to inequitable resource allocation, persistent human resource shortages and an inappropriate skills mix that affects service delivery, particularly in underserved areas.

In addition, this overall inefficiency and waste has resulted in more medical negligence and malpractice claims, putting an extra burden on the public health sector. Deteriorating infrastructure with inadequate maintenance of health equipment, as well as the fact that health information systems are fragmented (as opposed to integrated) and that the continuity and quality of care are undermined by the absence of evidence-

based decision making, has meant that the development and implementation of responsive health policies are simultaneously hampered. As underscored in the Presidential Health Summit Report (2018), these multiple facets have further contributed to declining service quality (Presidential Health Summit, 2018). Leong et al. (2020), citing Maphumulo et al. (2019), confirm that this decline in the quality of care has undermined public confidence in the health system (Leong et al., 2020; Maphumulo and Bhengu, 2019). The service delivery outcome measures of most of the healthcare quality and safety programmes would appear to have been achieved through the introduction of multiple quality improvement programmes in health, although the outcomes have not led to meaningful and sustainable improvements.

Notwithstanding numerous quality training initiatives implemented across the healthcare sector, the overall quality of care in South Africa's public health system remains suboptimal. This has been consistently documented in both national and international reports, including those by Kruk et al. (2018), who highlight persistent shortcomings in service delivery, safety, and health system responsiveness. These challenges persist despite South Africa allocating approximately 8.6% of its gross domestic product (GDP) to healthcare, with nearly half of this investment directed toward the public sector (Kruk et al., 2018). Although health receives around 15% of the national budget, the sector continues to underperform in delivering value for money and achieving desired health outcomes, largely due to systemic inefficiencies and weak accountability mechanisms (National Department of Health, 2020a).

The private healthcare sector, while well-resourced, is largely profit-driven and dominated by specialised curative services with limited focus on integrated or preventive care. This duality in the healthcare system has contributed to further inequality in health outcomes across the population. Additionally, the escalating cost of poor-quality care has manifested in a sharp rise in medico-legal claims against the public health sector (Hallo De Wolf and Toebe, 2016). Between the 2014/15 and 2016/17 financial years, R2.3 billion was paid out nationally in medical negligence claims, while contingent liabilities ballooned to R56 billion (Bracher and Sithole, 2017; Constitutional Court, 2017). Claims against provincial health ministries increased significantly from R28.6 billion in 2015 to R80.4 billion in 2018, according to the National Treasury's 2019 Budget Review. The total amount disbursed increased from

R498.7 million to R2.8 billion during that time. These concerning figures are linked to poor treatment and errors made by the government, particularly in the area of patient data management (National Treasury Republic of South Africa, 2019).

While the democratic government has made notable strides in expanding access to healthcare services since 1994, the quality of care delivered remains a significant concern. Poor quality healthcare not only undermines patient outcomes and public trust but also imposes substantial economic costs on the health system and the broader economy. These issues underscore the urgent need for evidence-based interventions that focus not only on increasing access but also on improving the competency of healthcare providers and the systems within which they operate.

The inaugural Presidential Health Summit was held for two days in October 2018 in Boksburg in the Gauteng Province. The summit was the beginning of formulating a response to the issue of a South African health system that is in major crisis. The summit struck a balance of representation from an array of constituencies in the public and private health sector in order to reflect, recommend, discuss, and problem-solve the reality we face with the South African health system. The summit established nine commissions for participants to consider and deliberate on during the summit, these massive challenges of the health system comprised of: Health Workforce, Supply Chain Management, Infrastructure Plan, Private Sector Engagement, Service Delivery, Public Sector Financial Management, Leadership and Governance, Community Engagement, and Information Systems (Presidential Health Summit, 2018).

In addition, South Africa has established a quality control and assurance system that measures the quality of health care against national standards to certify health establishments that comply with those requirements. This was an important step towards safety and quality, but it is not adequate to make the adjustments needed to make health care better in South Africa (South African Lancet National Commission, 2019).

Following the presidential health summit and the publishing of the Consensus report of 2019 (South African Lancet National Commission, 2019), a systematic improvement

programme was created and adopted in 2020 as part of the National Health Quality Improvement Plan (NHQIP). The implementation of the plan is driven at national level to encourage staff to focus on continuous quality improvement and to take responsibility for solving problems to keep services operating optimally. The main component of the NHQIP is training and support to enable standards to be met and maintained in existing initiatives such as the OHSC regulatory standards, the Ideal Clinic Framework, and the Ideal Hospital Realisation Programme.

1.3 RATIONALE AND SIGNIFICANCE OF THE STUDY

The National Health Quality Improvement Plan (NHQIP) was created in response to the on-going quality issues that South Africa's public health system faces. The NHQIP is a strategic pathway towards strengthening the capacity of health establishments to achieve minimum quality standards set and certified by the Office of Health Standards Compliance (OHSC). The OHSC is an independent regulatory body that was created to protect the health and safety of people who use health services. The NHQIP aims to institutionalise QI practices in the healthcare system through training and mentoring clinicians, quality managers and quality assurance coordinators at facility, district, and provincial level. This is critical to establishing a system-wide culture of continuous improvement and performance accountability, which aligns with the broader National Health Insurance (NHI) vision.

The rationale for this study is grounded in the recognition that previous quality training programmes have not sufficiently transformed service delivery or resulted in sustained improvements in patient outcomes. Traditional training approaches often lack structured evaluation mechanisms and do not always lead to measurable changes in behaviour or organisational performance. In contrast, this study adopted the Kirkpatrick model of training evaluation, an internationally recognised framework that assesses training effectiveness across four levels, namely participant satisfaction, learning outcomes, behavioural change, and systemic results. By applying this model, the research aimed at generating empirical evidence on the effectiveness of a blended learning intervention designed to enhance the competencies of quality managers and clinicians.

This research is aligned with the objectives of the NHQIP by contributing to the development of a proficient cadre of healthcare professionals who can drive and sustain quality improvement initiatives. It supports the national vision of creating quality learning centres (QLCs) within health establishments that can lead by example in achieving OHSC certification. This study looked at a training programme that is expected to assist healthcare facilities satisfy the quality standards for NHI accreditation. This will ensure that everyone has equal access to safe, effective, and people-centred healthcare services. This study not only fills in gaps in existing practice, but it also helps put national health policies into action that are meant to improve service delivery by establishing long-term capacity for using evidence-based methods to improve quality. The results of the study are likely to have an effect on how training is done, how policies are put into action, and how institutions learn in both the public and private health sectors.

1.4 AIM AND PURPOSE OF THIS STUDY

The aim of the study is to bridge the competency gaps that exist between quality managers and clinicians in patient safety and healthcare quality. In order to improve the provision of high-quality healthcare services and patient safety, the results of this study will also help policymakers in the public and private sectors to further develop or scale up quality improvement trainings based on scientific evidence.

The purpose of this study is to examine the healthcare quality, patient safety and competency gaps amongst clinicians and quality managers and to assess the effectiveness of the training intervention.

1.5 SPECIFIC OBJECTIVES OF THIS STUDY

- To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety using a pre-assessment training questionnaire.
- To bridge the competency gaps amongst clinicians and quality managers by training them using Level 1 and 2 of the Kirkpatrick model of evaluation.

- To evaluate participants' post-training knowledge of healthcare quality and patient safety.

1.6 RESEARCH QUESTIONS

The research question that guides this study is: “What are the healthcare quality and safety competency gaps amongst clinicians and quality managers, and the outcome of the training intervention using Levels 1 and 2 of the Kirkpatrick model”?.

Specific research questions:

- What is the level of knowledge regarding healthcare quality and patient safety within health establishments among quality managers and clinicians?
- What is the level of knowledge with respect to healthcare quality and patient safety competency within health establishments among quality managers and clinicians post-training?
- To what extent can Levels 1 and 2 of the Kirkpatrick model of evaluation bridge the competency gaps amongst clinicians and quality managers?

1.7 RESEARCH PROPOSITION

The proposed study is descriptive and diagnostic in nature, focusing on understanding the current state of healthcare quality and patient safety competencies among clinicians and quality managers. It does not aim to explore cause-and-effect relationships but rather to gather meaningful insights that can inform the design, implementation, and evaluation of targeted interventions. Overall, the objective is to generate evidence that supports the development and refinement of training strategies aimed at strengthening quality improvement capacity within the health system.

1.8 UNDERPINNING CONCEPTUAL AND THEORETICAL FRAMEWORK

A study framework is critical in shaping the development and direction of any research project. As highlighted by Grove, Burns, and Gray (2016), a theoretical framework is a logically organised and connected collection of concepts derived from established theories, which serves as the framework of a study. Alternatively, a conceptual framework is the rationale for the study. The conceptual framework presents the existing state of knowledge in the literature review, identifies areas of limited knowledge, and provides a basis for the choices made in the study method. A conceptual framework answers questions like: "Why is this research important?" and "What contributions might these findings make to existing knowledge?" (Gray et al., 2016).

For this research study, both the theoretical framework of Donabedian and the evaluation model of Kirkpatrick were used to shape the design, implementation, and evaluation of the training intervention aimed at developing healthcare quality and patient safety competencies among clinicians and quality managers.

Donabedian Theoretical Framework

The theoretical foundation for this research is the Donabedian model constructed by Professor Avedis Donabedian (often called the "father of quality in healthcare" (Donabedian, 1966; Rupp et al., 2018)) in the 1950s. The Donabedian model defines quality in healthcare organisations as comprising three overlapping components (Lawson and Yazdany, 2012): structure, process, and outcome.

Structure relates to the resources and conditions in which care, e.g., buildings, staffing, equipment, and training, is delivered.

Process refers to the specific activities, practices, and interventions that lead to care delivery (e.g., treatment protocols, referral systems, and patient engagement).

Outcome refers to the consequences of care, including health status, patient satisfaction, and patient experience of care.

These components interact dynamically. Donabedian posits that sound structures support effective processes, which in turn yield improved outcomes (Donabedian, 1966). In this study, the Donabedian framework enabled systematic understanding of

the where, how, and why quality gaps exist within the healthcare delivery system. As Lorini et al. (2019) affirms, comprehensive quality assessment requires measures from all three domains: structure, process, and outcome (Lorini et al., 2018). These components also provide a useful lens for assessing the workplace performance of clinicians and quality managers, particularly in their pursuit of improved patient outcomes and enhanced care experiences.

Kirkpatrick Model for Training Evaluation

To assess the effectiveness of the blended learning intervention, the study applied the Kirkpatrick evaluation model, which is widely used to evaluate training programmes across four levels:

Level 1 – Reaction: Captures participant satisfaction and engagement with the training experience.

Level 2 – Learning: Assesses the degree to which knowledge or skills have improved as a result of the training (measured through pre- and post-assessment surveys).

Level 3 – Behaviour: Evaluates the extent to which participants apply the acquired knowledge and skills in their work environment.

Level 4 – Results: Measures the broader organisational impact and achievement of intended outcomes.

This study focused on Levels 1 and 2. These levels are appropriate given the study's timeframe and objective to assess immediate outcomes of the intervention. Levels 3 and 4, which require longitudinal observation and broader systemic changes, are acknowledged as areas for future research once participants have had sufficient time to apply what they have learned (Kirkpatrick and Kirkpatrick, 2006).

1.9 LITERATURE REVIEW

The Institute of Medicine (IOM) reports "To Err is Human" and "Crossing the Quality Chasm" have sparked a lot of interest in enhancing quality health outcomes in healthcare organisations across the globe (Institute of Medicine (US) Committee on Quality of Health Care in America, 2000; Naranjo and Viswanatha Kaimal, 2011). Researchers have looked at the quality of health care in high-income nations like the US from the point of view of medical errors. They found that most errors in health care delivery may be avoided (Wang et al., 2017). Even if medicine and technology are getting better all the time and we are learning more and more, a lot of serious harm happen in healthcare organisations globally that could have very serious effects. Bracher and Sithole (2017) note that the UK Centre for Policy Studies says that the cost of medical negligence claims in the UK is more than twice that of the US and is rising by roughly 10% per year.

Many medical practices and risk management steps are making it harder to keep patients safe, and they are a large part of the harm that comes with unsafe care. Infections that develop in healthcare settings (HAIs) are one of the most common safety issues for patients. They are also a major public health issue since they contribute vastly to the burden of harm to patients, and degrade their quality of life. In low- to middle-income countries, there are nearly twice as many HAIs in mixed patient groups as there are in high-income countries (National Department of Health, 2020: 2). Furthermore, the NDOH (2020) cited WHO (2017:12) in its statement which identified five items of effective multimodal improvement strategies aimed at ensuring that infection prevention and control is demonstratively practiced across the health system, one being the education and training of the health worker and stakeholders.

Maphumulo and Bhengu (2019) looked into the problems of improving healthcare quality in South Africa after apartheid. Their study found that many quality improvement programmes had been started, changed, tested, or changed again, but they had not reached the expected level of quality in health service delivery (Maphumulo and Bhengu, 2019). Thus, one of the problems the South African government has to deal with is how to turn its work on the National Health Quality Improvement Plan into achieving the health outcomes of a sustainable health care quality improvement system

The South African president has noted that several organisations have expressed concerns regarding the challenges within the health system. According to the president, this does not imply that the system has fully broken down; it only means it's getting close to a point where it won't be able to provide vital services unless it is well maintained (Presidential Health Summit, 2018:4). What is of importance is that there is political will in South Africa to address the competency gaps that contribute to healthcare quality and patient safety through the National Health Quality Improvement Plan.

Enhancements in patient safety are both a professional and ethical responsibility, but will also have a measurable effect on the financial bottom line of any health care organisation. The health care system's purpose is to improve people's health by providing health services that are comprehensive, integrated, equitable, of high quality and responsive (Mayeng and Wolvaardt, 2015).

In the following section outlines the knowledge, attitudes and practice gaps in quality management practices among healthcare workers which have been identified as important over the years. For instance, in a study done by Patey et al. (2007) in the UK their results, in concurrence with studies from other countries, indicated that medical students do not have a good understanding of patient safety issues, which underlined the need for the development of training. The curriculum that student nurses and medical students have always been exposed to has not covered issues related to healthcare quality and patient safety (Patey et al., 2007a). This is also the case in South Africa as it has been assumed that quality management is a management function and not a critical component of everyday healthcare service delivery.

In a cross-sectional study of clinicians' attitudes regarding patient safety and adverse events in medical practice in Gaza, Bottcher et al. (2019) present as their findings that nurses and physicians generally have positive attitudes towards patient safety, with five of the nine scores above 3.5 out of 5. Although physicians had slightly more positive attitudes than nurses, fewer doctors had training on patient safety (37.5%) than nurses (41.9%). As part of ensuring that clinical practice is above reproach, healthcare providers need to be willing to be more empathic, competent, and

knowledgeable in order to ensure that their clinical practices are beyond question. The training and education that healthcare professionals receive reflects the expectations that they possess the necessary technical skills, medical knowledge, expertise and empathy. However, several reports and studies show that healthcare workers are becoming less empathic, as cited by Kerasidou et al. (2020).

More than half of the nurses had good knowledge and positive attitudes, but only half of them had good patient safety practices, according to a study by Wakefield et al. (2021) that evaluated knowledge, attitude, practice, and related factors with regard to patient safety (Wakefield et al., 2021). Lack of training in quality improvement practices was, however, significantly correlated with attitudes toward patient safety as well as knowledge and awareness of patient safety practices during primary school. Gaalan et al. (2019) also conducted a study to look at the quality of nursing care, the skills of nurses, and the working conditions for nurses in Mongolia. According to Gaalan et al. (2019), the quality of nursing care depends on where nurses work and how skilled they are. They found that the quality of care was higher in better-resourced facilities and among nurses with more advanced skills, while inadequate staffing and poor working conditions were associated with lower-quality care. Since nurses are the foundation of the healthcare system, it is critical to address competency gaps that may be impeding patient experience and health outcomes. Patient safety and healthcare quality are synonymous.

In the United States, the attention on problems in health care has led to suggestions for changes that would make patient treatment safer and better. Moran, Harris, and Valenta (2016) did a literature study and found 17 themes that included 59 competencies at the competent skill level. There were 13 themes spanning 23 capabilities at the expert skill level. Across both skill levels, the most suggested competency was "Evidence-Based Practice." "Interdisciplinary Teamwork and Collaboration" and "Evidence-Based Practice" were also the most popular themes in position papers for the competent and expert levels, respectively. In addition, a number of papers, such as the Institute of Medicine's "Crossing the Quality Chasm: A New Health System for the 21st Century," have urged for changes to healthcare systems to deal with ongoing problems (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001).

As noted by Kruk et al. (2018: 18), data examining quality of care across health system platforms in low- and middle-income countries (LMICs) showed notable variation. These countries made up 66% of the global adverse events burden due to unsafe care, and LMICs had a surgical site infection rate of 6.1 per 100 surgeries compared to 0.9 per 100 surgeries in the US (Kruk et al., 2018). In order to close the quality gap in LMICs, Kruk et al. (2018: 37) stated specifically that these countries should implement universal actions to better define the roles and competencies of their health workforce, and include adapting health workforce education to focus on achieving competency through active learning processes, early clinical exposures, and problem-oriented learning. Competency should be defined with respect to the gaps and needs of each country.

1.10 RESEARCH PARADIGM, APPROACH, DESIGN, AND DATA COLLECTION METHODS

A paradigm is defined as a set of foundational assumptions that shapes a researcher's worldview, guides their approach to inquiry, and influences the choice of methodology (Saunders, Lewis and Thornhill, 2019:140). For this study, pragmatism was adopted. Pragmatism is a worldview that prioritises practical solutions and actions over theoretical absolutes or debates about objective reality (Kelly and Cordeiro, 2020). Rather than being concerned with identifying a single "truth", pragmatism is oriented towards what works best in specific contexts to solve real-world problems (Creswell, 2008; Kelly and Cordeiro, 2020; Patton, 1990).

Feilzer (2010:7), describes the pragmatic approach as flexible, reflexive, and grounded in real-world problem-solving. It supports methodological pluralism, allowing for the integration of both qualitative and quantitative approaches where appropriate (Feilzer, 2010). Morgan (2014) further notes that pragmatism encourages the use of multiple research strategies, including action research, to support evidence-informed decision-making (Morgan, 2014). Kelemen and Rumens (2012), cited by Kelly and Cordeiro (2020), argue that pragmatism urges researchers to focus not on the theoretical value of methods but on their ability to bridge the gap between practice and theory (Kelemen and Rumens, 2012; Kelly and Cordeiro, 2020).

Pragmatism was a particularly suitable approach for this study, which aims to understand and evaluate training interventions in healthcare quality and patient safety. The complexities of the healthcare setting necessitate considering subjective insights together with objective data in order to address the lack of knowledge/competency gaps amongst clinicians and quality managers.

Accordingly, a fully integrated mixed methods design was adopted (Saunders et al., 2019), combining quantitative and qualitative approaches throughout the study. The quantitative component involved the use of structured questionnaires to assess demographic information, years of service, and participants' baseline and post-training knowledge of healthcare quality and patient safety. The qualitative component explored participants' perceptions, responsibilities and reflections on the training content and its relevance to their daily work.

This study therefore adopts a pragmatic research philosophy and, by harnessing the strengths of both methodological traditions, aims to produce systematic, meaningful and actionable evidence for use of research in policy and practice in the South African public health domain.

1.10.1 Research Approach

Mixed methods research was used to collect non-numerical (qualitative) and numerical (quantitative) data. Hence, the study was conducted using both descriptive quantitative and qualitative methods throughout, and this approach is referred to as fully integrated mixed method research design. Regarding the quantitative approach, a structured questionnaire was administered to collect data about demographics, years of service, employment location, and levels of knowledge of the research participants. Qualitative questions were used to collect data associated to their roles and responsibilities, training content, and for analysis of the feedback.

1.10.2 Research Design

A longitudinal pre-post study design was used in which knowledge of the participants regarding quality healthcare, patient safety amongst clinicians and quality managers were measured before and after the intervention. This research design is appropriate since the same participants were studied over a certain period. The study's focus was on assessing the experience and knowledge of participants; and determining whether there was a gap in healthcare quality, and patient safety amongst clinicians and quality managers. Based on the outcome of the pre-assessment, a training programme was implemented. The first two levels of Kirkpatrick's four level evaluation model were used to evaluate the effectiveness of the training intervention (Kirkpatrick and Kirkpatrick, 2015). The effectiveness of the training was determined through the post-assessment questionnaire.

Thus, the proposed research strategy was action research. This type of research is collaborative and both clinicians and quality managers were involved in the research process. Action research is defined as a research strategy that combines research with action and participation. Therefore, it can generate data from many different sources using mixed methods (Morgan, 2014). According to Creswell (2012), action research follows a systematic method of problem identification, collection of data, analysis of data and interpretation. Furthermore, the process is cyclic and involves evaluation and monitoring of actions taken. Creswell (2012) views this process as generating reliable knowledge that can inform the improvement of service provision (Creswell, 2012).

1.10.3 Demarcation of the Study

The training was made available to health care establishments personnel in three provinces as well as to the sub-district, district, provincial and national managers responsible for overseeing quality-related activities.

1.10.4 Research Methods

This study was conducted in three provinces, namely Mpumalanga, Gauteng and KwaZulu-Natal. Participants included in the study were clinicians (medical doctors and

various ranking nurses) and quality managers responsible for providing improvement support at health facilities (300 in total). Non-clinical staff were excluded from the study.

1.10.5 Sample Method

The sample size included healthcare professionals at various centres within the three provinces (300 in total). Using a purposive sampling approach, individuals attending the quality improvement training were drawn from sub-district, district and provincial managers, as well as a small number of participants from national offices.

1.10.6 Data Collection Instrument

Structured questionnaires were used to assess the pre- and post-knowledge of the participants; the questionnaires were self-administered. Prior to implementation of the questionnaire, a pilot study was done to test for validity and reliability of the questions. The subject experts' feedback was used to enhance the development and finalisation of the questionnaire, and this was limited to the content to be covered during the training.

1.10.7 Data Collection Fieldwork

The questionnaire was developed and validated before distributing it to the major group of participants. The research study used an integrative mixed methods approach that included both quantitative and qualitative research methods. The questionnaire was employed to collect numerical data and non-numerical data. Numerical data was collected using quantitative methods. For non-numerical data, a qualitative structured questionnaire that lists phrases and questions was used.

1.10.8 Data Coding Analysis

To analyse and interpret the quantitative data, descriptive statistics were used to summarise and present key characteristics of the dataset in a meaningful and interpretable manner. The analysis incorporated measures of frequency (counts and

percentages), measures of central tendency (mean, median, and mode), measures of dispersion or variation (range, standard deviation, and variance), and measures of position (percentiles and quartiles). Each of these measures enabled description of aspects of participant demographic characteristics, baseline knowledge, and post-training measures about quality of care and patient safety.

The qualitative data was analysed and interpreted using a structured qualitative protocol, summative content analysis was applied as described by Vaismoradi, Turunen and Bondas (2013). This analytical approach includes categorising and quantifying explicit words or content in the text to understand usage and frequency. Following this, an interpretive phase explored the contextual meaning behind the identified patterns and codes. The process involved categorising, coding, and systematically interpreting the data to uncover recurring themes and insights that reflected participants' experiences, perceptions and responses related to the training intervention.

This integrated analysis approach allowed for a comprehensive understanding of the data, where quantitative findings provided measurable evidence, and qualitative insights deepened contextual understanding, particularly regarding the impact, relevance, and applicability of the training intervention.

1.11 ETHICAL CONSIDERATIONS

1.11.1 Informed Consent

The participants were adults who were able to consent to participation in the study. Ethical approval for conducting the study was obtained from the Cape Peninsula University of Technology (CPUT) (Ethics Certificate Clearance Number: 2021 FBMSREC 078) (Annexure A). A letter of support was also obtained from National Department of Health (Annexure B). Each of the participants received an information leaflet which provided them with sufficient information about the proposed study to prepare them for giving informed consent. The contact details of the quality coordinator and the researcher were shared in case the participants had questions about the

research. All participants who gave consent were enrolled in the study and the questionnaire was self-administered.

1.11.2 Participants' Right to Privacy; Right to Confidentiality and Anonymity

The study protected the rights of all the participants who took part. Their demographic information was kept separate and not shared. Before each group discussion, it was made clear how important it was to keep the other participants' information private. The participants who took part were told that any identifiers that could be used to find them would be erased from the audio files and any papers or theses that came out of the study. It was made clear again how important anonymity was by saying that nothing the participants stated would be linked to him/her without first asking for and getting consent.

1.12 LIMITATIONS OF THE RESEARCH STUDY

While this study was anticipated to yield valuable understandings into the effectiveness of a blended learning intervention to enhance quality healthcare and patient safety competencies among clinicians and quality managers, certain limitations have to be acknowledged.

Firstly, the pilot training was designed to run over a six-month period to allow for flexibility; however, the extended duration increased the likelihood of participants attrition. Given that the target participants were full-time employees in demanding healthcare roles, the risk of dropout due to fatigue, competing work pressures, and time constraints was high. This may have resulted in a reduced sample size - further limiting the generalisability of the findings

Secondly, the requirement to complete assessment questionnaires before proceeding to the next module, while essential for evaluating training effectiveness, may have served as a deterrent for some participants. A compulsory assessment process might have added to cognitive load and contributed to lower completion rates.

In addition to this, technological challenges such as lack of access to electronic devices and unreliable internet connectivity, particularly in under-resourced contexts, may have also reduced full participation in the online learning components, which may have limited the intended reach and equity of the training programme.

There was also the potential of staff mobility within the health system as another risk. It could have been the case that participants transferred to other facilities or were promoted into new positions during the training period and could no longer take part in the whole course, ultimately resulting in disrupted continuity that affected the final evaluation outcomes.

Despite these constraints, mitigation strategies such as continuous support, regular reminders, and flexible engagement schedules were put in place to encourage retention and participation. Nonetheless, the limitations should be considered when interpreting the results of the study.

1.13 SUMMARY OF THE RESEARCH

Chapter One – Introduction

This chapter provides an overview of the research study, summarises each chapter and provides a brief description of the research methodology.

Chapter Two – Models and Theories

This chapter describes the research models and the conceptual framework that guided the study.

Chapter Three – Literature Review

This chapter offers a literature review on healthcare quality, patient safety and the competency gap among clinicians and quality managers, nationally and internationally. The literature review analyses and synthesises relevant literature to understand the gap in healthcare quality and patient safety knowledge amongst clinicians and quality managers.

Chapter Four – Research Design and Methodology

This chapter discusses the research plan in more detail. It includes the research process used to bridge the healthcare quality, patient safety, and competency gaps among clinicians and quality managers. The chapter also describes the purpose, objectives, research questions, and methodology.

Chapter Five – Quantitative Data Analysis

This chapter highlights critical competency gaps among clinicians and quality managers in healthcare quality and patient safety, emphasising the inherent risks posed to patient care.

Chapter Six – Qualitative Analysis

This chapter goes beyond the themes that came up from the study data presented in Chapter Four to get an understanding of the wider meaning of the results. The study findings highlight the significant impact of structured training interventions in enhancing healthcare quality and patient safety competencies among clinicians and quality managers

Chapter Seven – Conclusions and Recommendations

This chapter discusses the findings in relation to the objectives of the research and gives recommendations. It also presents the framework to be used to bridge healthcare quality competency gaps among clinicians, quality managers and healthcare professionals in the South African health care system, including in the Low Middle-Income Countries.

CHAPTER TWO

MODELS, THEORIES AND FRAMEWORKS

2.1 INTRODUCTION

This chapter addresses the healthcare models, theories and frameworks that contribute to the existing body of knowledge and identifies the conceptual model appropriate for this research.

The history and background of South African healthcare and healthcare quality is first discussed to provide context. Models of quality healthcare are discussed followed by theories and frameworks of healthcare quality. Also included is a tabulation of various theories and models of South African health care quality, common descriptions, the purpose of each focus and the dominant theoretical basis of each, indicating its suitability for this study or not. I conclude by summarising the models and theories that guided the study.

2.1.1 The historical background of South African healthcare

Presently the greatest challenge facing public and private health sectors is delivering safe and quality care in complex, pressurised and changing healthcare environments. The emergence of the COVID-19 pandemic in 2020 aggravated the situation. South Africa has seen an alarming increase in medical malpractice lawsuits (Leong et al., 2020; Pienaar, 2016). The result of poor-quality health care in South Africa has contributed to less funding being available for efficient service delivery, resulting in increased negligence, and rising claims, thus continuing a vicious cycle. Consequently, most provinces are facing significant liabilities estimated at up to 10% of their provincial operating budgets (Maphumulo and Bhengu, 2019).

2.2 SOUTH AFRICAN HEALTHCARE QUALITY

There are a lot of well-known challenges in providing health care in South Africa. These include the inheritance of a grossly inequitable and fragmented health system from historical administration, a quadruple burden of disease, comprised of communicable diseases (mainly HIV/AIDS and TB), maternal and child mortality, non-communicable diseases and injuries and trauma, a critical shortage of healthcare providers, a health system characterised by ineffective leadership, a lack of accountability at all levels and low morale amongst overburdened health care workers working against impossible constraints. These constraints have resulted in an exodus of staff from the public to private sector or to other countries, with those remaining behind often providing poor standards of care (Benatar et al., 2018).

In the private sector, healthcare costs are escalating exponentially, out of alignment with local inflation and global healthcare costs. This is driven in part by perverse incentives operating in the private sector, resulting in over-servicing of patients with associated increased risks arising from unnecessary healthcare interventions (Vian, 2008). This in turn results in the exhaustion of patients' medical aid/schemes, and referral of such patients to the overburdened public health system for further care. Furthermore, patients who experience complications in private hospitals will often require care at publicly funded tertiary and central hospitals. These consequences represent additional strain on an already critically overburdened system (Sehlabaka, 2023).

Since 1994, the government has made significant strides to strengthen the health system in order to enhance the quality of health services. The healthcare system has been changed from a hospicentric system that is purely clinical, to a primary health care approach that is more holistic and patient-centred. Primarily the focus was on improving access to health care, which has largely been achieved nationally. The focus has shifted to making health care services acceptable in recent years. Lohr and Schroeder (1990) describe quality in healthcare as the level to which health services for individuals and populations raises the probability of desired health outcomes, in line with current professional knowledge and evidence-based practice (Hughes, 2008;

Lohr and Schroeder, 1990). This definition shows that quality of care can be measured, and patient safety is critical to creating trust in the health services.

The most significant reforms in South Africa have been driven by the need to implement national health insurance (NHI) to ensure that all South Africans can get quality healthcare based on their requirements, regardless of their income. NHI is a health financing model that is very important for improving quality and getting everyone covered by health insurance. I discuss South African legislative reform in the next chapter. The next section defines and discusses models of healthcare quality.

2.3 MODELS OF HEALTHCARE QUALITY

Models in healthcare refer to structured, descriptive processes that outline how specific phenomena or outcomes occur without necessarily explaining the underlying reasons for these occurrences (Simpson and Richards, 2015). These models serve as frameworks that guide the understanding of complex systems and interactions within healthcare delivery such as patient care pathways, resource allocation, or quality improvement strategies. Adom, Hussein, and Agyem (2018) emphasise that both theoretical and conceptual frameworks play a crucial role in grounding research within established theoretical constructs. These frameworks not only define the direction of research but also ensure its rigour by providing a clear foundation that extends existing knowledge (Adom et al., 2018). In healthcare, models and frameworks are essential tools that stimulate research by offering structured approaches to investigating and solving complex problems. They provide the necessary conceptual clarity to guide the development of interventions, the assessment of outcomes, and the advancement of evidence-based practice, thereby contributing to the overall improvement of healthcare quality and patient outcomes.

According to Imenda (2014), a theoretical framework is a theory that a researcher chooses to guide the research. It is the application of a theory or theories to a set of concepts. Therefore, a conceptual framework is defined as the outcome of integrating several interrelated concepts to provide a more comprehensive perspective on a specific research issue (Imenda, 2014). This chapter explores the following models:

learning collaborative model; plan-do-study-act model; Donabedian model; competency-based model; and the Kirkpatrick model.

2.3.1 A Learning Collaborative Model

The learning collaborative approach is an improvement model that helps organisations eliminate gaps in patient safety and healthcare quality by sharing what they know and learning from one other and, when appropriate, from experts. It is a short-term learning method or system that brings together teams from different health facilities to work on making one specific area better (Britto et al., 2018). The Institute for Healthcare Improvement (IHI) and the Breakthrough Series Learning Collaborative Model are two examples of these kinds of models. The Institute for Healthcare Improvement created and launched the Breakthrough Series Collaborative concept in 1995 to share information and best practices (Nembhard, 2009). The IHI collaborative model has supported improvements in healthcare quality ever since (Leape, 2021a). The collaborative model aims to close the gap between what the healthcare professional knows and what they do by creating short-term learning systems and teams built from different healthcare settings (Britto et al., 2018). In South Africa, IHI worked with the Best Care Always campaign, which aims to help South African hospitals utilize evidence-based methods to lower the number of infections that patients get while they are in the hospital and make sure that antibiotics are used carefully. Best Care Always started in 2009 to help private hospitals. In May 2010, it was expanded to cover public sector hospitals as well (Barker et al., 2016; Kantor et al., 2011).

The project was deemed successful, largely due to the continued coaching and support provided by the IHI, which ensured its sustainability. However, certain barriers within the collaborative learning model and breakthrough series emerged as significant concerns. One issue was the shortage of staff, leading to the perception among existing personnel that participating in the collaboratives was an additional burden rather than an integrated part of their work. This challenge was exacerbated by overcrowded facilities and increased patient load, which left staff without adequate time to engage in collaborative efforts. Furthermore, a lack of leadership support, particularly the absence of dedicated quality coordinators or managers, hindered the

ability to effectively analyse and utilise the data collected from the facilities for improvement. Competing priorities within the healthcare system also contributed to the de-prioritisation of quality improvement activities, despite user feedback or rising complaints about the quality of care, ultimately affecting the provision of acceptable quality services (Institute for Healthcare Improvement, 2003; Kantor et al., 2011; Newton et al., 2007).

If the collaborative model is created or modified in accordance with the environment and difficulties faced by healthcare facilities, it can still be made better. Mate, Williams, and Laderman (2015) note that while many collaboratives have succeeded more than others, the objectives remain unmet. This was ascribed to the significant variance in the innovative global collaborative application. Its meaning and results have also been obscured by the variations. The research study from 2015 suggested that the Institute for Healthcare Improvement go back to a much stricter design, requiring in-person community formation, careful topic selection, a data platform and participation requirements (Mate et al., 2015).

In summary, the advantage of the collaborative model is that it works well in lower levels of care where initiatives are coordinated by external stakeholders and are viable and effective tools for improvement work in the developing countries. The disadvantage of the collaborative model is that it needs conducive work environments supported by leadership and management buy-in to be implemented efficiently and to enable rapid spread of learning (Newton et al., 2007). Based on the barriers discussed above, the collaborative model implementation remains a challenge in most low- and middle-income countries where quality improvement budgets will always be reprioritised or moved to other programmes. The managers responsible for healthcare quality and safety should also be involved in collaborative learnings to provide support in the quality and safety work to influence interventions (Johannessen et al., 2021).

In the next section the model for improvement, which has two mechanisms, is discussed. The first is known as the three questions, followed by plan-do-study-act implemented by keeping cycles to a small scale to avoid major disruptions to the local system.

2.3.2 Plan-Do-Study-Act Model for Improvement

This model is commonly used as a quality improvement approach in healthcare.

As indicated above, the three questions that quality experts added to the plan-do-study-act (PDSA) model are: what needs to be done; how will it be recognized if a change is an improvement; and what modifications need to be made to make things better (Langley et al., 2009). The PDSA cycle is a systematic process for obtaining useful learning about how changes will operate when they are implemented on small scales in local systems.

The PDSA cycle is a simple way to help clinicians and quality managers to answer the three fundamental questions when they introduce a new activity or change, using an effective method to learn and assess changes in their own settings. The idea behind the PDSA cycle is to use the systematic method of experiential learning to organise the process of enhancing the quality of healthcare. The PDSA cycle is an improvement process based on an understanding of the theory of knowledge (Taylor et al., 2014). W. Edwards Deming's (2000) theory of knowledge states that "understanding the difference between theory and experience prevents shallow change. Theory requires prediction, not just explanation. While you can never prove that a theory is right, the possibility of proving it wrong must exist by testing its predictions". This is the centralised idea in implementation of the PDSA cycle (Deming, 2000:93-95). The PDSA cycle has been endorsed by the Institute for Healthcare Improvement and remains one of the most commonly used problem-solving methods, which is widely applied in health care because of its flexibility and practicality (Connor, 2021; Hughes, 2008).

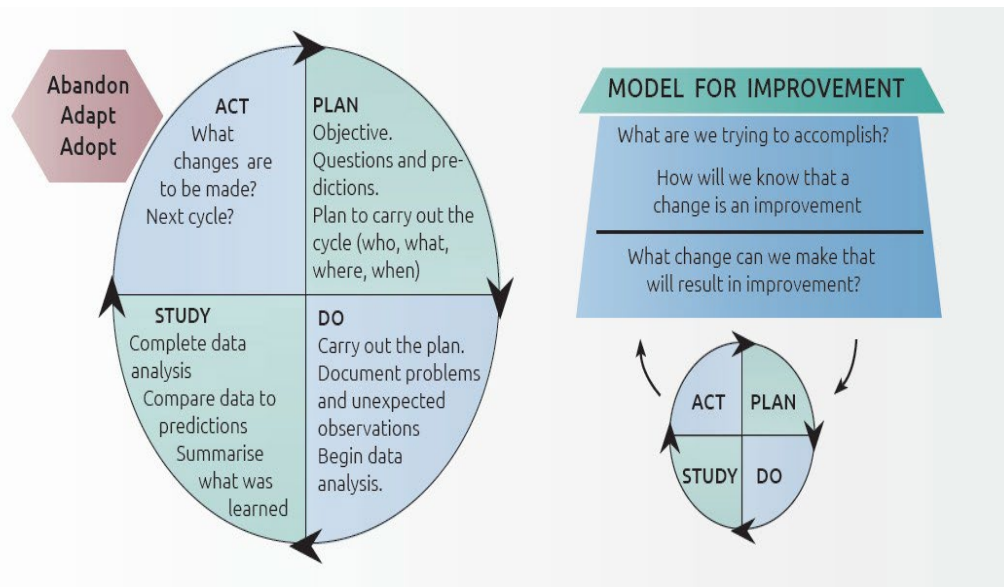


Figure 1: PDSA and model for improvement

Source: Adapted from Langley G.L. Nolan K.M. Norlan T.W. Norman C.L. Provost L.P The Improvement Guide: A Practical Guide for Enhancing Organisational Performance (Langley *et al.*, 2009: 23-24).

PDSA cycles in healthcare let modest changes be executed, tested, analysed, and changed before they are used on a wider scale. The PDSA cycles technique is an acceptable way to make changes because it is low-risk and involves testing and analysing on a small scale. The approach allows you to test predictions in real life by collecting data, which makes it more likely that team members would agree with the changes. It also supports change to happen slowly, which is more acceptable to organisations. Following the training provided to bridge healthcare quality, safety and competency gaps, quality managers and clinicians will be expected to apply the framework discussed above to implement the project to improve healthcare quality and safety and improve health outcomes.

For clinicians and quality managers to introduce the necessary changes to be implemented, the environment must also be supportive, and employees should be able to commit to it. However, problems like not having enough staff and not getting enough support from leadership have made it even harder for healthcare professionals to work together. The organisational culture should be able to welcome any changes to be introduced and tested on a small scale to ensure that services are not disrupted (Newton *et al.*, 2007). The PDSA allows for any change in the system to be tested in real settings, planned, tried, and analysed to ascertain whether the changes

introduced will yield positive outcomes and act on what has been learnt. The PDSA is also known as action-oriented learning. For theories to be beneficial, they should also be able to scale up and improve other steps within the health system. Wong (2018) states that the best theories for public health research are those that give explanations, knowledge, and/or "predictions" that may be used in different situations (Wong, 2018).

The PDSA approach has been used in healthcare since the 1990s, and there have been a number of quality improvement programmes based on it. However, the research shows that there isn't much evidence that it works (Knudsen et al., 2019). Most of the reported PDSA programmes have had problems because of poor design, not enough data analysis, and not enough reporting (Portela et al., 2015). A systematic review from 2013 found that only two of the 73 projects that reported they used the PDSA cycle did so in a way that followed the methodological guidelines. These methodological flaws made people more aware of how important it is to be more careful when doing and reporting PDSA-based initiatives (Reed and Card, 2016). There is an argument among scholars on whether the idea of PDSA is easy to understand but hard to put into practice (Knudsen et al., 2019).

One of the challenges in implementing the PDSA cycle for improvement in health establishments was an environment which needs to be prepared for its implementation. For example, the cycle requires teamwork, and due to overcrowding in health facilities and human resource challenges, most clinicians, in particular the doctors, are not able to participate in quality improvement initiatives (Reed and Card, 2016). The model requires the identification of problems through the use of quality improvement tools such as Six Sigma and the Five Whys root cause analysis. Successful implementation of these tools necessitates that healthcare workers engage in collaborative brainstorming sessions to accurately identify root causes. However, the correct application of the PDSA method continues to be a challenge in many healthcare settings. The PDSA cycle, when used effectively, can offer valuable insights into how an intervention might work within a local context. To maximise the benefits of this approach, careful attention must be paid to key structures such as making predictions, conducting small-scale tests, continuously gathering and using data and recording the results to facilitate potential scaling. One significant advantage

of the PDSA model is that it allows changes to be tested and implemented on a small scale before being scaled up, thereby minimising the risk of large-scale disruptions to services (Taylor et al., 2014).

However, in facilities where there is a shortage of staff, the team-based approach of PDSA presents challenges, as the continued provision of services must remain a priority. People often don't realise how much knowledge, skills, and resources are needed to put PDSA into practice in the real world. This leads to projects that are designed to fail. Additionally, clinicians often find it difficult to participate in meetings that involve lower-level staff, stemming from their professional orientation where patient care is viewed as their primary responsibility. Furthermore, many clinicians, particularly physicians, along with healthcare institutions, often perceive performance measurement as an administrative burden rather than an integral part of their practice (McNicholas et al., 2019). While the PDSA model may not be fully suitable for this study, it offers a valuable structure for initiating change by posing three critical questions, as previously discussed. Moving forward, the Donabedian model, which focuses on inputs, processes, and structure, will be examined. Though an older model, it remains relevant for measuring healthcare quality.

2.3.3 Donabedian Model

In the past few years, there have been more efforts than ever to quantify the quality of healthcare and link these metrics to better care. There have been a variety of discussions about which "dimensions" of quality to measure, whether to focus on processes or results, and how to relate measurement to action through policy, professional, and managerial controls. This is because the methods and practicalities of these initiatives are so complicated. (Raleigh and Foot, 2010). Initially, the Donabedian model was applied as a theoretical framework to help conceptualise how to assess healthcare quality. Before its development, quality assessment was relatively unstructured, and there was no standardised method to categorise various aspects of care. Donabedian's model provided clarity by proposing a straightforward and systematic way to measure healthcare performance.

It was primarily used by healthcare administrators, regulators, and researchers to evaluate quality across different care settings such as hospitals, clinics, and nursing homes. The model facilitated the development of quality assurance programmes and accreditation standards in healthcare organisations worldwide (Panteli et al., 2019). Today, the Donabedian model remains a cornerstone of quality improvement in healthcare. Its modern applications include accreditation and regulatory compliance. Healthcare facilities use the Donabedian framework to meet the standards set by accreditation bodies. The model guides the assessment of structural components such as staffing and facility resources, and process components like adherence to clinical guidelines.

The model informs quality improvement initiatives to enhance patient care. Hospitals and healthcare systems use it to analyse which structures and processes need improvements to achieve better outcomes such as reducing infection rates, enhancing patient safety, and improving overall patient satisfaction. With the rise of performance measurement and value-based care, where payment is linked to quality outcomes, the Donabedian model provides a useful framework for healthcare organisations to measure and report on outcomes, ensuring they align financial incentives with quality care delivery. In public health, researchers use the model to investigate the relationships between the structure, process, and outcomes of healthcare systems. This helps identify gaps and design interventions that enhance care quality. The model's simplicity and broad applicability continue to make it a vital tool in healthcare quality improvement efforts, both in policy development and day-to-day clinical practice (Bucci et al., 2014; Getachew et al., 2020).

Donabedian's simple system (1966) mentions that every healthcare system can be broken down into three parts: structure, process, and outcome. The Donabedian framework has been an essential way to look at how organisations provide medical care since 1975.

Figure 2 below shows the Donabedian model incorporating the three components.

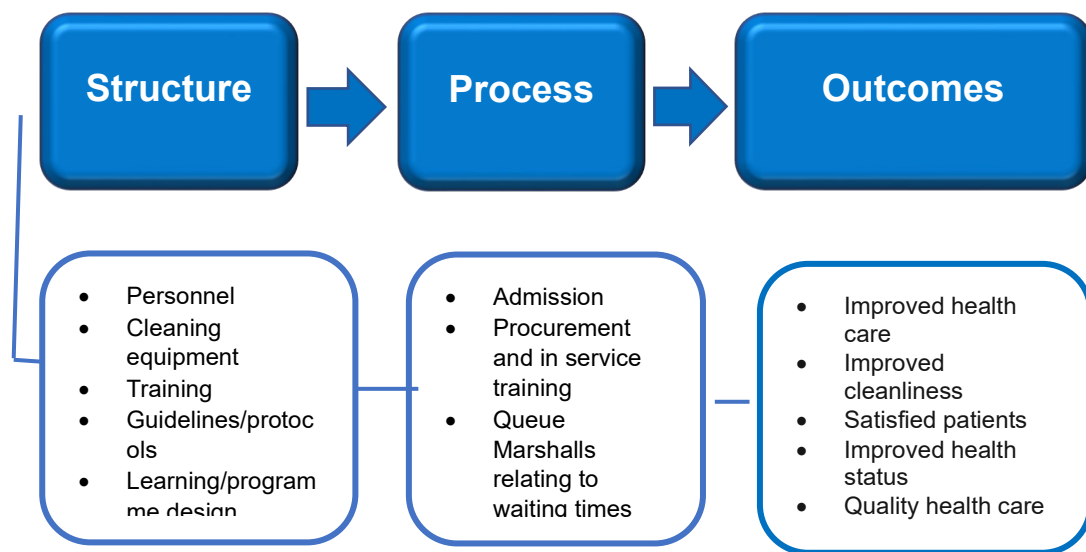


Figure 2: Donabedian Model (Researcher's own graphic)

Each of these components has a number of definable measurable aspects. The model compares actual performance against the expected standard, and identified gaps are where quality improvement work should start

Structure refers to how care is organised and the setting where the care is delivered, including the qualifications of the providers and managerial systems through which healthcare can take place. *Process* refers to all the activities put into healthcare practice (or undertaken) during the delivery of care from diagnosis to treatment. *Outcome* refers to what happens to patients' health status because of care delivered, and seeks to capture whether the aspects in relation to goals of care were achieved. These three components are imperative for evaluation of services and quality of care. There are a number of quantifiable parts in each of the components that can be clearly characterized. One way to look at structure is to think about the quality of the healthcare system in which clinicians operate by looking at their training, experience, and education. In the process component, one may calculate the variation in current procedures performed compared to a standard set of steps for the same, as another attribute of the total quality of that health care system. Lastly, one way to judge the quality of a health care system is to look at how well patients feel about the care they received at the health facility.

A Donabedian quality indicator framework was used to rank the quality of health care in a health facility in the East Gojjam zone of the Amhara Regional State in Ethiopia as unsatisfactory compared to national norms (Sharew et al., 2020). The study suggested that the minister of health, the regional health bureau, and the zonal health offices should make vigorous and concerted efforts to implement facility structure settings that met national standards. These settings should include a pharmacy unit, a triage system, infection prevention practices, a delivery unit organisation, a management system, surgical theatres, and a laboratory unit. Also, customers who went to health facilities with standard facility buildings were more likely to be happy with the health care system than clients who went to health facilities with inferior health facility structures (Sharew et al., 2020).

Ameh et al. (2017) found seven important factors that determine the quality of healthcare: efficacy, effectiveness, efficiency, equity, optimality, acceptability, and legitimacy. Efficacy is hard to evaluate, but it refers to the delivery of treatment in the best possible conditions. It is used as a standard to judge how well healthcare is working. Effectiveness looks at what really happened as a result of healthcare interventions. Efficiency is all about lowering expenses without sacrificing the quality or results of care. Equity means that healthcare resources should be fairly spread out among all people. The best way to think about optimality is as the balance between the costs and benefits of healthcare services. Acceptability includes both how easy it is to get healthcare and how well patients and providers get along with each other. Finally, legitimacy looks at how socially acceptable healthcare organisations are and how ethically treatment is given (Ameh et al., 2017). One problem with using the model is that health care professionals have seen this kind of measurement as a task that has little to do with patient care and have said that they are too busy with the care of patients and that the institution should deal with systemic issues. One may also argue that all of the elements mentioned above directly affect the patients and speak to the settings and factors that affect quality enhancement.

The Donabedian conceptual model was appropriate for the research study as it aimed to bridge the competency gaps in healthcare quality and patient safety among clinicians and quality managers and to assess the effectiveness of the training. In healthcare, the team that gets the best results pays the most attention to putting in

place crucial structural aspects, assessing the outcomes they get as a result, and making sure that care processes are dependable, effective, and efficient. Lastly, the finest healthcare organisations take responsibility for measuring quality in their own communities and do it proactively, not reactively, when outside stakeholders ask them to. The advantage of the Donabedian model is that it demands that structure, process, outcome and patient experience of care be implemented for better health outcomes across all health services. This section has discussed the Donabedian model and its three interactive components. The structure which is the physical environment has significant influence on the outcomes on safety and human performance. In addition, technology, systems, processes and even equipment also affect patient safety and quality. Failure to implement a structured model with clear systems and measures is likely to result in poor outcomes for patients as well as diminished health care quality. The next section focuses on the competency-based model which forms part of the Donabedian model and part of behaviour changes which can be measured in the workplace.

2.3.4 Competency-Based Model

According to Moran, Harris and Valenta (2016), a common definition of competency is the ability of a health professional to combine different parts, such as knowledge, abilities, beliefs, and attitudes (Moran et al., 2016). Melnyk et al. (2017) quote the American Nurses Association (2010) as saying that competency is an expected and measured level of nursing performance that includes knowledge, skills, abilities, and judgment, based on established scientific knowledge and standards for nursing practice. Competencies are evolving and reflect the diverse needs of context in which learning occurs (American Nurses Association, 2010; Melnyk et al., 2018). Competency is defined by knowledge and skills but is also the application of a combination of knowledge, skills, abilities, experience, behaviours and attitudes at work (Zhao and Carlton, 2015). However, competency changes with experience and setting and is therefore the ability to select all the appropriate sets of knowledge and skills that a professional has acquired during their training to apply to a unique set of health problems or a unique situation within their environment, for example where system and process issues have failed and need to be addressed. The Kirkpatrick

Level 3 (behaviour change model) is essential in the evaluation of theory and practice, and this is discussed in detail in the next section. However, the focus of this research is exploring the effectiveness of the first two levels which are participant reactions to training and learning as a result of training.

Conditions for learning include content, strategies, instructional material, time, facilities and healthcare teams and systems. In addition, the context for learning includes organisational values, culture and change (de Kok et al., 2023). The traditional education and training of nurses and doctors provide a strong foundation of prerequisite knowledge essential for professional practice. However, concerns have been raised over the years regarding the ability of these trained professionals to effectively apply their knowledge in clinical settings. While traditional training imparts fundamental knowledge, basic skills, and theoretical behaviours expected in the workplace, it often fails to bridge the competency gap. This gap arises from the inability of formal education to fully substitute the experiential learning that comes from applying knowledge and skills in real-world settings (Ameh et al., 2017).

The conventional approach to training, applied by most universities, places responsibility on lecturers or instructors to determine learning objectives, task assignments and feedback mechanisms. However, these objectives are often unclear; the tasks provided may lack relevance to the learners' interests, and feedback frequently focuses on content rather than the application of skills. Consequently, the practical application of knowledge is rarely emphasised, leaving graduates underprepared for the complexities of clinical practice. For example, doctors are highly skilled professionals who have been trained to operate independently, treat patient as individuals, and to modify their decisions as and when necessary (O'Sullivan et al., 2012).

As a result, doctors frequently oppose procedures and uniformity because they have traditionally practised independently in healthcare settings. Teamwork and effective communication are essential for creating a safe environment, yet these two skills have not historically been prioritised in medical training and education.

Alternative curriculum models have emerged to address these limitations, particularly by integrating clinical practice into nursing and medical education. Bordage and Harris (2013) conceptualise curriculum as a framework composed of five key elements: competencies to be acquired, learners, assessment, conditions for learning, and the socio-political and cultural context in which learning occurs. A range of curriculum types is offered across medical and nursing schools, including outcome-based, problem-based, process, community-based, concept-based, and competency-based curricula (Bordage and Harris, 2011).

An outcome-based curriculum focuses on planning instruction around clearly defined learning outcomes (Gruppen and Gruppen, 2012). A problem-based learning curriculum emphasises preparing students not only to understand clinical principles but also to master the practical application of these principles (Bordage and Harris, 2011). The process curriculum is concerned with how students learn and their overall development as individuals. Community-based curricula involve the community in the development process and promote a multidisciplinary approach, while concept-based curricula organise content around core concepts to facilitate deeper understanding (Dube and Mtshali, 2024).

In this research, the focus is on the competency-based curriculum, as it aligns closely with the research topic. This model emphasises the acquisition of competencies that are directly applicable to clinical practice, bridging the gap between theoretical knowledge and real-world skills. Through a competency-based approach, educational programmes can better prepare nurses and doctors to meet the demands of the healthcare environment, ensuring they are both knowledgeable and proficient in the application of their skills (Ameh et al., 2017).

A competency-based curriculum focuses on the multifaceted results of learning, which include information, attitudes, and abilities that learners can use, rather than just what they are supposed to learn about traditional subject matter. A competency-based curriculum is focused on the students and may change to meet the requirements of the students, teachers, and society as a whole. Learning activities and settings are chosen so that students can learn and use what they know, how to do things, and how to think about things in real-life scenarios. In this case, the students will use them in

health care settings (Dube and Mtshali, 2024). Based on the definition by Tanner and Tanner (1995), a curriculum refers to a structured set of educational experiences and goals, deliberately organised through a thoughtful reworking of knowledge and learner experience, all facilitated by the school to support the learner's ongoing and intentional development in personal and social skills (Tanner and Tanner, 1995). There are usually a few essential skills that the curriculum is built on. These can be cross-curricular or subject-specific. It starts with breaking down general skills into specialised topics, setting performance standards, making learning experiences, testing skills, and judging how well the curriculum works.

The challenges in healthcare and the high litigation in medical health require a shift in curriculum training. Informed by the literature review, it seems that no professional curriculum adequately prepares healthcare practitioners/clinicians with all the competencies required to provide quality healthcare. Training and development have to be supplemented in the workplace to increase employee performance and motivation. However, these trainings have always focused on theory with the hope that employees will transfer their knowledge into practice. It has been argued that knowledge alone does not include all the attributes that comprise competence, which is a combination of knowledge, skills and attitude. For clinicians to reach their pledge of helping patients, they must develop practical competencies and a sense of professional identity (Fergusson et al., 2020; Institute of Medicine (US) Committee on the Health Professions Education Summit, 2003).

Effective interventions in health services need to translate into meaningful patient care outcomes. Healthcare is a complex environment and there is an increasing need for interdisciplinary working and leadership capabilities. However, to make mistakes is inescapably human and expecting flawless performance from human beings working in complex and often swiftly changing environments is impractical. The reality of today's healthcare environment is that the systems that support patient care are complex and error-prone, and most organisations lack comprehensive methods for making them less so (Bendowska and Baum, 2023a).

In 1999, the Institute of Medicine's (IOM) 'To Err Is Human' report stunned the US with its estimate that at least 44, 000 and as many as 98 000 people were dying in hospitals each year as a result of preventable medical errors (Frankel et al., 2017). Two decades since the IOM released its report (Institute of Medicine (US) Committee on Quality of Health Care in America, 2000), patient safety has garnered a great deal of attention globally. While many strategies have been developed that promote safe healthcare practices in the United States and the developed world, low-and middle-income countries face a unique set of challenges in delivering healthcare. These challenges often increase the likelihood of adverse events and create environments where not many evidence-based safe healthcare practices are implemented. Moreover, there is a paucity of data on evidence-based strategies for improving patient safety.

According to Morris, Otto, and Golemboski (2013), during a summit convened by the Institute of Medicine to identify strategies for developing appropriate skills to enable practitioners to close the gaps in healthcare delivery and patient safety, five competencies were identified as necessary. They were:

- Practicing evidence-based medicine
- Implementing quality improvement methodologies
- Using appropriate information technology
- Delivering patient-centred care
- Working as part of multi-disciplinary team.

These competencies are quintessential to improving delivery, quality and safety (Morris et al., 2013). The literature also states that consistent implementation of evidence-based practice competencies leads to high-quality safe care, improved patient outcomes and reduced costs (Melnyk et al., 2018). Furthermore, evidence-based practice empowers clinicians and leads to higher levels of engagement, teamwork and job satisfaction (Kim et al., 2020; Melnyk et al., 2010). The available evidence however reveals that safety among African countries is highly varied and not well-documented. Dadich and Doloswala (2018) remark that the conversion of knowledge from literature to the patient's bedside is crucial to public health (Dadich and Doloswala, 2018). Yet despite the increasing number of evidence-based practices

and the significant allocation of public resources towards them, clinicians do not consistently translate the evidence available to them into patient care. The participants who are clinicians and quality managers would be expected to translate knowledge into practice once they are back in their work environments. It is also known that this translation of knowledge into practice might be influenced by patient preferences, available resources and the context of care, leadership style, and organisational culture (de Kok et al., 2023).

As mentioned above, historically various trainings have been provided by different local and international organisations on quality improvement methodologies, and the challenge has been evaluation of their effectiveness (Hughes, 2008). For example, the IHI has worked with healthcare providers and health systems throughout the world to accelerate the measurable and continual progress of patient care. In South Africa, the Institute for Healthcare Improvement (IHI) started in 2004 and has partnered with the Department of Health in various districts, and non-governmental organisations to shape the capacity of health care providers in quality improvement methodologies to accelerate HIV services, amongst other initiatives. Success stories have been documented by institutes like Aurum (an institute with a mandate on focused innovative approaches to improve global health) and the Best Care Always programme, following working closely with IHI in implementing improvement projects (Kantor et al., 2011; Leape, 2021a; Mate et al., 2015). The most significant challenge is the necessity to improve performance at every level of the health system and to scale up quality improvement efforts.

The Lancet Global Health Commission Report (2018) states that competency should be defined by the gaps and needs of each individual country and include domains beyond the technical skills of providers. The report further stipulates that ethical, respectful and compassionate care, the fundamentals of systems thinking and quality improvement should be additional competencies (Kruk et al., 2018).

This section has focused on competencies required to provide safe quality healthcare. The next section focuses on the Kirkpatrick model for the evaluation of training interventions aimed at developing actionable knowledge in the work environment.

2.3.5 Kirkpatrick Model of Training Evaluation

The Kirkpatrick evaluation model is a widely recognised framework for evaluating the effectiveness of training programmes. Developed by Donald Kirkpatrick in 1959, the model assesses training outcomes across four levels, offering an organised approach to understanding the impact of educational interventions. The original model of training differentiates outcomes on four levels: (1) **reaction** to the training, (2) **learning** as a result of the training, (3) **behaviour** change as a result of the training and (4) **results** leading to behaviour change (Kirkpatrick and Kirkpatrick, 2006). In the implementation of the Kirkpatrick model, it is common that trainers get stuck in Level 1, which reviews how learners react to the training and Level 2 which refers to what the learner actually has learned. Proceeding to Levels 3 and 4, which assesses behaviour and results, is rarely seen. Therefore, this research focuses on Levels 1 and 2 beginning with the outcome in mind, which is the introduction of an intervention (training) yielding positive outcomes. Levels 3 and 4 will be implemented in future research as a longitudinal study.

The adoption of the Kirkpatrick evaluation model has emerged from various theoretical frameworks, including the Donabedian model. Evaluating training is essential for several reasons, but particularly to ensure that training aligns with organisational goals and objectives. When employees participate in training, whether in-house or externally, there must be a clear rationale regarding how the training will contribute to the organisation's performance and outcomes (Kirkpatrick and Kirkpatrick, 2006). For the provider, evaluating training is crucial for improving future iterations and assessing the relevance of the content to the participants' work settings. From an organisational perspective, training should enhance employee performance and generate positive outcomes. In healthcare settings, for instance, training should lead to improvements in patient satisfaction, care experiences, and health outcomes (Donabedian, 2002).

Training is typically implemented to introduce or modify behaviours with the aim of achieving specific desired outcomes. Therefore, this research study seeks to bridge competency gaps in healthcare quality and patient safety among clinicians and managers and to evaluate the effectiveness of the training provided. In South Africa, for example, many non-governmental organisations (NGOs) collaborate with

provincial health departments to train healthcare workers on quality improvement methodologies designed to ensure high-quality care (Ameh et al., 2017). However, these training programmes have often been evaluated through summative evaluation instruments, which primarily gather information about learning outcomes and teaching practices without adequately monitoring knowledge transfer or long-term application.

Summative evaluations have been criticised for their limitations, particularly their inability to accurately measure teaching effectiveness and real-world applications of learned skills (Moran et al., 2016). In many cases, it is assumed that participants will implement what they have learned, but this assumption often leads to a lack of follow-up and diminished effectiveness in practice. A more comprehensive evaluation approach, such as the Kirkpatrick model, which assesses not only learning outcomes but also behaviour changes and organisational impact, could provide a more accurate measure of training effectiveness in healthcare quality and patient safety.

The Kirkpatrick model is considered the most useful framework in the evaluation of training. The model describes a process of planning and implementation of a comprehensive training programme that will lead to positive outcome. According to Cahapay (2021), the Kirkpatrick model has always been meant to help managers keep track of individual and organisational outcomes in a systematic and efficient method (Cahapay, 2021). Managers who want concrete evidence that training will improve cost effectiveness and other organisational indicators, often adopt this model (Yardley et al., 2012). It is important to note that the four levels of programme evaluation were intentionally designed to appraise apprenticeship and workplace training (Kirkpatrick and Kirkpatrick, 2006).

Kirkpatrick's four-level evaluation model is used to evaluate the efficiency of educational programmes. Donald Kirkpatrick formulated the four levels of evaluation to establish a systematic order of steps to follow to achieve this. Each of the levels has a different emphasis (Kirkpatrick & Kirkpatrick, 2006).

The reaction level is the participants' response and their satisfaction with the programme. Gill & Sharma (2013) highlight that the levels of reaction indicate how

individuals feel about the learning programme. It is important for any training programme to provide participants with an opportunity to provide feedback. Trainers should also ensure that there is reciprocal interaction to avoid the training being perceived as a top-down rather than as a collaborative approach (Gill and Sharma, 2013). This level assesses responses around planned work and quantifies the individual's reaction towards specific tasks.

The learning level of the Kirkpatrick evaluation model assesses the extent to which participants have acquired new skills and knowledge during the training programme and how effectively this learning contributes to closing competency gaps (Sharma et al., 2018). Learning should facilitate a two-way communication process where learners articulate their expectations, and the facilitator aligns the programme to address these expectations by closing the identified competency gaps. For clinicians and quality managers, this level correspondingly evaluates the participants' perceptions of their own abilities to implement the expected changes, boosts their confidence in performing the new tasks, and increases their motivation to apply what they have learnt.

The behaviour level evaluates how well participants apply their newly acquired knowledge and skills in their work settings, examines changes in their approaches to tasks, and the overall improvement in their performance (Kirkpatrick, 2009). This level reflects the impact of training on employee attitudes toward assigned duties and responsibilities. In the context of healthcare, behavioural changes in clinicians and quality managers are assessed after they return to the workplace. It is recommended that this evaluation occurs weeks or even months after the training to provide an accurate measure of behaviour changes that have been implemented in practice.

The results level measures the extent to which the targeted outcomes of the training programme have been achieved. This level evaluates whether participants can contribute positively to the organisation's overall goals, demonstrating a return on investment that can be linked to the training itself (Manyathi et al., 2021). For example, in a healthcare context, if clinicians and quality managers who have undergone training can successfully apply their knowledge and skills to improve patient outcomes and organisational performance, the training can be considered effective. This level of

evaluation is critical for determining the real-world impact of training on organisational success.

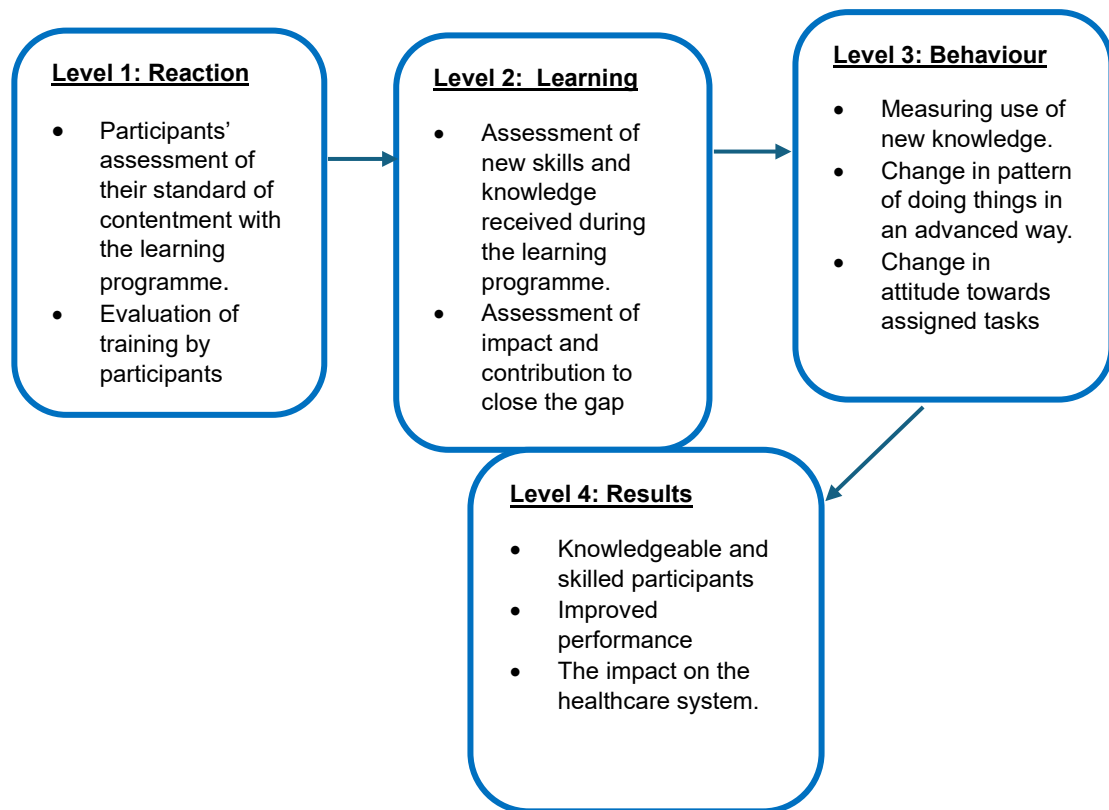


Figure 3: Kirkpatrick's four basic categories of outcome

A scoping review by King et al. (2024) shows that applying the framework in the evaluation of training programmes can be useful in determining strengths and weaknesses and modifying content and delivery modes to improve effectiveness (King et al., 2024; Rouse, 2011). This model of evaluation therefore continues to provide a practical framework for trainers and facilitators to evaluate the effectiveness of their training programmes (Kirkpatrick and Kirkpatrick, 2006). Rouse (2011) explains that Level 4 operates at the systemic level or tangibly in organisational outcomes. It attempts to identify if increases in company revenues, client approval, or related indicators are realised as a result of the course or programme inputs (Cahapay, 2021; Rouse, 2011). This research focused on Kirkpatrick Levels 1 and 2 to evaluate whether the training methodology used resulted in the expected competencies for the trainees. Other factors that may have influenced the outcomes are the availability of resources

and the care environment. This includes consideration of the team of clinicians who work in the organisation, leadership style and organisational culture.

As a result of the healthcare quality training, the participants, specifically quality managers and clinicians, should demonstrate noticeable improvements in how they perform their duties. Having been equipped with the necessary knowledge and skills during the training, they should be able to implement the models and approaches discussed, effectively enhancing their work performance. Participants are expected to provide evidence of their ability to apply these newly acquired competencies through course work and by successfully achieving the objectives of their individual quality improvement projects. If participants are able to demonstrate improved outcomes in providing quality healthcare services following the training, this would indicate that the training has been effective (Worsley et al., 2016).

This study adopts Kirkpatrick's first two levels of the four-level evaluation models as a pertinent framework for assessing the effectiveness of training. As previously mentioned, while training programmes have been implemented in the past, a persistent challenge has been accurately evaluating their effectiveness. Kirkpatrick's model, particularly the assessment of Levels 3 and 4 in the workplace, offers a critical and practical approach to understanding training outcomes. These levels, which focus on behaviour change and results, provide insights into how training translates into practice and contributes to organisational goals. Therefore, future research will focus on Levels 3 and 4. The model thus remains a valuable tool for trainers in evaluating the effectiveness of training programmes (Kirkpatrick & Kirkpatrick, 2009).

Regardless of the specific evaluation model used, it is essential for clinicians and quality managers to have a thorough understanding of the chosen framework. This understanding allows them to foster continuous improvement within the organisation while enhancing patient care and safety. The four levels of Kirkpatrick's model, discussed in this section, offer a potential catalyst for driving organisational change and improving healthcare delivery.

In the following section, theories of knowledge, change, and systems thinking are explored to provide a theoretical foundation for this research. The theories are

essential in addressing the competency gaps in healthcare quality and patient safety, which this study aims to address.

2.4 THEORIES OF HEALTHCARE QUALITY

Theory is a large aspect of all scientific work, even the science of gathering, translating, and sharing knowledge. According to Wong (2018), a theory is an effort to put facts into a clear organisational framework within a field of study. Some of these facts may be "proven," while others may be more academic (Wong, 2018). The next part talks about the healthcare theories that are relevant to this research study. Theories should be useful in more than one setting. For instance, the best theories for public health research are those that give descriptions and predictions that can be utilised in different situations and changed as needed.

According to Imenda (2014), a theoretical framework refers to a theory that a researcher chooses to guide the research. The theoretical framework is therefore the application of a set of concepts drawn from one or various academic theories. Imenda (2014) also states that a conceptual framework is the end result of bringing together a number of related concepts to give a broader understanding of the research problem (Imenda, 2014). Similarly, Adom, Hussein, and Agyem, (2018) state that the theoretical and conceptual framework explain the path of the research and grounds it firmly in theoretical constructs. Conceptual and theoretical frameworks assist in bolstering research while ensuring the transfer of knowledge by providing both direction and rigour (Adom et al., 2018). The next section discusses the theories applicable to this research study.

2.4.1 Systems Thinking Theory

Researchers have looked at health care systems using the systems approach because they are so complicated. To deliver well-rounded and effective health care, health care professionals need to know about their patients' environments and habits in order to better understand recurring health problems or to enhance public health (Lai and Lin, 2017). This is in line with systems theory. In short, a healthcare system

is made up of people and groups who work together to improve health outcomes. Systems theory states that the parts of each system are arranged in a hierarchy and depend on each other. Thus, a system is a group of tasks that functions together to deliver a specific outcome. A system has inputs, processes, and outputs, and all of them work together to affect patient outcomes. Inputs are what the system needs to work, and processes are the steps and tasks (using the inputs) that lead to a certain result. Outputs are the outputs of a certain process. In this example, the final results would include the total effect on quality and the health and safety of users, clients, or patients (Quentin et al., 2016).

The main idea behind how a system is designed has a big effect on how well it works. When the structure of a system changes, it might have unintended effects, which can be good or bad. Systems are very important for improving quality since badly designed systems lead to inefficiency, bad healthcare quality, and poor health outcomes (McNab et al., 2020).

It is imperative that systems be managed and maintained. Clinicians, quality managers and other health care providers must understand the system that governs a service and key service processes in order to improve them. For example, good protocols and/or guidelines are difficult to implement because they meet systems barriers at the front line. Improvements in systems must be managed and led, and it requires a team approach. To create a high-performing healthcare system that delivers reliable and safe care, a conducive environment is needed, with available resources, knowledgeable healthcare providers and continuous training (McNab et al., 2020). For example, a system is required to ensure a chronic dialysis patient receives his or her regular dialysis treatments, if a system and all its parts work efficiently this is possible consistently without repercussion or inadequate care for the patient. They are all interconnected, and a problem in one part of the system affects all the other aspects of the system. The next section explains a theory of knowledge to provide context for not choosing it as a suitable intervention for the study.

2.4.2 Theory of Knowledge

There is a general acceptance that knowledge, evidence, and experience work together. Theory of knowledge (TOK) is a branch of philosophy that looks at what knowledge is and how to get it. It gives students a chance to think about what knowledge is and how people know what they say they know (Lehrer, 2018). Knowledge translation is an important part of the theory of knowledge. It is a dynamic process that helps bring together high-quality research findings and health policy (Dadich and Doloswala, 2018; Lang et al., 2007).

Though the ultimate goal is using irrefutable evidence to improve patient care, there are a number of factors that affect how this evidence is translated, including clinician expertise, patient preferences, available resources, and the context of care. The context of care may include factors such as variable leadership styles within the teams, clinicians' work, organisational culture, political environment and local epidemiology (Bhati et al., 2023).

The next section discusses theory of change as the participants will be expected to implement changes by translating knowledge into practice in the workplace following their participation in healthcare quality training.

2.4.3 Theory of Change

Implementing change in any healthcare setting is multifaceted, as it requires changing processes in what are complex and dynamic public or societal settings, and this requires that any changes need to be adapted for the local setting. The theory of change is a well-known way to plan and evaluate (Arensman et al., 2018). Theory of change is a management tool that can be used as a formal planning document or a blueprint for traveling from one place to another (Stachowiak, 2013; Stein and Valters, 2012). A persuasive theory of change is a set of ideas that can be utilized as a guide for how planned activities will help a programme reach its goals. A theory of change describes how and why inputs lead to outputs and then to outcomes. It also lists the basic assumptions that are made about each outcome. Along with the theory of

change, participants must also set long-term goals, find ways to measure achievement, and come up with plans to reach those goals (Njah et al., 2021).

Clearly identifying and reviewing theories of change makes the process more rigorous and open, makes the project's logic clearer, brings attention to assumptions that need to be checked, and helps find the right people to work with. There are clear benefits to basing intervention efforts on a coherent theoretical explanation of how and why the activities impact the participants (Romão et al., 2023). To help clinicians and managers understand how their actions and interventions are geared toward clients promotes desired outcomes, it is critical to have a well-articulated theory of change. Unless it can be demonstrated that action is truly necessary, trying to persuade clinicians and quality managers who believe they are already doing well to change is very difficult. The difficulties with patient safety, healthcare quality, and competency gaps are emphasised in the literature review in the upcoming chapter.

Therefore, it is important to target problems that are likely to be accepted as real when designing and planning interventions. Data to prove the existence of issues and patient stories to elicit empathy are two possible ways to identify the challenges. It involves clinicians identifying areas for service improvement and demonstrates the relative advantage of putting an intervention into practice. When assessing any programme that does not incorporate a theory of change, the difficulty lies in not knowing why it succeeds or fails (Powell et al., 2012). The application of theory of change as a monitoring and evaluation approach has sparked significant criticism, with some questioning its suitability for complex interventions. Critics argue that it may be more of a donor-driven results framework than an effective tool for addressing multifaceted challenges (Arensman et al., 2018).

Clinicians and quality managers will be expected to implement the learnings in their workplace, and a theory of change is important to keep the process of implementation and evaluation transparent for an organisation to know what is happening and why. This is also important in this particular research, which is about bridging healthcare quality, patient safety and competency gaps. Several factors make it challenging to apply a theory of change to realisable improvement. Quality improvement strategies

typically interact with multiple system levels, and their implementation is influenced by numerous contextual factors. Theory of change has thus been criticised for being more of a planning and monitoring tool (Arensman et al., 2018).

Table 1: Theories and models of healthcare quality

Type of theory/model	Common description	Purpose	Focus	Dominant theoretical basis	Suited or not suited for the study
Learning collaborative model	Practical model that has worked somewhere that needs to be scaled up.	To provide a structure for learning and action that would engage organisations in making real system level changes that would lead to improvements in care.	Shared learning	Data and information sharing resulting in learning and getting results. Based on changed concepts.	Suited for the study as the focus is on information sharing followed by scaling up at the health establishment level.
Plan-Do-Study-Act-Model and improvement model	The cycle begins with developing a plan to test an improvement idea (Plan), followed by a small-scale experiment and data collection (Do). The team then analyses the data and learns from the results (Study), and decides whether or not to scale up changes or make modifications by starting a new cycle of improvement (Act).	Model originated by Edward W. Deming. His goal was to use the scientific method to improve business processes. However, it is used in healthcare to improve patient safety and healthcare quality. The model for improvement is a widely used framework for quality improvement in healthcare.	Testing the changes through team- work, quality and safety outcome desired, quality data collection and measuring of improvement over time. Focusing on three fundamental questions: what is the aim, how will you get there, and how will you know the change is an improvement ?	This model ensures that reliable conclusions are drawn regarding the effectiveness of each intervention.	Suited for this study as clinicians and managers can use the model for quality improvement and patient safety initiatives. The model focuses on rapid testing of ideas and implementation of changes, which is essential in healthcare where timely interventions can significantly impact patient outcomes. The three questions added to the improvement model will be fundamental for the clinicians and managers since they would be expected to bring about changes to improve quality and patient safety. The

Type of theory/model	Common description	Purpose	Focus	Dominant theoretical basis	Suited or not suited for the study
					model is particularly suited for clinicians and quality managers as it provides a structured approach to identifying and addressing quality gaps.
Donabedian Model	Structure, process and outcome	The model presents a multi-dimensional framework for measuring quality in health care. Its primary purpose is to evaluate the quality of healthcare by examining the relationships between healthcare structures, processes and outcomes.	This model summarises the patient's relationship with the healthcare institution in his or her relationship with the clinicians providing care.	Quality assessment and provision of high-quality care based on appropriateness of care and skill	This model is suitable for the study since its focus is on measuring the quality of healthcare services. Its focus is on the environment, people/technology and systems and or outcomes. The model provides valuable insights for quality improvement and accountability
Competency-based model	Competencies and demonstration are key components.	Defines the cluster of knowledge and skills needed to perform at the health institutions or workplace.	Learner-centred and learning outcomes	Knowledge, skills and attitudes application	Suitable for the study as the focus is on bridging the competency gap. Therefore, the identification of competencies to be addressed is important. A competency-based model promotes accountability among clinicians and quality managers as they will be expected to demonstrate specific competencies.
Kirkpatrick model	Four level model: Level 1 – Reaction;	To evaluate training.	On four levels of evaluation but for this	Evaluation of outcomes	The model is useful for the study as the study's focus is

Type of theory/model	Common description	Purpose	Focus	Dominant theoretical basis	Suited or not suited for the study
	Level 2 – Learning; Level 3 – Behaviour and Level 4 – Results.		research Levels 1 and 2 will be the focus.		on intervention through learning and evaluation of results following training.
Systems thinking theory	Collection of processes working together to produce defined output	To explain dynamic relationships' interdependence between components of the system and the organisation	The environment, the social organisation as a system and human participants within the system	Organisation, people and actions	Suitable for the study as the clinicians can use systems thinking to design care pathways that consider the complex interactions between different components of patient care. In addition, systems thinking will help quality managers to evaluate the impact of changes to the healthcare system, identifying unintended results and opportunities for further improvement.
Theory of knowledge	Knowledge, evidence and experience work together		Nature of knowledge and knowledge achievement	Knowledge	Not suitable for the study as the focus here is on monitoring and evaluation and the study focus is intervention to solve the problems.
Theory of change	Theory of change is referred to as a roadmap. It explains how and why inputs lead to outputs and then to outcomes and it spells out assumptions related to	To address linkages between objectives, strategies, outcomes and assumptions.	Cause and effect logic and intended outcomes	Planning and evaluation	The model is not appropriate as the focus will be on learning. The study will not be able to focus on clinicians and managers transferring theory into practice and other outcomes such as patient

Type of theory/model	Common description	Purpose	Focus	Dominant theoretical basis	Suited or not suited for the study
	each outcome.				experience of care.

2.5 SUMMARY

There is a notable gap in research concerning the importance of supporting learners and medical professionals in acquiring the knowledge during training to modify work practices as well as assessing the impact of these modifications on achieving the desired outcomes. Knowledge acquisition refers to the process of obtaining knowledge, for example through training and the integration of this knowledge into an individual's existing knowledge base. This study used Levels 1 and 2 of the Kirkpatrick evaluation model to address competency gaps in patient safety, healthcare quality and the professional development of clinicians and quality managers.

The selected models and theories guided the refining of concepts, collecting and evaluating data and ensuring a high level of research rigour. The study has also summarised the models relevant to healthcare quality, discussing their respective benefits and limitations. Subsequently, the research focused on the Donabedian model, the competency-based model and the Kirkpatrick model as the primary frameworks for evaluating training and driving improvements in healthcare quality and patient safety.

CHAPTER THREE

LITERATURE REVIEW

3.1 INTRODUCTION

Patient harm in hospitals is a persistent global public health issue, that affects both high income countries (HICs) and low- and middle-income countries (LMICs) to varying extents (Panagioti et al., 2019). The majority of medical errors occur within hospital settings due to a predominant focus on hospital-based medical care. Hospitals, as the primary sites for managing patients with complex diseases, employ intricate diagnostic and therapeutic interventions, inherently carrying a higher risk of errors (Oyebode, 2013). Hospital staff have explicit, tacit, and experienced knowledge, rendering them essential in tackling clinical difficulties through quality improvement efforts and evidence-based treatment. These activities may be impeded by organisational culture, resource limitations, and health system limits, particularly in low- and middle-income countries (LMICs), where persistent challenges in healthcare quality endure despite improvements in health outcomes (Kruk et al., 2018).

People still want better health care results, though, because their expectations are higher, their health objectives are more ambitious, and their health demands are changing (Kruk et al., 2018). There has been more of an emphasis on safety and providing good healthcare in the last few decades. The Institute of Medicine's (IOM) 1999 research "To Err is Human" started a worldwide drive for patient safety (Clancy et al., 2021). In terms of how resources are used and the quality of care provided, numerous reports from South Africa and other nations with comparable economies have demonstrated that the South African health system performs worse than those in other nations with comparable economies (Koelble and Siddle, 2014); Maphumulo and Bhengu, 2019). In response, the South African government released the Consensus report in 2019, which outlined the shortcomings of the health system and made the case that it is morally necessary to provide high-quality healthcare (Gray and Vawda, 2019). South Africa's healthcare delivery model is distinguished by a

constant quest for excellence, with a primary emphasis on guaranteeing that patients have access to reliable, high-quality healthcare.

In 2013, the National Health Act was amended, and the Office of Health Standards Compliance (OHSC) was created to ensure that healthcare is of high quality. The OHSC as a health regulator implements a quality assurance system that is based on established norms and standards regulations. It gradually certifies health facilities that satisfy these regulations. Quality healthcare is essential for ensuring that patients receive effective, safe and timely care that meets their needs (Kwame and Petrucka, 2021). In South Africa, where there are often problems with access to and quality of healthcare, it is especially crucial to make sure that care is of excellent quality (Maphumulo and Bhengu, 2019). Better health results, happier patients, and better utilisation of resources are all possible with good healthcare. Preventing errors, injuries, accidents, and infections that happen while getting or providing healthcare is the main goal of patient safety (Agency for Healthcare Research and Quality, 2019). In our situation, when resources may be scarce and healthcare infrastructure differs from area to region, making sure that patients are safe is very important for reducing harm and preventing serious incidents. Making patients safer can make people more trustful in the healthcare system and make things easier for patients and their families (Konlan and Shin, 2022). To determine whether healthcare practitioners have the information, skills, and attitudes needed to provide high-quality care, it is vital to question their competency. It is also critical to make sure that healthcare personnel are competent in South Africa, where there may be a lack of experienced workers and differences in training possibilities (Matseke, 2023). Competent professionals are better able to diagnose and treat patients, communicate clearly, and follow safety rules, which all leads to improved treatment overall (Matseke, 2023).

To address gaps in healthcare quality, patient safety, and competency, several key areas warrant attention, namely comprehensive training for clinicians encompassing medical procedures, patient communication, safety protocols and quality improvement methodologies. Robust regulations and standards for healthcare facilities are required, including protocols for reporting on adverse events and near misses. Systems for collecting and analysing data on patient outcomes, adverse events, and clinician

performance to identify areas for improvement are necessary (WHO Service Delivery and Safety Department, 2017). Interdisciplinary collaboration among clinicians, quality managers, administrators, and healthcare professionals to develop and implement quality improvement initiatives is imperative (Bhati et al., 2023). Patient involvement is quintessential; engaging patients in their care through education and participation in decision-making moves systems away from the hospital-centric approaches that exclude them (Vahdat et al., 2014). Ensuring adequate staffing, equipment, and infrastructure to support high-quality care delivery and patient safety is required. Lastly, it is essential to set up systems for continuous evaluation and enhancement of healthcare safety and quality, such as audits and comparison with global norms (Hughes, 2008).

A stronger healthcare system and better patient outcomes can result from addressing these issues and improving the competency, safety, and quality of South Africa's healthcare services. By concentrating on these areas, policymakers, healthcare organisations, and providers will be able to address equity and disparities and better serve individuals in need of care, irrespective of their location or economic standing.

In order to address health care quality, patient safety, and clinician competency in South Africa, this critical framework for the literature review will offer an examination of the opportunities and challenges. In order to create possible action plans and strategies for the South African health care system, it will attempt to synthesise research, theories, and frameworks related to these issues.

3.2 HEALTHCARE QUALITY IN SOUTH AFRICA

The literature study defines a comprehensive array of healthcare quality elements, encompassing safety, timeliness, patient-centeredness, equity, efficacy, and efficiency. It focuses on problems and inequities that affect the quality of healthcare, such as not having enough staff, not having enough resources, having poor infrastructure, and having social and economic disparity. The pros and cons of the tools and procedures used to measure the quality of healthcare in South Africa are also discussed. The evaluation will look at evidence-based techniques and interventions that aimed to improve healthcare in poor areas, as well as their effectiveness in South Africa.

3.3 PATIENT SAFETY

The concepts of patient safety are covered in this section, along with how to apply them to examine patient safety incidents in South Africa. Poor health outcomes and medical errors are caused by a number of issues with the South African healthcare system, such as the sociocultural setting, communication barriers, and structural issues. The study also discusses South Africa's efforts to ensure patient safety. The review also assesses South Africa's patient safety protocols. This covers current safety incident reporting systems, patient safety culture surveys, and root cause analysis (RCA) practices. Additionally, it assesses how well patient safety and safety risk reduction strategies have been applied to healthcare personnel's interactions with patients.

3.4 CLINICIANS' COMPETENCY IN QUALITY HEALTHCARE AND PATIENT SAFETY

One of the biggest concerns for health professionals is how fast things are changing and how quickly new technologies are being developed. The interventions that are available to screen for diseases, diagnose conditions, treat conditions, and track the progression of diseases advance exponentially every year. Keeping up with these changes is not an easy task. Additionally, the sheer volume of information available to health organisations and health professionals is another challenge to be considered. One factor contributing to the challenges of quality of care is that health professionals are out-of-date or lack knowledge and skills needed for current practice.

This literature review provides a definition of clinician competencies and a discussion of competency frameworks pertaining to the healthcare professions in South Africa including clinical skills, professionalism, communication and cultural competency. The review discusses, competencies, competency-based education and training to ensure competency and proficiency of healthcare providers. The review also examines approaches to assessing and improving clinician competencies including competency-based assessments, continuing professional development programmes, and

considers how these align with the current curriculum and training for healthcare professionals in South Africa.

3.5 INTERSECTIONS AND INTERDEPENDENCIES

This section identifies the intersections between healthcare quality, patient safety, and clinician competency, highlighting the interdependencies and synergies among these domains. It discusses integrated approaches to addressing these interconnected challenges, emphasising the importance of multidisciplinary collaboration and systems thinking. Furthermore, the review examines the policy implications of bridging identified gaps in healthcare quality, patient safety, and clinician competency in the South African healthcare system, proposing recommendations for policy makers, healthcare leaders, and stakeholders in order to prioritise investments and interventions that encourage a culture of excellence, safety, and ongoing learning in service delivery.

The essential framework for the literature review provides a structured approach to synthesising existing knowledge and evidence relevant to addressing healthcare quality, patient safety and clinician competency in South Africa. It serves as a foundation to inform the design and implementation of interventions used in this study and others as well as policies pointed at improving healthcare outcomes and enhancing the well-being of patients and healthcare professionals in South Africa.

The research question guiding this study is: ‘What are the healthcare quality and safety competency gaps amongst clinicians and quality managers, and what is the outcome of the intervention using the Kirkpatrick model?’ The objectives of the study were to assess the following: the level of knowledge regarding healthcare quality within health establishments among quality managers and clinicians; the level of knowledge about patient safety within health establishments among these groups; the level of knowledge with respect to healthcare quality and patient safety competency among quality managers and clinicians post-training; and whether the Kirkpatrick model of evaluation will bridge the competency gaps amongst clinicians and quality managers.

By addressing these objectives, the study aimed to identify existing knowledge gaps and to use the Kirkpatrick model of evaluation to see how well the intervention worked at improving healthcare quality and patient safety competencies

3.6 PERSPECTIVE: HEALTHCARE QUALITY GLOBALLY

The World Health Organization state that poor healthcare kills between 5.7 and 8.4 million people each year in low- and middle-income countries. This is as much as 15% of all deaths in these countries. About 1 in 10 patients hurt themselves while in the hospital, and about 7 in 100 hospitalised patients are at risk of getting a healthcare-associated infection (National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Care Services; Board on Global Health; Committee on Improving the Quality of Health Care Globally, 2018; World Health Organisation, 2023).

The objective of healthcare is to provide high-quality healthcare to everyone in need, aiming to enhance quality of life, treat or cure illnesses where feasible and prolong life expectancy. Healthcare quality refers to the level of value offered by any healthcare resource, assessed through various measurements. Similar to quality standards in other domains, it entails evaluating whether something meets the necessary standards and serves its intended purpose effectively.

The Institute of Medicine (US) Committee on Quality of Health Care in America (2001) came up with six areas to look at when assessing the quality of healthcare. These areas cover several aspects that are important for assessing how well and appropriately healthcare is delivered. Firstly, the concept of safety pertains to the prevention of patient harm stemming from medical interventions intended to benefit them. Secondly, effectiveness revolves around the judicious utilisation of healthcare services, aiming to mitigate instances of both overuse and misuse. Thirdly, patient-centredness underscores the significance of tailoring care approaches to individual patient needs and preferences. Timeliness emphasises the importance of minimising waiting periods and detrimental delays for both patients and healthcare providers. Efficiency relates to the optimisation of resource use encompassing equipment,

supplies, intellectual capital and energy, thereby mitigating wastage. Lastly, equity underscores the imperative of providing healthcare services that are impartial and consistent across diverse demographic and sociocultural backgrounds, thereby ensuring fair and uniform access to care. These domains collectively serve as a comprehensive framework for assessing and striving towards enhanced healthcare quality (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001; Wolfe, 2001).

The provision of excellent healthcare and patient safety forms the cornerstone of any government's duty to its citizens. The way that healthcare is provided around the globe has changed (Braithwaite et al., 2017). Subsequent to the publication of the IOM report (2001), which scrutinised healthcare delivery and prioritised patient safety, modifications were made to the way that healthcare is provided. Globally the emphasis is on patient and family-centred care to reduce medical errors. As stated by Ataguba and McIntyre (2019), the IOM defined health care quality as 'the degree to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge', and this classification is the most frequently used in healthcare (Ataguba and McIntyre, 2012).

According to the IOM, high-quality healthcare should be timely, safe, patient-centred, equitable, efficient, and effective. Another useful definition of quality of care comes from the UK National Health Service (NHS), which states that it pertains to three areas: clinical effectiveness, patient safety, and patient experience (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001). One could also interpret this as excellence in both technical and interpersonal skills. The NHS was introduced in 1948 with the express purpose of providing healthcare that is free at the point of use for everyone, irrespective of their ability to pay. This was a significant step in improving the healthcare system and improving access to quality care.

Across the world, countries have been striving to improve standards of healthcare quality and reduce potential risks and errors associated with providing medical services. Patient safety is primarily concerned with the prevention of errors in healthcare settings (Campbell et al., 2007). Globally, significant gaps in healthcare quality continue to persist, manifesting in widespread disparities in patient outcomes,

safety, and access to care. In many regions, especially LMICs, inadequate infrastructures, insufficiently trained healthcare professionals and a lack of resources contribute to poor quality care and preventable harm. In Africa, these challenges are exacerbated by underfunded health systems, high disease burdens, and persistent workforce shortages, which hinder the delivery of effective care and compromise patient safety.

3.7 PERSPECTIVE: HEALTHCARE QUALITY IN SOUTH AFRICA

There are various laws, regulations, and policies in South Africa that affect the quality of health care. Section 27 of the Constitution says that everyone has the right to health care services, including treatment for reproductive health. The Constitution provides that everyone has the right to have medical care, and the government must do what it can to make this right a reality (Republic of South Africa, 1996). The National Health Act (NHA) (Republic of South Africa, 2004) sets out the fundamental criteria for how a good national healthcare system should work. The NHA lays out how the national health system is set up and run, including how to improve the quality of healthcare systems. The Act sets up systems to check that health care services and facilities follow the health care standards that have been set. This helps to ensure that the quality of health care services and delivery is high. The National Health Amendment Act, 2013 (NHAA 12 of 2013) (Republic of South Africa, 2013) set up a framework and systems for the NHA to keep an eye on whether healthcare facilities are meeting quality standards. This can affect the level and quality of medical services. Also, Section 78 of the NHAA, 2013 (Act 12 of 2013) further specifies that the Office of Health Standards Compliance's main purpose is to keep healthcare users safe and healthy. The Minister of Health set out the regulations and criteria for different types of health facilities in order to reach the goal of having a health system with consistent and acceptable quality of care. The National Department of Health (NDOH) published these regulations in 2018 and became effective in 2019. These regulations also have 22 other sub-regulations that addresses the following areas: user rights, clinical governance and care, and clinical support services buildings and infrastructure, governance and human resources, and general provisions.

The South African National Department of Health 2007 Policy on Quality in Health Care state that following and committing to upholding high standards will help the country reach its goal of providing high-quality healthcare to all of its citizens (National Department of Health, 2007). This policy is based on a two-part plan to increase quality that creates a supportive environment for high-quality healthcare and builds capacity for quality improvement. This means figuring out how far standards are from being put into practice and making meaningful steps to close any gaps.

The 2020 National Health Quality Improvement Plan for South Africa aims to create a culture of continuous quality improvement in the healthcare system and help make the National Health Insurance reforms a permanent part of the system. According to the ethical principle of doing no harm, quality and safety are the most important parts of healthcare delivery systems. This means that safety precautions should always be included in patient care. The next section looks at the standard of care and patient safety. Deteriorating healthcare quality indicators erode public trust. Despite the potential for enhancing safety and care standards in hospitals, the concept and implementation of healthcare quality remain both ambiguous and complex (Allen-Duck et al., 2017).

Over time there has been a lack of alignment in the use of measures and improvement strategies. There is a widely held belief and perception in South Africa that the public health system provides a substandard level of care, while the private health sector provides excellent care. This perception is backed by Maphumolo et al (2019) stating that the deterioration in quality healthcare has resulted in the loss of public trust in the healthcare system. In South Africa, the pace of service delivery within health departments has generally been sluggish (Maphumulo and Bhengu, 2019). Recent media reports highlight the significant challenges the healthcare sector faced during the COVID-19 pandemic, including shortages of healthcare professionals, extended working hours, and insufficient essential resources such as personal protective equipment (Harrisberg and Khan, 2020).

Poverty, which is a major socioeconomic factor that affects people's ability to get healthcare, makes things worse for people who live in crowded places and large families, especially during this national calamity (Allan and Heese, 2020). Whilst the

perception is that the private healthcare industry is doing well on some aspects of quality, prioritising patient safety and high-quality care in offering its services is not without challenges. There are still serious healthcare quality problems with the quality of care that patients receive in the private sector, as evidenced by an increase in medical litigations, complaints and more recently, the published 2023 report of the OHSC linked to early warning system indicators (Ndebele, 2024; Office of Health Standards Compliance, 2023a).

These challenges in the private sector are possibly associated with the competency of healthcare providers recruited in the private sector and the operational culture where the focus is on making a profit. There is evidence from real life that the profit motive in the private sector has led to the recruitment of unqualified and possibly incompetent people to care for patients in hospitals, such as in theatres, intensive care units, and recovery rooms. This practice should be discouraged (Tung and Bennet, 2014). But it's important to note that there is no public information about the quality of care in the private health sector (Boffa et al., 2021).

Numerous policies have been produced and promulgated in the field of the public health sector to guarantee healthcare quality and patient safety. Some of these policies include, but are not limited to:

- National Health Act 61 of 2003 (Republic of South Africa, 2004)
- Policy on Quality in Health Care for South Africa (April 2007) (National Department of Health, 2007).
- National Health Amendment Act 12 of 2013 (Republic of South Africa, 2013)
- Norms and Standards Regulations Applicable to Different Categories of Health Establishments (Department of Health, 2018)
- National Health Quality Improvement Plan (Department of Health, 2020)
- National Guidelines for Patient Safety Incident Reporting and Learning in the Health Sector of South Africa. (Version 2 – 2021) (National Department of Health, 2022)
- Practical Manual for Implementation of the National Infection Prevention and Control Strategic Framework: Infection Prevention and Control (2020).

- South African Maternal, Perinatal, and Neonatal Health Policy (Department of Health, 2021)
- National Health Insurance Act 20 of 2023 (Republic of South Africa, 2024)
- 2030 Human Resources for Health Strategy: Investing in the health workforce for Universal Health Coverage (National Department of Health, 2020)

The provinces' political and administrative leaders in the form of members of executive councils (MECs), provincial health authorities and management of the health facilities, must be dedicated to implementing the aforementioned policies. It is advisable that national, provincial, and district health departments enhance their technical capacities to monitor the employment of critical guidelines, protocols, and policies. The successful implementation of the policies and guidelines is likely to be accomplished if government agencies align with the WHO's (2021) definition and approach to effective leadership which includes, among other things, objectively identifying needs, prioritising goals, designing appropriate policies, and putting them into action. It will also be essential to retrain current staff members in order to create organisational cultures that embrace change (World Health Organization, 2021).

The South African context mirrors broader continental issues but is further complicated by severe inequities in the healthcare system, with public sector facilities facing overcrowding, insufficient equipment and inadequate staffing. These structural deficits limit the capacity of health institutions to provide high standards of care and exacerbate the gaps in health outcomes, particularly among disadvantaged populations. Addressing these gaps requires systemic reforms, improved training and competency development and better resource allocations to strengthen quality healthcare and patient safety at all levels.

3.8 UNDERSTANDING THE ROLE OF QUALITY MANAGEMENT IN HEALTHCARE QUALITY

As with any system, it is essential to have measures in place to ensure quality. Quality management, often referred to as performance improvement, involves measuring, evaluating, and continuously enhancing healthcare services (Dodwad, 2013).

Regardless of the specific terminology used, the primary objective remains the same to ensure that patients receive high-quality medical care.

Quality management in healthcare encompasses several key components, among which is continuous improvement that emphasises the need for ongoing efforts to enhance healthcare processes and outcomes. This includes implementing methodologies that oversee a focus on incremental improvements and long-term benefits. Establishing standardised protocols and adhering to clinical protocols and guidelines is essential in quality management. Maritz et al. (2019) assert that this reduces variability in patient care by ensuring that all patients receive evidence-based treatment. There is a need for healthcare facilities to examine and keep track of healthcare performance measures on a regular basis. To uncover areas that need to be addressed, the health personnel need to collect and analyse data on a variety of care-related topics, such as patient outcomes, safety incidents, and patient satisfaction (Bhati et al., 2023; Hughes, 2008).

Quality management in healthcare is focused on what people want and need. To provide effective care, it is essential to ensure patients feel valued, honour their beliefs, and involve them in their own therapeutic process (Bombard et al., 2018; Tringale et al., 2022). Finding, evaluating, and lowering risks to patient safety are all part of quality management. This includes making sure that safety laws are followed, finding out what caused serious adverse events, and encouraging a culture of safety in hospitals and other healthcare settings (Singh et al., 2025).

Healthcare workers need to obtain the necessary training and keep up with the latest practices. By taking advantage of opportunities for professional development and ongoing education, healthcare providers can stay current with, adopt, and adapt evidence-based knowledge and information about health-related technology (Mlambo et al., 2021). Accreditation from reputable health care organizations that place a high priority on healthcare quality will help health care professionals meet professionally set standards of care. In addition, certification programmes are essential for ensuring the practice competencies of health professionals (Shiri et al., 2023).

Strong leadership and an appropriate governance structure that supports quality are essential for effective quality management. Leaders play an important role by endorsing quality improvement initiatives, allocating necessary resources, and fostering an environment conducive to accountability and innovation. The use of minimum acceptable and/or high-quality standards in health establishments is now recognised and supported by a multitude of national and international healthcare organisations, and improving patient safety and clinical outcomes is the motivation driving this initiative and action (Babiker et al., 2014).

The quality of healthcare worldwide has significant flaws, according to three important reports from 2018. The Lancet Commission's report "High-Quality Health Systems in the Era of Sustainable Development Goals," the National Academies of Sciences, Engineering, and Medicine in the United States' report "Crossing the Global Quality Chasm," and the World Health Organization, OECD, and World Bank's report "Delivering Quality Health Services: A Global Imperative for Universal Health Coverage" all independently reached the same conclusion: poor and unsafe healthcare causes more than 5 million deaths globally each year. These significant findings highlight the value of quality management in healthcare and its function in guaranteeing patient safety and quality healthcare (National Academies of Sciences, 2018; World Health Organization, 2018; South African Lancet National Commission, 2019).

3.9 PATIENT SAFETY FRAMEWORKS

The next section focuses on patient safety frameworks because their importance in understanding patient safety incidents in the South African healthcare setting is paramount. It will focus on the socio-cultural aspects of healthcare settings, communication failures and systematic failings that contribute to adverse events (medical errors). This section will also cover South Africa's national or provincial patient safety initiatives - including incident reporting systems, assessments of patient safety culture, and root cause analysis processes of patient safety incidents. Each initiative would be examined to assess its ability to reduce patient safety risk and encourage a culture of safety amongst healthcare personnel.

Patient safety is still a pressing issue, and is an issue that causes millions of patients to be harmed each year due to medical errors, unsafe practices, and poor care. In Africa, this challenge is much more prominent due to weaker health systems, and insufficient training, and without proper access to essential medicines, and lack of strong patient safety protocols which create high levels of adverse events. In South Africa, the issue of patient safety is exacerbated by a lack of systemic problems like overcrowded hospitals, understaffed environments, poor physical healthcare infrastructure, and inadequate infection prevention and control. This creates an open environment for preventable harm, such as healthcare-associated infections and diagnostic errors particularly in the public healthcare sector. To bridge the gaps that present themselves, requires focused interventions, training of health professionals, and systemic reforms that prioritize safe patient-centred healthcare.

According to the World Health Organization (2021), patient safety is the management and processes of clinical care and ethical practice, as well as the elimination of unintended harm to healthcare users or patients. The WHO Global Patient Safety Action Plan 2023–2030 (WHO, 2021) says that patient safety is a set of planned actions that improve the cultures, processes, practices, policies, behaviours, technologies, and settings in the healthcare industry to lower risks, make mistakes less likely, lessen the harm when it does happen, and stop harm that could have been avoided (World Health Organization, 2021). One of the biggest problems in modern healthcare is providing safer and better care in circumstances that are ever more complicated, stressful, and fast-changing. Many new medical techniques and the risks that come with them are becoming major threats to patient safety, adding to the harm caused by hazardous treatments. Any health system must make sure that patient safety, which is an important part of quality assurance, is always protected (Konlan and Shin, 2022).

The World Health Organization (2021) state that patient safety involves the management and processes of clinical care and ethical practice, as well as the reduction of inadvertent harm to healthcare users or patients. The WHO Global Patient Safety Action Plan 2023–2030 (WHO, 2021) report that patient safety is a set of planned actions that improve the cultures, processes, practices, policies, behaviours, technologies, and settings in the healthcare institutions to lower risks, make mistakes

less likely, lessen the harm when it does happen, and stop harm that could have been avoided (World Health Organization, 2021). One of the largest issues in modern healthcare is making care safer and better in situations that are becoming more complicated, stressful, and fast-changing all the time. Many new medical procedures and the risks that come with them are becoming major threats to patient safety, making treatments that are already dangerous even more so. It is the responsibility of every health system to ensure that patient safety is always preserved, which is a key aspect of quality assurance (Konlan and Shin, 2022). It means that patients don't suffer any harm that could have been avoided during medical treatment and that the risk of harm that might have been avoided is lowered to an acceptable level. Health systems need to find and use the best methods to make sure that care is both safe and free of mistakes. Mistakes in healthcare can be very expensive, deadly, and have long-lasting negative effects (Farokhzadian et al., 2018).

Patient safety is negatively affected by current systems and medical errors, and patient safety and health system performance are directly correlated with the incidence and prevalence of these errors. This paradigm shift in healthcare quality and patient safety has influenced nations to recognise that by enhancing these aspects of healthcare services, they are taking vital steps that will ultimately lead to better health outcomes and community health needs being met, which will improve the performance of their health systems as a whole. It is indisputable that patient safety is acknowledged as a crucial factor, along with risk and threat, when patients enter healthcare facilities to receive medical care.

Flott, Fontana, and Darzi say that events in health facilities that cause harm to patients as a result of poor-quality care have become major sources of death and illness in the developed world (Flott et al., 2019). In HICs, around 10% of patients experience harm during hospital care, and in LMICs, the problem is reported as much worse (Lindfield et al., 2015; World Health Organization, 2023).

Despite the landmark IOM report (1999), which revealed that 48,000 to 98,000 die each year because of medical errors, patient safety has not seen significant improvement (Altman et al., 2004; Institute of Medicine (US) Committee on Quality of Health Care in America, 2001). The recognition that adverse events are prevalent and

often a byproduct of poorly designed healthcare systems has led to the development of institutional adverse event reporting systems (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001). These systems are designed to collect data on adverse events, so patterns (which may be issues related to the healthcare environment, systems, or organisations) can be identified. Adverse event systems have two main components: methods for determining adverse events and methods for analysing them. In contemporary literature, there is a focus on the value of adverse event systems in enabling patients to be safer and improving healthcare quality by providing opportunities to learn from errors to prevent similar errors occurring in the future (Panagioti et al., 2019; Rodziewicz et al., 2025).

The startling reality outlined in the WHO's 2022 Global Report on Infection Prevention and Control is the erratic and patchy global implementation of infection prevention and control across the world (World Health Organization, 2022a). The report indicates that there has been no positive change in the measure of countries reporting having a national infection prevention and control programmes from surveys in 2021 and 2022, and the 2017 and 2018 surveys. The full scope and extent of national measures needed for infection prevention and control only had 4 of 106 nations measured in 2021-2022 (WHO, 2022b). Clear gaps in a crucial area such as this are evident when we see the weak application of IPC at the point of care from a WHO survey of IPC practices undertaken in 2019, where only 15.2% of health care facilities met the minimum IPC requirements (World Health Organization, 2022a).

3.10 FRAMEWORKS OF PATIENT SAFETY IN THE SOUTH AFRICAN HEALTHCARE CONTEXT

Healthcare quality means lowering the risk of unwanted harm that comes with getting healthcare provision to an acceptable level. To understand and address patient safety incidents, involves a comprehensive approach that takes into account multiple frameworks and the various factors that contribute to error and adverse events. This chapter focuses on the conceptual frameworks of patient safety, and their applicability to understanding patient safety incidents within the South African healthcare context. It examines the socio-cultural influences of adverse events and medical errors,

disruptions in communication, and failings in healthcare systems thinking contributing to these meaningful events. The chapter also reviews the current patient safety initiatives in South Africa, and their corresponding implications to managing patient safety risk, and creating a safety culture with the changing language of 'zero harm', professionalism, and compassion from healthcare professionals.

Conceptual frameworks in patient safety provide structured approaches to understanding and addressing the complexities of healthcare delivery. These frameworks often emphasise the multifaceted nature of healthcare systems, identifying key areas for intervention and improvement. The Swiss Cheese Model of accident causation, created by James Reason (Reason, 2000), is one well-known theory. This model shows how mistakes happen when different levels of defence (shown as slices of Swiss cheese) fail because they have flaws (holes). In the healthcare context, these layers include various safeguards such as protocols, policies, and technologies designed to prevent errors. When the holes in these layers align, adverse events occur (Reason, 2000). James Reason's model encourages a just culture, which he defines as an environment that supports a dialogue about errors in order that lessons can be learned from them. Finding, blaming, or punishing employees who are involved in incidents is still a tradition that defines the culture of the majority of healthcare organisations today. Clinicians lack independence, work poorly in teams, communicate poorly, and are only vaguely transparent about medical errors. These elements all play a part in creating a setting that threatens patient safety (Reason, 2000).

Vincent's methodology for Evaluating Risk and Safety in Clinical Medicine is a widely recognized framework. Vincent et al. (1998) assert that this framework classifies the determinants influencing patient safety into seven categories: the institutional setting, organisational and managerial elements, the work environment, the team, the individual (staff), the task, and the patient factors. Each domain focuses on a separate part of the healthcare system that can affect patient safety providing a holistic view of where improvements can be made.

3.10.1 Socio-Cultural Factors

Socio-cultural aspects are very important in occurrences that put patients' safety at risk. Different cultural ideas and traditions can affect how patients and providers interact with each other and how people see healthcare services in South Africa. Language barriers, for instance, can lead to misunderstandings and miscommunications, contributing to errors in diagnosis, treatment, and patient compliance (Schlemmer and Mash, 2006). Additionally, cultural stigmas associated with certain illnesses may prevent patients from seeking timely medical help, exacerbating health outcomes (Zuma et al., 2016).

3.10.2 Communication Breakdowns

The ability to communicate effectively is a vital aspect of patient safety. Communication failures are a common contributor to adverse events occurring in the South African healthcare context. Communication failure can occur within healthcare providers, patients and healthcare providers, and between teams of a healthcare structure. Impediments to effective communication in healthcare include hierarchy, workload, and inadequate handover (Pillay, 2009). Standardisation through protocols, training, and technology are methods to facilitate better communication to support patient safety by enabling the accurate conveyance and actioning of important information (Nagpal et al., 2010). This notion is also supported by the IOM report that states the need to develop and test 'new technologies' in order to implement significant change in healthcare contexts (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001).

3.10.3 Systemic Failures

Systemic failures are issues with the structure and operation of healthcare systems that increase the likelihood of errors. Numerous structural issues plague South Africa, such as a shortage of infrastructure, lack of staff, and resources. These issues may lead to overwork and burnout among healthcare professionals, which could compromise patient care (Naidoo, 2012). Making significant policy changes,

investing in healthcare infrastructure, and devising strategies to improve employee morale and skill sets are all necessary to address systemic issues (Mills et al., 2011).

3.11 EXISTING PATIENT SAFETY INITIATIVES IN SOUTH AFRICA

South Africa has launched numerous initiatives to enhance patient safety in order to address these issues. One example is a system for reporting incidents. It enables medical professionals to report negative events and close calls without disclosing their identities. An incident reporting system is designed to encourage people to report negative events and near misses so that mistakes can be learned from and the likelihood of them occurring again can be reduced by identifying the causes and trends of the mistakes. In 2018, the National Department of Health (NDOH) also released the National Guideline for Patient Safety Incident Reporting and Learning in the South African Health Sector. The guidelines were modified in 2022 (Department of Health, 2022). These guidelines give a standard manner to report patient safety occurrences and tells people how to look into them. It stresses the need of learning from the experience to lower the chance of anything similar happening again. The NDOH requires all public healthcare centres to report any incidences that put patients' safety at risk through an online reporting system. As part of its mandate as a health regulator, the Office of Health Standards Compliance (OHSC) employs an early warning system (EWS) which is a surveillance system used to collect information on specific indicators (events) and is used to monitor indicators of risk related to breaches of the norms and standards regulations in health care according to Section 79 (1)(d) of the National Health Amendment Act, 2013 (Republic of South Africa, 2013). EWSs are systems that monitors certain occurrences and gather information about them so that quick actions can be taken. The United Nations (UN) defines an EWS as "the provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for an effective response" (Grasso and Singh, 2011). The justification for an early warning system is that the faster and more accurately potential short- and long-term risks are detected, the better they can effectively be handled. Because of this, the OHSC has come up with eleven EWS indicators to monitor breaches of the regulations for different types

of health facilities that were released in 2018 (Office of Health Standards Compliance, 2022a).

The eleven indicators are listed below in Table 2.

Table 2: OHSC List of Early Warning System Indicators, 2020

Indicator (Incident to be reported to the OHSC)		Norms and Standards Regulation
1	Missing minor	17(1) The health establishment must have systems to protect users, health care personnel and property from security threats and risks
2	Abscondment of a patient	
3	Suicide of an in-patient	
4	Acts of harm to staff	
5	Acts of harm to patients	
6	Unavailability of radiological services (CT-scan, X-ray and sonar service)	(1) The health establishment must ensure that diagnostic services are available and safe for users and for health care personnel involved in delivering these services. 19(2)(a) The health establishment must, as appropriate to the size and type of health establishment, have and implement a human resource plan that meet the needs of the health establishment.
7	Unavailability of hand-washing soap	(2)(a) A health establishment must ensure that there are hand-washing facilities in every service area.
8	Unavailability of water for > 24 hours	15(2) A health establishment must have 24-hour electrical power, lighting, medical gas, water supply and sewerage disposal systems.
9	Retained foreign object in a patient following a surgical/invasive procedure	7(2)(b) The health establishment must establish and maintain systems, structures and programmes to manage clinical risk.
10	Wrong site surgery	
11	Procedure-related avoidable deaths	

Adapted from OHSC Early Warning System Indicators List (2020), aligned to norms and standards regulations published in 2018

The source of information for the OHSC EWS surveillance system is self-reported incidents by health establishments and media alerts related to the above eleven indicators. A few media alerts from various provinces were reported in the media are the following.

1. 'Health MEC urged to probe issues at Prince Mshiyeni Memorial Hospital in Kwa-Zulu Natal' province in an online news publication (Langa, 2023). This came after a video was circulated on social media showing a security guard fighting with a patient inside the hospital.
2. 'Woman seeks justice for hospital's alleged negligence at Botlokwa hospital' in Limpopo Province (Chiguvare, 2023).
3. 'Mum blames hospital for twin's death in Lydenburg hospital' in Mpumalanga Province (Lowvelder, 2023).
4. A 'hospital patient hangs himself' at Postmasburg Hospital in Northern Cape Province (Mere, 2023).
5. 'Livingstone Hospital's dirty secret: Flies in wards, medical waste, rotting food and cigarette butts on floors and a foul stench greet Herald team on unannounced visit to facility' in the Eastern Cape Province (Nel, 2024).
6. 'Steve Biko Hospital suspends five nurses to probe negligence claims: "Unfortunate incident" captured on video by member of public' (Timeslive, 2024).
7. 'Once a rural health flagship, now the "hospital of death"', Gelukspan District Hospital in the North West Province (Juta Medical Brief, 2024).
8. 'Pen stuck in pupil's head: Mom slams Bishop Lavis Day Hospital for gross negligence' in the Western Cape Province (Dean, 2023).

The above alerts are related to the EWS of the OHSC and were reported through the media from March 2023 to June 2024. Other incidents that occurred during the same period are enclosed as Annexure C. There is an indication that there is still a lot to be done to improve patient safety which is a subset of healthcare quality. Addressing the competency gaps with regard to the knowledge, attitudes and the practices of clinicians and quality managers' knowledge remains critical.

Patient safety culture assessments are another key initiative. These assessments evaluate the attitudes, perceptions and behaviours of healthcare workers regarding patient safety, providing insights into areas that require improvement. Promoting a

positive safety culture is essential for encouraging open communication, accountability, and continuous learning (Campione and Famolaro, 2018; Manly et al., 2017). Root cause analysis (RCA) protocols are used to systematically investigate adverse events, identify underlying causes, and develop corrective actions. RCA helps organisations move beyond blaming individuals to addressing systemic issues that contribute to errors (Grasso and Singh, 2011; Singh et al., 2025).

3.11.1 Effectiveness of Patient Safety Initiatives

In South Africa, the efficacy of patient safety initiatives is inconsistent. Patients reporting systems are useful, but these systems continue to struggle with underreporting and inadequate feedback mechanisms for frontline staff (Oweidat et al., 2023). To overcome the barriers to reporting, and allow the information that is collected to promote good practice, patient safety reporting systems must be improved. Patient safety culture insight provides opportunities for identifying where improvements could be made, but it is more challenging to address the outcomes from assessments (Oweidat et al. 2023). Implementing an effective safety culture involves leadership commitment, as well as education and enabling of the health care workers (Ellis et al., 2023). RCA protocols have shown value in identifying systematic challenges, and applying the barriers highlighted in RCA can be helpful, but to impact improvement, it requires appropriate and continuous oversight (Singh et al., 2025). To tangibly change from RCA requires organisational support of the implication and appropriate resources.

Understanding patient safety incidents in the South African context is complex and necessitates a multifaceted understanding that incorporates socio-cultural aspects, failures in communication, and structural system failures. Conceptual frameworks such as the Swiss Cheese Model and Vincent's Framework provide useful conceptualisation of patient safety as a process. Even though there have been several patient safety initiatives, the field is still challenged and needs to be developed further to realise its potential.

According to Aaraaen, Slawomirski and Klazinga (2018), as many as 40% of patients experience primary and outpatient healthcare harm globally, and up to 80% of that harm is preventable. The most serious types of patient safety incidents commonly occur as a result of diagnosis, prescription, and the use of medications. Approximately 50% of adverse events caused by PARTS II, diagnostic errors, medication errors, and other medical errors, are preventable (Aaraaen et al., 2018).

The World Health Organization (WHO) reports that substandard care in hospitals in underdeveloped nations leads to 134 million serious adverse events every year, causing to 2.6 million deaths. Efforts by developing nations to improve their health systems and reduce preventable harm are often hampered by resource constraints and disparities, leading to high rates of exposure to unsafe and unregulated healthcare services in resource-limited settings (World Health Organization, 2021, 2019).

Regardless of circumstance there is a responsibility to all nations, regardless of wealth, to promote patient safety and take up the mantle of quality of care. The more that the policymakers and estates in developing countries recognize the potential and the cost of providing inadequate treatment and overall care, the more they will consider the importance of patient safety. The likelihood of acquiring a healthcare-associated infection may be 20-fold higher in some developing countries than that in developed countries (Asem et al., 2019).

3.11.2 Current Patient Safety Initiatives in South Africa

Patient safety is an important issue in the healthcare environment, with many initiatives being embarked on to identify and mitigate risks associated with the delivery of care. This section will cover the current efforts being made in South Africa to improve patient safety. Most of these efforts concentrate on developing procedures for reporting incidents, assessing the patient safety culture, and determining the underlying causes of problems. Examining these efforts will allow us to determine how they have influenced patient safety and the growth of a safety culture among healthcare personnel.

Incidents reporting systems are essential tools for improving patient safety. These strategies make it easier for medical personnel to admit mistakes by giving them a way to do so without fear of punishment. The goals of collecting and analysing data are to find patterns, figure out what caused them, and do something to prevent them from happening again. The South African National Department of Health established the National Patient Safety Incident Reporting and Learning Framework (National Department of Health, 2022) to make incident reporting the same in all healthcare facilities. This framework tells you what kinds of events you need to report, how to do it, and how to learn from them and evaluate them.

There are still issues even with this structure in place. One major issue is that people tend to report less because they fear being blamed and because they don't receive feedback on their reports (Gqaleni and Mkhize, 2024). Enhancing the effectiveness of incident reporting systems requires addressing these barriers, ensuring that healthcare professionals feel safe and supported when reporting incidents, and providing timely and actionable feedback.

In hospital settings, mortality and morbidity meetings (M&Ms) identify and analyse clinical problems and incidents that include adverse events. Issues discussed in these types of forums frequently concern cases of interest and are sometimes not comprehensive in their scope. Hence important adverse events and near misses are often not discussed because M&Ms are not designed to report comprehensively on some of the aspects of adverse events. M&M meetings have an important role in highlighting clinical errors and working out methods of addressing these at an operational level which are specific to specific departments in specific hospitals. Patient safety programmes are generally facility-wide and capture adverse events and near misses that occur in all clinical departments. Since the nomenclature definitions of these concepts are standardised, facilities across countries and regions can be compared. However, where no formal adverse event monitoring programmes are in place, M&M meetings may be used to initiate the start of patient safety programmes by making staff aware of the concept of patient safety and its methods.

Implementing patient safety measures like incident reporting systems, patient safety culture assessments, and root cause analysis procedures is crucial to improving and

safeguarding South African healthcare. Despite the fact that these programmes have been successful in locating and fixing patient safety problems, questions about their sustainability and viability still exist. By putting safety first, giving employees the tools they need, and supporting ongoing quality improvement projects, South Africa can greatly increase patient safety and healthcare quality.

Methods for learning how healthcare workers feel, think, and act in relation to keeping patients safe while working include assessments of patient safety cultures. These evaluations help in the creation of plans to improve the safety culture overall by pointing out its advantages and disadvantages.

3.11.3 Patient Safety Culture Assessments

Methods for learning how healthcare workers feel, think, and act in relation to keeping patients safe while working include assessments of patient safety cultures. These evaluations help in the creation of plans to improve the safety culture overall by pointing out its strength and limitations.

The culture of patient safety in various healthcare settings has been the subject of numerous studies conducted in South Africa. Researchers usually use validated surveys to obtain information from healthcare personnel. One example is the Hospital Survey on Patient Safety Culture (HSPSC) (Azyabi et al., 2021). These tests show that people know about the safety concerns of dealing with patients, even while there are big problems such not having enough staff, resources, or communication.

Healthcare facilities should prioritise patient safety in order to improve the culture of patient safety. This calls for the creation of acts and regulations that encourage cooperation and communication, facilitate the reporting of issues and the learning from them, and provide patients with ongoing safety guidelines and training (Mistri et al., 2023).

3.11.4 Root Cause Analysis Protocols

Root cause analysis (RCA) is the systematic process used to determine the cause of negative events. Instead of punishing or placing blame, RCA seeks to identify what went wrong and how to prevent it from happening again. RCA is a comprehensive inquiry into what transpired that includes data collection, witness interviews, and system and policy reviews. In order to handle circumstances that might endanger patients, certain South African hospitals have established RCA procedures. These methods typically consist of the following steps: identifying the issue, obtaining data, determining the cause, and developing and implementing solutions (Singh et al., 2025). Finding systemic issues that lead to errors, such as poor workflows, inadequate training, and a lack of resources, has become simpler with the use of RCA. However, RCA is successful because healthcare organisations are dedicated to carrying out and monitoring the recommended tasks. To ensure that the changes that are discovered are sustainable and result in significant changes to the way things are done, it also requires adequate funding and leadership support (Panagioti et al., 2019).

3.12 CLINICIANS' COMPETENCY IN HEALTHCARE QUALITY AND PATIENT SAFETY

The significance of having trained medical professionals who can treat patients safely and effectively is discussed in this section. Clinician competency is the set of skills, attitudes, and behaviours that healthcare professionals require to do their jobs well. This chapter discusses clinician competency and the competency frameworks that are important for healthcare practitioners in South Africa. These include clinical skills, professionalism, communication, and cultural competency.

Healthcare systems all throughout the world are concerned about gaps in clinical competency, but they are especially worse in rich countries where professional development isn't keeping up with new medical knowledge and technology. There are huge gaps in the clinical abilities needed to give good care in places with few resources because training programmes are out of date and there aren't enough

competent healthcare workers. The lack of clinical competency in South Africa can be attributed to a variety of factors. These factors include the strain on healthcare facilities, inadequate supervision during community service years, and inadequate training (Mburu and George, 2017; Oleribe et al., 2019). These issues result in inconsistent clinical care, particularly in rural and impoverished areas where physicians often confront complex scenarios without the requisite assistance or up-to-date information. Systemic changes are needed to close these skill gaps. These reforms should include training based on skills, continued education, and mentoring programmes that meet international standards.

Because the field is constantly changing, healthcare professionals need to constantly improve their knowledge and abilities. In order to ensure that healthcare professionals are adequately prepared to fulfil these demands, competency-based education and training are essential. This chapter discusses the importance of competency-based education in keeping abreast of developments in the healthcare industry (Frank et al., 2010).

The chapter also discusses various methods to assess and enhance the skills of medical professionals and supervisors who interact with patients. These methods include competency-based tests that provide unbiased assessments of a clinician's abilities (Epstein, 2002); CPD programmes that offer opportunities for ongoing education (Frank et al., 2010); and simulation-based training that allows clinicians to hone their skills in a safe environment (McGaghie et al., 2011, 2010). The study examines these tactics' suitability for the current training programmes and curricula for South African healthcare professionals in order to determine how well they work to create a skilled healthcare workforce.

3.12.1 Defining Clinician Competency

Clinician competency is the broad range of skills, dispositions, and behaviours that healthcare professionals must possess in order to perform their jobs effectively. Epstein and Hundert (2002) define professional competency as "the habitual and

judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served." This definition emphasizes many aspects of competency, including clinical skills, professionalism, communication, and cultural competency (Epstein, 2002).

Competency among clinicians is necessary to provide safe and efficient patient care. Structured rules defining competent practice in healthcare are provided by competency frameworks. The South African Pharmacy Council (SAPC), the Health Professions Council of South Africa (HPCSA), and the South African Nursing Council (SANC) have regulatory missions and visions that place a strong focus on the value of competent healthcare providers and high-quality services. For the purpose of dealing with professional misbehaviour among practitioners, certain regulating agencies have set explicit regulations.

However, the HPCSA and SANC have been criticised for their reactive approaches to ensuring high-quality healthcare despite their enabling laws, vision statements, and intentions. These organisations typically wait for complaints to be lodged before investigating and disciplining the professionals involved, rather than proactively preventing problems. The most frequent complaint, accounting for 21.6% of all complaints, was negligence, according to the HPCSA's report for the fiscal year 2021–2022. This is a decrease from the fiscal year 2020–21's 30.2%. The HPCSA (2022) reports that 8.9% of complaints were about crimes involving accounts, and 12.4% of complaints were about medical reports and inadequate care. This reactive stance demonstrates how crucial it is to adopt a more proactive approach to assessing and enhancing doctors competency in order to prevent professional misconduct and improve healthcare quality overall. South Africa's healthcare system has issues that make it more difficult for doctors to perform their duties effectively. These include having a large patient base with a variety of health needs, having too many patients, and not having enough resources. In order to address these issues, South African healthcare requires situation-specific education and training. Maphumulo and Bhengu (2019).

3.12.2 Challenges in Ensuring High-Quality Nursing Practice

Blaauw et al. (2014) assert that there is a pressing necessity to augment the quantity of health professionals educated through training programs. This is required to meet patient and population health priorities and improve the health system's efficacy (Blaauw et al., 2014; Frank et al., 2010; World Health Organization, 2023). Nurses are the backbone of the healthcare system in South Africa and around the world because they make up the bulk of healthcare workers. Blaauw et al. furthermore state that due to the importance of nurses to the health care system, adjustments to the number of nurses employed, their scope of practice, and their educational opportunities are critical strategies and tactics for enhancing the efficiency and effectiveness of the healthcare system (Blaauw et al., 2014). Thus, it is essential that sufficient training is provided and that a nurse's competency in patient safety is a prerequisite for providing high-quality healthcare.

In the high-risk healthcare industry, clinical nurses, who represent the largest group of health professionals, bear an ethical and moral responsibility to provide high-quality, safe care (Earle-Foley et al., 2012). Historically, nurses have been pivotal in enhancing patient safety and healthcare quality through their problem-solving abilities and practice development skills. However, the increasing burden of disease and resultant overcrowding in healthcare facilities are making it increasingly difficult for nurses to maintain these standards. This pressure contributes to a rise in mistakes and errors, posing significant risks to patient safety.

Human resources planning, including skill management, is crucial for optimising the effectiveness of the workforce. This involves not just achieving a specific mix of personnel but also adapting their attributes such as knowledge, skills, attitudes, behaviours and roles, to meet changing environmental conditions and demands. Effective skills management is essential in addressing the dynamic challenges faced by the healthcare system (Oleribe et al., 2019).

A persistent issue in healthcare is bridging the gap between theoretical knowledge and clinical practice, especially in unsupervised settings. Despite the introduction in 1974 of the continued professional development (CPD) model by the Health Professions

Council of South Africa (HPCSA), challenges remain (Republic of South Africa, 1974). The CPD model, as it currently stands, is often not competency-based but rather focused on attendance in hours or days, with formative evaluation not always required. One way of acquiring CPD points is through attendance at conferences and short courses which are accredited by the South African Medical Association. The challenge identified during the attendance at these conferences is that clinicians will present at a conference session, sign a register and immediately leave with the intention of being registered in order to collect the CPD points. This has created a serious challenge since the time is allocated for continuous professional development, but the return on investment is not evident because of this behaviour which should be discouraged amongst clinicians. This approach limits its effectiveness in ensuring ongoing competency among healthcare professionals (Forsetlund et al., 2021; Nyelisani et al., 2023).

Furthermore, nurses are expected to take ownership of maintaining and updating their professional knowledge and skills by engaging in continuous professional development. They should actively work to enhance their practice, prioritise patient safety, and uphold quality care through regular self-assessment, supervision, and performance reviews. It is also essential for nurses to practice autonomously while being aware of the boundaries of their expertise. When these limits are reached, they must reflect critically and consult with or refer to more qualified professionals where necessary. The South African Nursing Council (SANC) describes continuing professional development as an intentional and regulated process in which registered practitioners take personal responsibility for participating in various learning activities. This ongoing engagement aims to enhance their knowledge, skills, attitudes, and professional conduct, ensuring they remain current with scientific advancements, innovations, and changes in healthcare. The goal is to support safe, ethical, competent, and lawful practice with their evolving professional roles, ultimately contributing to the delivery of high-quality care to the communities they serve (South African Nursing Council, 2005).

Moreover, the SANC has yet to implement a comprehensive CPD model for nurses in South Africa. This delay hinders efforts to ensure that nurses continually update and

enhance their skills in line with evolving healthcare needs (Nyelisani et al., 2023). Implementing a competency-based CPD model, which includes formative assessments, could significantly improve the proficiency and safety of nursing practice. The SANC has developed nursing practice standards for all health facilities in South Africa. These standards spell out the main duties, tasks, procedures, and systems that nurse practitioners need to follow in order to offer high-quality nursing care (South African Nursing Council, 2024). One of the standards to be implemented is continuing professional development and training. The requirements to be met by the health establishment is firstly, that a CPD programme must be implemented to promote lifelong learning, safe, ethical and professional growth of nurse practitioners and secondly, that health establishments must have a CPD champion to coordinate all CPD activities. For training, the standard is that the nursing unit must have a comprehensive training and development programme. It is a requirement that a system be in place to ensure that in-service training is provided so that nurses remain up-to-date and relevant with current trends and developments in nursing practice. These standards must be monitored to ensure that they are implemented, and the observation has been that if the standards are set without resources to implement them, then the health establishments will not be able to achieve them. It remains to be seen whether the health establishments will be able to comply with the nursing practice standards which became effective on the day they were gazetted in May 2024 to close the competency gap and promote patient safety and quality healthcare (South African Nursing Council, 2024, 2005).

A study by Melnyk et al. (2018) aimed to identify the levels of evidence-based practice (EBP) competency amongst nurses in the United States and to determine key variables related to EBP competency. Significant competency gaps were found in the survey, which involved 2,344 nurses from 19 different hospitals and healthcare facilities. The results showed that the nurses who took part in the survey were unable to fully attain any of the 24 tested EBP competencies. EBP proficiency was reported to be higher among younger nurses and those with more education. Although there has been some improvement, it appears that EBP competency still has significant gaps. This highlights the necessity of focused educational and training programmes to close these gaps and improve nursing practice in general (Melnyk et al., 2010).

Clinicians don't always employ evidence-based care for a variety of reasons. Lack of knowledge and experience is one of these issues, which is frequently brought on by flaws in the way evidence-based care is taught in schools. Given that evidence-based care has long been emphasized as being crucial to improving healthcare quality and safety, the findings are especially alarming (Melnik et al., 2018). Nurses must improve their use of evidence-based practice to guarantee the best treatment and health outcomes. Targeted education and training programs are required to close these knowledge gaps and enhance the standard of patient care and clinician practice (Melnik et al., 2010; Wakefield et al., 2021).

3.12.3 The Role of Competency and Competency-Based Education for Clinicians in Healthcare

O'Leary, a workshop leader in teaching doctors how to provide safe care (Leape, 2021), reports that today's medical schools place strong emphasis on giving students the information and skills they need to do the technical practice of medicine. However, they do not always do a good job of helping students develop the skills, attitudes, and behaviours that will let them work safely and become future leaders in improving patient safety. Medical schools are failing at helping students learn the basic skills and knowledge they need to give safe patient care. These include systems thinking, issue analysis, the use of human factors, science, communication skills, patient-centred care, teamwork concepts and skills, and dealing with doubt, anxiety, and uncertainty about medical errors (Leape, 2021b).

Continuing medical education (CME) encompasses educational activities designed to maintain, develop or enhance the knowledge, skills, professional performance, and relationships that physicians use in their service to patients, the public, and the profession. As Zeng et al. (2016) note, the implementation of CME varies globally and is tailored to individual needs. The primary goal is to sustain and improve clinical performance through various intermediate objectives, such as acquiring new knowledge, applying it, developing skills, or changing attitudes (Zeng et al., 2016). Donald Berwick, in the foreword of Leape's (2021a) work, observes that professional training often only superficially addresses patient safety. He highlights that the

scientific tools necessary for creating safe systems are rarely included in the curricula for aspiring medical professionals, including doctors, nurses, and healthcare managers. Berwick points out a critical gap: while nearly all medical students graduate having learned about the Krebs cycle and the discovery of insulin, they typically lack education on human error or the foundational work of James Reason. This educational shortfall contributes significantly to the ongoing issue of medical errors and patient injuries (Berwick, 2021; Leape, 2021b).

A competency-based education (CBE) or continuing medical education approach focuses on the outcomes of learning rather than the process. In this model, the key competencies required for effective practice are clearly defined, and education programmes are designed to ensure that learners achieve these competencies. This approach contrasts with traditional education models that are often time-based and rely on the accumulation of credits or hours. In CBE, learners progress at their own pace, demonstrating their proficiency in specific competencies before moving on to the next stage (Frank et al., 2010).

Competency-based education safeguards proficiency and quality of care. An ongoing learning process ensures that healthcare professionals possess the necessary skills, knowledge, and attitudes to provide high-quality care. By focusing on specific competencies, CBE ensures that healthcare providers are not just knowledgeable, but also capable of applying their knowledge effectively in clinical settings (Swing et al., 2007). New legislation, changing patient needs, and new technologies are all making the healthcare landscape change very quickly. Competency-based education lets training programmes swiftly add new content and practices since they are more flexible and adaptive. This helps healthcare professionals stay informed and accomplish their duties well (Frank et al., 2010).

A UK medical school produced and shared a training program (Patey et al., 2007). The module's purpose was to make patients safer by teaching them the skills, information, and attitudes that minimize the likelihood of medical errors and improve healthcare by learning from them. At the University of Aberdeen, the module was taught eleven times between September 2004 and June 2005, when it was in its pilot year. The results show that prior to the module, students reported having a 'low' or

'average' understanding of patient safety issues and knowing what to do if they saw an error. About a year later, 38 (or 29%) of the postgraduate doctors in their first year who were practicing in the same area answered the same questions. After a year, there was a significant improvement in the scores on both knowledge scales (Patey et al., 2007). The results of Flinn et al. (2014) and research from other countries show that medical students lack a thorough awareness of patient safety issues, underscoring the necessity of creating this kind of instruction (Flinn et al., 2016; Halbach and Sullivan, 2005).

Corresponding to the findings of a study conducted at the University of Tampere in Finland, health professionals thought they were competent when it came to safety skills. The mean score for their proficiency in error analysis was 3.09, while the mean score for their ability to prevent risks to patient safety was 3.31. However, their mean score for using decision support technology was only 2.00, and their least proficient skill was interpreting data from aggregate error reports (Brasaité et al., 2016).

Tingle and McHale (2012) and a report from the World Health Organization (2011) give us new information from Africa and the Eastern Mediterranean. They look at harmful events in certain hospitals in Kenya, South Africa, Egypt, Jordan, Morocco, Sudan, Tunisia, and Yemen (Tingle and McHale, 2012; World Health Organization, 2011). The Tingle and McHale study from 2012 is the first full and comparative hospital study to look at patient harm in these domains. According to the WHO report from 2011, occurrences that cause accidental and avoidable injury to patients while they are getting medical care are bad for patients' health and cost both individuals and the health system a lot of money. The WHO Patient Safety research from 2006 to 2008 included 26 hospitals (with 18,000 patients) from the countries stated above. A lack of resources was one reason, but it was found that the main reasons for the bad events that happened were that clinical staff did not get enough or good training and supervision, protocols and policies weren't available or followed, and communication and reporting weren't good. The primary problems with patient safety training at all levels that focused on collaboration and error identification were 'analysis and prevention, importance of effective communication in the care delivery process, [and] use of knowledge-based information' (World Health Organization, 2011). These

remain important factors that will contribute to addressing preventable harm in the delivery of healthcare services.

In several studies listed below, conducted to assess the knowledge, attitudes and practices of health care workers, the findings showed alarming results.

- In a study conducted in a teaching hospital in Mexico City to assess knowledge, attitude and practices on vaccination and occupational health among healthcare workers, their coverage and knowledge were poor despite their role in preventing diseases (Lopez-Enriquez et al., 2019).
- A study that evaluated attitudes and knowledge as well as observed real biomedical waste management procedures in a tertiary teaching hospital in Bhopal revealed that the procedures were unsafe and insufficient (Nema et al., 2015).
- Alinnor and Ogaji (2022) discovered that there was a lack of understanding regarding the clinical audit process in a study of physicians in a tertiary medical facility in a developing country to assess their comprehension, perspective, and application of a clinical audit (Alinnor and Ogaji, 2022).
- Another study examined infection control procedures, attitudes, and knowledge at two tertiary hospitals in Port-Harcourt, Nigeria. According to the findings, infection control procedures were followed by 57.58% and 69% of the respondents at the two hospitals, respectively. According to Brisibe, Ordinioha, and Gbeneolol (2014), the reasons for non-compliance with the policy included inadequate supplies of consumables, inadequate supervision, a lack of in-service training, and absence of a hospital policy on infection control (Brisibe et al., 2014).
- In South Africa a study conducted to ascertain the knowledge and attitudes of frontline health workers in four provinces of South Africa regarding SARS-CoV-2 infection prevention and control, the results demonstrated that a minority of health professionals had attitudes that could endanger themselves or others. Out of all the participants, only 55.6% had received training on infection prevention and control. According to certain participants, neither medical masks (11.8%) nor gloves (9.9%) were available in their departments. This indicated that the two most important issues that needed to be addressed were: (i) making sure all employees received proper training in infection prevention and control and (ii) ensuring that

everyone had access to appropriate personal protective equipment (Moodley et al., 2021).

The above findings show that continuous training and a focus on knowledge form the foundation for behaviour change and improved approaches to care. Continuous skills training and acquisition and implementation of evidence-based care must occur repeatedly or on an ongoing basis for doctors and nurses to consistently implement evidence-based practice.

Beidas and Kendall (2010) reviewed the literature on how training affects the use of evidence-based psychological interventions. They found that while training can change clinicians' attitudes and increase their knowledge, bigger systemic and contextual factors are more important in deciding whether new practices are actually used and kept up (Beidas and Kendall, 2010). Williams Pendlebury and Smith (2017) state that these results are in keeping with other research on the transfer of training, which shows that training alone is only good for changing attitudes and expanding knowledge, not for changing behaviour (Williams et al., 2017).

The NDOH report on complaints for the 2022/23 financial year showed that the three most common types of complaints were about patient treatment (31%), staff attitude (30%), and waiting times (26%). These three types of complaints have not changed since the guidelines went into effect in 2018. Each of the nine provinces is seeing a similar trend. When patient safety incidents and complaints are reported and the data is analysed, patterns in the areas where the healthcare system needs to be improved are revealed. Improvement is possible only when learning is viewed as both an interactive process involving a wide range of people in actively changing organisations and behaviours, and as a fundamental feature of the system. The result must be a discernible change in the organisation, management, and delivery of medical care to increase safety (National Department of Health, 2023; Office of Health Standards Compliance, 2023b).

There are competency gaps in healthcare quality and safety among clinicians. and managers in charge of guaranteeing ongoing quality enhancement. The Lancet Commission's report on health professionals in Africa, according to Kruk et al. (2018),

outlined important measures to close the quality gap in the healthcare workforce. Health professionals should concentrate on developing their competencies through problem-based learning, early clinical exposure and active learning (Kruk et al., 2018). Furthermore, competency should encompass areas beyond the technical expertise of the providers such as systems thinking and the provision of ethical, courteous, and compassionate care.

Competency frameworks allow healthcare workers to adhere to precise standards regarding what is considered competent. These frameworks specify the specific skills, knowledge, and behaviour expected of healthcare system workers. The ACGME Competencies in the United States (Swing et al., 2007), the CanMEDS framework in Canada (Frank et al., 2010), and the frameworks developed by professional regulatory organisations like the SAPC, HPCSA, and SANC are examples of competency frameworks.

3.12.4 Competency-based Education in Practice

Competency-based education facilitates the acquisition and maintenance of critical clinical skills by healthcare professionals. This encompasses both technical expertise and the ability to think critically and make clinical decisions. Because medicine is so complex and clinical judgment is so important, medical professionals need to be able to understand clinical symptoms and what they mean, as well as how to react in different situations. One popular technique for instructing and evaluating clinical skills in a safe setting is simulation-based training (HPCSA, 2021). Simulation-based learning is a popular nursing teaching method that helps nurses develop their clinical reasoning skills for scenarios they may face in the workplace. Professionalism, which includes ethical conduct, accountability, and a dedication to ongoing development, is a fundamental skill in the healthcare sector. Competency-based education seeks to cultivate these skills through formative evaluations, mentoring, and reflective practice (SANC, 2018).

For patient safety and high-quality care, effective communication is essential. Communication skills training is part of competency-based education programmes that emphasise interdisciplinary teamwork and patient-provider interactions (Frank et

al., 2015). Furthermore, cultural competency is crucial in diverse healthcare settings. By teaching healthcare professionals to recognise and honour cultural differences and to provide patient care that is sensitive to their cultural needs, competency-based education tackles this issue (SANC, 2018).

To provide high-quality healthcare and ensure that patient safety is a top priority in all fields of nursing and medicine, clinicians need to know how to keep patients safe. Following the ethical principle of doing no harm, making sure that patient care includes preventive safety measures as a key part of it will make healthcare safer and better. In order to guarantee that upcoming health workers possess the necessary skills for the evolving burden of diseases and the technological environment, efforts have been made to change educational programmes and learning methodologies, according to the WHO (2018). The South African health regulatory bodies, in particular the SANC, must address their leadership challenges as reflected in the 2021/22 annual report for it to move toward education and training that equips the workforce to deliver high-quality, safe care, and to meet the growing challenge of the burden of diseases to realise universal health coverage and to close competency gaps.

3.12.5 The Role of Competency for Managers in Healthcare

While clinicians are quintessential in the delivery of quality healthcare and patient safety, healthcare organisation managers are crucial to improving quality and safety. Several studies show that managers play an important role in the patient safety culture (Merrill, 2015; Parand et al., 2014; Ree and Wiig, 2020). A report by UNDESA and the Committee for Development Policy on maternal and child health highlights that achieving equity and inclusion in policy implementation depends not only on interpersonal engagement at the local level but also on building strong institutional frameworks for funding, data management, and regulatory oversight (De Savigny and Adam, 2009; United Nations Department of Economic and Social Affairs (UNDESA) and Committee for Development Policy (CDP), 2009). Managers who steer such transformations are empowered to make decisions which address local needs within the established policy and resource frameworks rather than merely executing directives from bureaucratic or political authorities. Similarly, the World Health Report

(2008), identifies leadership reforms as one of the four critical reforms necessary to adapt health systems to effectively tackle contemporary health challenges (World Health Organization, 2008).

Healthcare management skills are particularly important for making sure that patients are safe and that they receive quality services. Healthcare managers are responsible for creating and maintaining an environment that promotes high-quality care and safeguards patient health. They are expected to have the following skills, such as management of operations, leadership, strategic planning, human resources, and management of budget. This section talks about how important it is to have good managers to keep patients safe and make sure that healthcare is of high quality, using the relevant literature.

To create a culture of quality and safety in healthcare organisations, good leadership is very important. Good healthcare managers set a good example and create an environment where patient safety is always the top concern and improvement is always encouraged. According to Dye and Garman (2014), leadership skills include having a clear vision, communicating well, and getting employees to follow best practices. When you do strategic planning, you set long-term goals and figure out what you need to do to get them. Healthcare managers who are good at their jobs know how to make long-term plans. This means looking at how things are going in an organisation, finding ways to make things better, and putting plans into action to improve quality and safety. White and Griffith (2010) mentions that good strategic planning makes sure that resources are used wisely and that efforts to improve patient care are long-lasting.

Healthcare organisations need to be able to manage their budget well in order to have the resources they need to offer high-quality care. Healthcare managers need to keep track of their budgets, spend their money wisely, and make smart financial choices that help keep patients safe and improve the quality of care. If budget is not available, it can be hard to find people, equipment, and supplies, which can make it harder to care for patients. Good financial management can help lower these risks by making sure that resources are managed wisely (Buchbinder et al., 2025).

Managing human resources is very important for making sure that healthcare organisations have a skilled and motivated staff. Healthcare managers who are good at human resource know how to hire, retain, train, and develop people. They make sure that their employees have the training and abilities they need to provide safe and effective care. Ongoing professional development and competency-based training are important parts of human resources management that help keep high standards of patient care (Nancarrow, 2015).

Operations management is the job of making sure that healthcare organisations run smoothly and efficiently by keeping an eye on their daily activities. To keep quality and safety requirements, operations management must be done well. This includes making sure that procedures and processes are in place to prevent errors and serious adverse events, as well as controlling the flow of patients and getting the most out of resources. To improve patient outcomes, good operations management also includes constantly watching and improving processes (Graban, 2018).

One of the most important skills for healthcare managers is risk management and patient safety. This means finding, evaluating, and reducing risks to patient safety. This entails the implementation and maintenance of safety measures, the execution of frequent risk assessments, and the assurance of conformity with regulatory standards. Good risk management prevent medical mistakes, lowers the chances of serious adverse events happening, and makes safety a priority (Youngberg, 2010). Healthcare managers are very important for keeping patients safe because they ensure that staff follow evidence-based procedures and create an environment where healthcare personnel aren't afraid to report mistakes and near misses. To make patients safer, it's important to create a culture that does not punish people and encourages them to talk to each other and learn from their mistakes (Pronovost et al., 2006).

3.13 IMPACT OF MANAGERIAL COMPETENCY DEFICITS ON HEALTHCARE QUALITY IN SUB-SAHARAN AFRICA AND SOUTH AFRICA

Healthcare management has made things a lot worse in South Africa and all of Sub-Saharan Africa. We need to run our healthcare system well so that we can make the most of our resources, carry out health policy, and give patients the best care possible. Bad management can cause problems that influence the whole system, making therapy less effective and putting patients' safety at risk. The problems generated by bad administration are sometimes made worse by the lack of resources and staff in Sub-Saharan African healthcare systems. A lot of research show that getting poor care might make health problems worse (Ayanore et al., 2019; Maphumulo and Bhengu, 2019; Oleribe et al., 2019).

Poor management results in the unavailability of appropriate medications, supplies, and medical equipment, as well as the misallocation of scarce resources. Many Sub-Saharan African countries are having a difficult time since they don't have enough resources (Oleribe et al., 2019; World Health Organization Africa Region, 2025; Yen et al., 2023). Poor management of human resources makes the paucity of healthcare workers in the area considerably worse. Poor management makes it harder to hire, keep, and inspire medical staff, which makes patient care worse. Healthcare professionals must engage in ongoing education and development to perform their duties effectively (Gerein et al., 2006; Mlambo et al., 2021). Poor service is typically the result of bad management. Patients may have to wait a long time, facilities may get congested, and they may not get the care they need because of poor planning and coordination. Patients are less happy with the healthcare system and trust it less when it is not functioning well. This usually makes health interventions less effective (Naitoo and Mahomed, 2016).

3.13.1 Specific Impact in South Africa

In South Africa, the effects of administrative incompetence are seen in many parts of the healthcare system. In most cases, managers are chosen for political reasons, not because they are good at running healthcare settings. The health system's performance and health outcomes show this, which is of concern given how far the country has come in terms of economic growth. Poor management has been associated with unfavourable health consequences. Even though South Africa has

one of the most advanced healthcare systems in the area, it still has high rates of maternal and infant mortality. This is mostly because of problems with how healthcare is delivered and how resources are managed (Pillay and Barron, 2018). When system-level changes are introduced to the way services are delivered, whether for safety reasons or to improve the quality of healthcare, personnel training is frequently the first response strategy. The gap between healthcare quality and patient safety has proven especially difficult to close in South Africa, even with developmental partners and substantial ongoing investments in quality improvement, training supported by donor funds, and ongoing in-service training of clinical staff and quality managers (Malakoane et al., 2020).

The healthcare system has faced numerous challenges related to service delivery and patient safety. Ineffective management practices contribute to medication errors, diagnostic mistakes, and other adverse events. Inspections conducted by the OHSC in the nine provinces found that many public hospitals in South Africa fail to meet basic quality and safety standards, often due to poor management and oversight (Office of Health Standards Compliance, 2017). A 2014 study by Blignaut, Coetzee, and Klopper looked at nursing qualifications and how nurses in South Africa feel about patient safety and quality of care. It discovered numerous entities that instilled fear. Almost half of the professional nurses who were asked indicated they weren't confident whether hospital management would truly do anything about the issues that were raised about patient care. Also, over 25% of the people who took part considered that their complaints about unpleasant experiences did not lead to the changes that were needed. More than half of the nurses thought they could not say anything unfavourable about the choices or actions of the people in authority, and more than half were scared that their mistakes would be used against them. Blignaut et al. (2014) believe that these results illustrate how crucial it is to make an organisation where safety is the top priority and individuals feel comfortable talking about poor experiences. This highlights how vital it is for managers to do their jobs successfully so that healthcare personnel may talk about and report patient safety issues without worrying about what will happen to them. Bad management is also responsible for the low morale and burnout that healthcare professionals are experiencing. Healthcare workers are not getting the support they need and are working in horrible conditions because of poor management. They also don't have many chances to progress in their careers.

Because of this, the quality of care goes down because there are a lot of people leaving and not many people are interested in their jobs (Akinwale and George, 2022; Manyisa and van Aswegen, 2017; Pascoe et al., 2021).

The South African healthcare system has a lot of challenges, including corruption and poor resource management. Ineffective leadership and governance practices have allowed corruption to flourish, diverting resources away from patient care and undermining efforts to improve healthcare quality (Rispel, 2016). Among a number of issues, medical managers are relatively young and have very little training. They lack confidence in their competencies and need further training and development. Their soft skills are particularly lacking, for example in change management. Quality managers in the health sector are mainly doctors or nurses with clinical and management experience. Their understanding of quality improvement work is limited; hence they are unable to facilitate improvement initiatives in their health establishments. Measuring the quality of health services is key to providing quality health care (Jones et al., 2022; Nilsen et al., 2024).

In Sub-Saharan Africa and South Africa, healthcare quality is greatly affected by a lack of skills in managing healthcare. Some of the most important problems that come from not having competent management abilities lead to ineffective resource allocation, poor human resource management, and inefficient service delivery (Pillay, 2008). To make sure that high-quality healthcare is provided to improve health outcomes, it is important to fill these competency gaps by giving healthcare managers specialised training and professional development.

It is apparent that being competent at managing healthcare is important for making sure that patients are protected and that healthcare is of high quality. Healthcare managers need to know more about how to support frontline staff with improvement challenges. Managers also need to know how to gather, show, and analyse data and use it to cut down on mistakes and improve services delivery. Competent healthcare managers lead by example, strategically plan for improvement, manage financial and human resources effectively, oversee operations efficiently, and implement robust risk

management practices. By developing and maintaining these competencies, healthcare managers can create an environment that supports high standards of care and continuously improves patient outcomes.

3.14 THE NEED FOR CONTINUOUS TRAINING AND TRAINING EVALUATION MODELS

According to the WHO, many countries experience significant deficiencies in both the quantity and quality of their health workforce. Inadequate training is a primary reason why clinicians and health professionals fail to provide quality care according to established standards. This issue is attributed to insufficient training and development, as well as inadequate opportunities for continuing in-service education and training workshops aimed at improving knowledge and skills. Consequently, these deficiencies compromise patient safety and the delivery of high-quality healthcare (World Health Organization, 2025).

For instance, in South Africa, registered nurses are required to complete one year of community service following their basic degree. During this period, they work under the supervision of experienced professionals who mentor them, preparing them for the demands of their profession. Once their training is completed, community service nurses are expected to transfer their training into the work environment which means implementing the knowledge, skills, attitudes, and behaviours acquired into the workplace. However, challenges such as overcrowding, lack of equipment, poor infrastructure, and staff shortages, as highlighted in the South African Lancet National Report (2019), hinder new nurses from effectively applying their knowledge in practice. This results in substandard care delivery (Maphumulo and Bhengu, 2019; South African Lancet National Commission, 2019). Blaauw et al. (2014) emphasise that a successful improvement in healthcare quality hinges on the performance of nurses, which depends on the effective implementation of recommended changes in their training, education and nursing practices (Blaauw et al., 2014).

Comprehensive training at all levels is very important for patient safety. This includes teamwork, finding and analysing mistakes, preventing them, and communicating

clearly during the service delivery process. It is very important to improve the skills of clinicians so that they can reach competency. This will guarantee the best quality of care and the best health outcomes for the community. Students must be able to demonstrate both knowledge and abilities by the time they finish their academic programmes. Also, this should be a norm for all healthcare professionals. Moran, Harris, and Valenta (2016) mention that to develop professionals, patient safety and quality improvement must be included in their training and their ability to do these activities must be tested (Moran et al., 2016).

Efforts to emphasise the importance of interprofessional teams are gaining traction. Nursing in particular has frequently led the way in pioneering educational pathways. For over a decade, the Quality and Safety Education for Nurses (QSEN) programme has focused on enhancing safety science education in nursing schools. Recently, the National Collaborative for Improving the Clinical Learning Environment highlighted the 'patient safety gap' in the education and training of all clinicians, providing specific suggestions for enhancement (Gandhi et al., 2018).

According to Sharma et al. (2018), people frequently pursue training that equips them with transferrable skills since it gives them new abilities. In order to make better progress in the future, organisations should evaluate training by taking into account its impact and effectiveness using various models (Sharma et al., 2018). Training is therefore essential in human resource practices as it is a tool for personal and organisational development and improved organisational performance (Bednall et al., 2014; Choi, 2017). This indicates that the ability to apply acquired knowledge, skills, and attitudes to the accomplishment of institutional goals determines whether training is successful.

As part of the improvement, healthcare quality, patient safety, competency and behaviours should be assessed to ensure organisational goals are being met. Competencies include clinician engagement; the ability to inspire trust and loyalty in staff; change management; and financial management. Since attitude is one of the components of competency (knowledge, skills, and attitude), it reasonably follows that

beliefs regarding quality and patient safety are directly associated with culture and competency as a result of this relationship (Ličen and Prosen, 2023).

3. 14.1 A Summary of the Literature Review on Healthcare Quality and Patient Safety

A competency gap still exists, and it is important that different evaluation models are implemented to improve training and clinical practice. For example, continuous professional development is key to ensuring the upskilling of clinicians and other health professionals. Competent doctors, nurses and other health professionals are critical for delivering high-quality healthcare to communities (WHO, 2018). In addition, continuous professional development is crucial for clinicians. The more they learn leads to better understanding of the healthcare delivery system, which means they can reduce the amount of harm caused.

This research was part of the National Health Quality Improvement Plan training which will assist in closing the knowledge gaps between healthcare quality and patient safety at the health establishment level. A questionnaire was used pre- and post-implementation of the training to identify where the gaps are experienced in the healthcare environment, from the perspectives of clinicians and managers. The questions were formulated to assess the current levels of knowledge among quality managers and clinicians concerning healthcare quality in their establishments. This directly addressed the objective of identifying baseline knowledge gaps, essential for understanding the scope of training needed to improve healthcare quality in South Africa. By evaluating the existing knowledge, the study will help to pinpoint specific areas where interventions are required to elevate the standards of care provided. Subsequent sections of the questionnaire examined knowledge levels related to patient safety in the same group. It was crucial to address the gaps in patient safety practices, which are often a result of insufficient training or awareness. The findings highlight the specific areas of patient safety that need to be reinforced through training, contributing to the overall goal of reducing preventable medical errors and adverse events in South African health establishments.

The research questions form a cohesive framework for evaluating the current state of quality healthcare and patient safety knowledge and the effectiveness of training interventions. They are specifically aligned with the study's objectives of identifying and addressing the gaps in quality, safety, and competency among healthcare professionals in South Africa, ultimately leading to better patient outcomes and stronger healthcare systems.

This study aimed to explore the effectiveness of the Kirkpatrick evaluation training model, specifically linking it to the provision of quality care and patient safety. Effective training should invariably yield positive outcomes. For investigating the effective investment into training and analysing the return on investment, different training evaluation models have been introduced by different theorists according to the situations and organisation (Ali et al., 2022). This included, for example, the Kirkpatrick model; the context, input, process, and product model by Galvin and Stufflebeam (1983); the six-stage model by Brinkerhoff (1987); the Kriger model (1983) – which specifies three categories of learning outcomes which are cognitive, skill-based and affective outcomes; the Holton model (1996); and Phillip's return on investment model (1996) based on five levels, namely reaction, planned action, learning, applied learning on the job, business results and return on investment (Ali et al., 2022; Mohamad and Osman, 2017). These models all have their strengths and limitations. Even though the Kirkpatrick approach has been criticised, it is still valuable in identifying which measures of training efficacy evaluation should be applied (Salamon & Blume, 2021). The Kirkpatrick model, as described by Cahapay (2021), comprises four levels as already indicated. These levels, initially designed to evaluate apprenticeship and workplace training, can also be applied to the training evaluation process (Kirkpatrick and Kirkpatrick, 2006). The four levels of this model are also the most commonly recognised and used model in many fields, including business and academia (Allen et al., 2022; Alsalamah and Callinan, 2021). My focus was on the first two levels, first– reaction, and second - learning evaluation. The third level – behaviour change (practice) and the fourth level of results evaluation were not part of the research since the study aimed to bridge the competency gap in healthcare quality and safety between quality managers and clinicians. This endeavour required a paradigm shift to translate theory into practice. According to Zondi et al. (2021), the primary objective of an evaluation is to verify the efficacy of training, which can further

be defined as the application of acquired knowledge, skills, and behaviours by employees. Without proper evaluation of training, the effects remain unobserved, perpetuating the status quo and negatively impacting departmental and organisational performance (Zondi, 2021).

After the above training model was put into place, a post-training assessment of healthcare quality and patient safety competency was conducted to assess how much the quality managers and clinicians knew about healthcare quality and patient safety after the training. This was in line with the purpose of figuring out how well the training programmes were filling the skills gaps. The study evaluated the efficacy of targeted interventions in enhancing patient safety and healthcare quality by comparing knowledge levels before and after training.

The study's ultimate objective was to evaluate the efficacy of the Kirkpatrick model in identifying and addressing skill deficiencies among clinicians and quality managers. The major purpose of the study was to explore ways to evaluate training that would lead to long-lasting enhancement in competencies. This research question fit in with that goal. To make healthcare better and safer for South African patients, we need to improve clinical practice and fill in gaps in our understanding. The study's outcomes will show how well the models and training methods work.

Table 3: Key Contributions from Literature and Models with Their Pros and Cons.

Author, Article	Pros	Cons
Training Evaluation Models		
Ambu-Saidi et al., 2024 A Critical Review on Training Evaluation Models: A Search for Future Agenda	The article provides a thorough review of various training evaluation models, offering a broad perspective on how these models can be applied in different contexts. Ambu-Saidi et al. (2024) critically examine the limitations of current training evaluation models, which can help identify potential shortcomings in applying these models to healthcare settings. Provides innovative approaches or emerging models that could be more effective in healthcare settings, where traditional models might fall short.	While it provides a broad overview, the lack of specific examples or case studies in healthcare could limit its direct applicability. The review focuses heavily on the theoretical aspects of training models without offering practical guidelines on how to implement them effectively in a healthcare setting. This could make it challenging to translate the findings into actionable strategies that directly improve patient safety and care quality. Does not fully consider recent advancements in healthcare training, particularly in areas like simulation-based learning or digital health technologies. This could result in missed opportunities to leverage newer, more effective training approaches.
Savul et al., 2021 Evaluation of infection prevention and control training workshops using Kirkpatrick's model	The article's use of Kirkpatrick's model to evaluate infection prevention and control (IPC) training workshops directly aligns with the study's focus on using	Limited generalisability to other areas of healthcare. Focus more on immediate or short-term outcomes rather than long-term impacts.

	training models to improve healthcare quality and patient safety. This practical application demonstrates how the Kirkpatrick model can be effectively utilised in a healthcare context, providing a relevant case study for the research. The article covers all four levels of the Kirkpatrick model (reaction, learning, behaviour, and results), providing a well-rounded assessment of the training's effectiveness. This comprehensive approach serves as a useful framework for the study, particularly in evaluating how training influences clinician competency and patient safety outcomes.	The article fully explores the contextual factors that affect the success of training programmes, such as organisational culture, leadership support, and resource availability.
Moldavan L., 2016 Training Outcome Evaluation Model	The model helps to ensure that training programmes are not only implemented but also effective in achieving their intended goals. The model incorporates multiple dimensions of training evaluation, such as knowledge retention, behaviour changes, and impact on patient outcomes. It provides a comprehensive framework for assessing the effectiveness of training programmes. It also offers a holistic approach, and relevant aspects of training are considered.	Not specifically tailored to healthcare settings.
Ali, Tufail & Qazi, 2022 Training Evaluation Models: Comparative Analysis	The article provides a comparative analysis of different training evaluation models, offers a broad perspective on the strengths and weaknesses of each model. Allows the researcher to choose the most appropriate model or combination	Does not sufficiently address the contextual relevance of the training evaluation models in the specific environment of South Africa or Sub-Saharan Africa. Healthcare settings in these

	of models to effectively evaluate the impact of training on healthcare quality and patient safety. Highlights best practices in training evaluation. Can guide well-suited strategies to the healthcare context, ensuring that the training programmes introduced lead to tangible improvements in patient safety and clinician competency.	regions may face unique challenges that are not fully covered by the models discussed.
Kirkpatrick, D. L., & Kirkpatrick, J. D. (2006). Evaluating Training Programs: The Four Levels	The Kirkpatrick model offers a clear and structured approach to evaluating training programmes through four distinct levels. This framework can help systematically assess the effectiveness of training interventions aimed at improving healthcare quality and patient safety. This comprehensive approach allows for a thorough evaluation of how well training programmes meet their objectives, which is critical for ensuring that training leads to tangible improvements in healthcare settings.	The Kirkpatrick model primarily focuses on the outcomes of training rather than the processes involved in delivering and designing training programmes. There is a risk of oversimplifying the complexities involved in training evaluation
Healthcare quality and patient safety		
Panagioti M. et al., 2019 Prevalence, Severity, and Nature of Preventable Patient Harm across Medical Care Settings: Systematic Review and Meta-analysis	A meta-analysis that quantifies the prevalence, nature, and severity of preventable patient harm in a range of medical care settings. At least one in 20 patients are affected by preventable patient harm in medical care settings. Approximately 12% of preventable patient harm causes permanent disability or patient death and is mostly related to drug incidents, therapeutic management, and invasive clinical procedures.	Small potential to advance policy guidance and practice for mitigating preventable patient harm.

Konlan & Shin, 2022 The Status and the Factors that influence Patient Safety in Health Care Institutions in Africa: A Systematic Review	Provides a systematic review of patient safety in African healthcare institutions and offers a broad and detailed understanding of the current status. Provides a foundational understanding of the challenges and gaps in patient safety that training models need to address. Identifies key factors that influence patient safety in African healthcare settings and addresses the unique challenges faced by healthcare institutions in the region.	Emphasises institutional factors affecting patient safety such as infrastructure or policy, and not individual competency gaps among clinicians and quality managers.
Singh G., Patel R.H., Vaqar S., et al. Root Cause Analysis and Medical Error Prevention. [Updated 2024]	Article emphasises the importance of RCA in understanding and preventing medical errors. RCA is a critical tool for identifying underlying issues that training programmes can address. Explores how RCA can prevent medical errors, provides practical insights into improving healthcare quality.	RCA focuses on identifying and addressing specific causes of errors, which might not fully capture systemic issues within healthcare institutions.
Kruk, M.E. 2018 High-quality Health Systems in the Sustainable Development Goals Era: Time for a Revolution	Introduction to developing high quality health systems to improve patient care and patient outcomes Highlights major gaps in healthcare quality. Offers a comprehensive outline for interventions for improvement.	Implementation strength in health systems
Oyebode, F. 2013 Clinical Errors and Medical Negligence	Discusses the definition, nature and origins of clinical errors, including their prevention. The relationship between clinical errors and medical negligence is examined, as are the characteristics of litigants and events that are the source of litigation.	Serves only as an overview. Does not make implementable recommendations.

Kohn, L.T., Corrigan J.M., Donaldson, M.S. To Err Is Human: Building a Safer Health System.	Reveals statistics of medical error and the disparity between the incidence of error and public perception, given many patients' expectations that the medical profession always performs perfectly. A careful examination is made of how the surrounding forces of legislation, regulation, and market activity influence the quality of care provided by health care organisations and then looks at their handling of medical mistakes.	Study relied on old data. Does not provide sufficient guidance on implementation.
Maphumulo, W.T. & Bhengu, B. R. 2019. Challenges of Quality Improvement in the Healthcare of South Africa post-apartheid: A Critical Review	Highlights the various challenges faced in healthcare quality in South Africa. Identifies challenges that are incurred in practice that compromise quality in the healthcare sector, including strategies employed by government in improving the quality of health delivery. Critically analyses the success and failures of existing strategies.	The government of South Africa has a challenge to ensure that implementation of National Core Standards will deliver the desired health outcomes, because achieving a lasting quality improvement system in health care seems to be arduous.
Gray A., Vawda Y., 2019. South African Health Review, Health Systems Trust.	Analyses and assesses progress and challenges in key areas of the health system, and proposes recommendations for improvement. Health legislation and policy: how to best achieve a universal health system.	Implementation strength.
Kwame, A. & Petrucka, P.M. 2021 A Literature-Based Study of Patient-Centred Care and Communication in Nurse-Patient Interactions: Barriers, Facilitators, and The Way Forward.	The article's emphasis on patient- centred care and communication is crucial for improving healthcare quality and patient safety. Effective communication between nurses and patients is foundational to providing high-quality care. Explores the barriers and facilitators to effective nurse-patient	

	communication and provides valuable insights into the challenges that need to be addressed in training programmes.	
Hughes, R.G. 2008 Tools for Quality Improvement and Patient Safety	Provides a detailed examination of various tools used for quality improvement and patient safety. Tools can be incorporated into training programmes to equip healthcare professionals with practical methods for enhancing care quality and safety. Can help bridge competency gaps by providing healthcare professionals with the necessary skills to identify, analyse, and address quality and safety issues.	Does not explore how to ensure long-term sustainability of quality improvement initiatives.
Koelble, T.A. & Siddle, A.2014 Institutional Complexity and Unanticipated Consequences: The Failure of Decentralization in South Africa	Article provides a detailed analysis of the challenges and unintended consequences of decentralisation in SA. Understanding these challenges can help in designing training models that account for the complexities of the decentralised system. Emphasis on governance and leadership issues within decentralised systems aligns with the need to strengthen managerial competencies in healthcare settings.	Highlights the failures of governance in decentralised systems, but does not offer sufficient solutions or recommendations for overcoming these challenges.
Gray, A. & Vawda, Y. 2019 South African Health Review: Health Legislation and Policy	Gives a detailed description of the policy and legislative framework enabling current health reforms in the country.	
Matseke, M.G., 2023 Taking Stock of the Healthcare Workforce in the Public Health Sector of South Africa during	Sheds light on the specific challenges faced by public health workforce such as staff shortages, burnout, and increased burdens on healthcare workers. Crucial for identifying competency gaps that	

Covid-19	training models need to address to improve healthcare quality and patient safety.	
Bhati, D., Deogade, M.S. & Kanyal, D. 2023 Improving Patient Outcomes Through Effective Hospital Administration: A Comprehensive Review	Emphasises the role of effective hospital administration in improving patient outcomes. A comprehensive review covers a wide range of factors affecting hospital administration, including organisational strategies, leadership practices, and operational efficiencies. Identifies best practices and successful strategies in hospital administration.	Discusses administrative aspects rather than directly addressing clinical competencies or patient safety.
Braithwaite, J, 2015 Healthcare Reform, Quality and Safety: Perspectives, Participants, Partnerships and Prospects in 30 Countries	Global perspective offers valuable insights into how different countries approach healthcare quality and safety. Detailed understanding of various quality improvement strategies and safety practices relevant for designing and evaluating training models.	Findings and recommendations generalised and not directly applicable to specific settings or training models.
Blignaut, A.J. Coetzee, S.K. & Klopper, H.C. 2013 Nurse Qualifications and Perceptions of Patient Safety and Quality of Care in South Africa	Study explores the relationship between nurse qualifications and their perceptions of patient safety and quality of care. Crucial for understanding how varying levels of education and training among nurses can affect their ability to ensure high-quality care and maintain patient safety. Highlights key issues such as doubts about management's willingness to address patient care issues, lack of effective change following event reports, and concerns about mistakes being held against nurses.	Study relies on self-reported data. There may be biases in how nurses perceive and report their qualifications and the state of patient safety. These perceptions may not always align with objective measures of care quality.

Campbell, S.G., Croskerry, P.& Bond, W.F. 2007 Profiles in Patient Safety: A 'Perfect Storm' in the Emergency Department	Highlights the dangers to patient safety in emergent cases.	Primary focus on emergent conditions in healthcare environment.
Allen-Duck, A. et al., 2017 Healthcare Quality: A Concept Analysis	Provides a thorough analysis of the concept of healthcare quality, breaking it down into core components. Establishes a clear understanding of what constitutes quality in healthcare. Article offers a theoretical framework that can be applied to various contexts, including South Africa. Analysis acknowledges that healthcare quality is multi-dimensional, involving factors such as effectiveness, efficiency, accessibility, and patient-centredness.	Article provides a strong conceptual foundation; however, lacks practical examples or case studies that demonstrate how these concepts are applied in real-world settings
Tung, E. & Bennet, S. 2014 Private Sector, For-Profit Health Providers in Low- And Middle-Income Countries: Can they Reach the Poor at Scale?	Focuses on healthcare provision in low- and middle-income countries, similar to the South African context. Provides insights into the challenges and opportunities of delivering healthcare in resource-constrained environments, which can be valuable for understanding the context in which healthcare quality and safety improvements must occur. Delves into the market dynamics of healthcare provision, including the role of competition, regulation, and pricing. This can inform the development of strategies for implementing training models that improve healthcare quality,	Focus is on the scale and reach of private healthcare providers rather than on healthcare quality and patient safety. Article takes a broad approach to discussing private sector healthcare across various LMICs, not specific nuances of the South African healthcare system.

	especially in competitive or mixed healthcare systems.	
Dodwad, S. 2013 Quality Management in Healthcare	Covers essential concepts such as continuous quality improvement (CQI), total quality management (TQM), and the use of various quality management tools, offering a solid foundation for understanding how quality can be managed in healthcare settings. Emphasises the importance of patient-centred care in quality management. Discusses various tools and techniques used in quality management, such as Six Sigma, Lean, and the Plan-Do-Study-Act (PDSA) cycle.	Does not specifically address the role of training models in healthcare quality improvement.
Maritz R. et al., 2019 Overview of Quality Management Models for In-Patient Healthcare Settings. A Scoping Review	Broad overview of several quality management models, making it a valuable resource for understanding the different approaches that can be applied in in-patient settings. Discusses the strengths and weaknesses of various models, providing a nuanced perspective that can inform the selection and adaptation of these models.	Limited discussion on the practical implementation of these models in real-world settings. Does not delve deeply into specific case studies or empirical evidence.
Tringale M., Stephen G., Boylan A.-M., et al., 2022 Integrating Patient Values and Preferences in Healthcare: A Systematic Review of Qualitative Evidence.	Article emphasises the importance of integrating patient values and preferences into healthcare. Incorporating patient perspectives is crucial for developing training models that foster patient-centred care among clinicians and quality managers. Highlights the role of effective communication and shared decision-making.	Article primarily addresses the integration of patient values from a theoretical and qualitative perspective, with less emphasis on how to train healthcare providers to achieve this integration.

Bombard, Y. et al., 2018 Engaging Patients to Improve Quality of Care: A Systematic Review	Provides a systematic review that synthesises a broad range of studies on patient engagement, offering valuable insights into how involving patients can directly influence the quality of care. Highlights various successful strategies for patient engagement, and offers evidence-based practices.	Provides a thorough examination of patient engagement strategies, but offers less detail on how to train healthcare providers to effectively implement these strategies.
Mlambo, M. Silén, C. & McGrath, C. 2021 Lifelong Learning and Nurses' Continuing Professional Development, a Metasynthesis of the Literature	In-depth synthesis of the literature on lifelong learning and CPD for nurses, offering a broad perspective on how ongoing education can enhance nursing practice. Highlights the critical role of CPD in improving nurses' skills and competencies. Identifies key barriers and facilitators to lifelong learning in nursing such as institutional support, access to resources, and individual motivation.	Article discusses the difficulties in measuring the impact of lifelong learning on clinical practice and patient outcomes, noting that the benefits of CPD are often difficult to quantify.
Shiri, R.; El-Metwally, A.; Sallinen, M.; Pöyry, M.; Härmä, M.; Toppinen-Tanner, S. The Role of Continuing Professional Training or Development in Maintaining Current Employment: A Systematic Review	Thorough review of the existing literature on CPTD, offering valuable insights into how ongoing training influences employment stability and professional competence. Highlights the importance of CPTD in maintaining current employment, which is crucial in healthcare settings where retaining skilled professionals is key to providing consistent, high-quality care.	Article discusses the role of CPTD in maintaining employment and professional competence, it does not explicitly address how CPTD impacts patient safety and healthcare quality.
Babiker A. et al., 2014 Health Care Professional Development: Working as a team to Improve Patient Care	Highlights the importance of teamwork in healthcare, emphasising how collaborative efforts among healthcare	Article provides a solid foundation on the importance of teamwork but does not delve into specific training models or evaluation

	professionals can lead to improved patient outcomes. By promoting the integration of different healthcare professionals, the article supports the idea that diverse skill sets and perspectives can enhance the overall quality of care, which is crucial for addressing the gaps in competency.	frameworks like the Kirkpatrick model.
Farokhzadian, J., Deghhan Nayeri N. & Borhani, F. 2018 The Long Way Ahead to Achieve an Effective Patient Safety Culture: Challenges perceived by Nurses	Provides an in-depth examination of the challenges faced by nurses in cultivating a patient safety culture. Offers valuable insights into real-world challenges experienced by frontline healthcare providers. Understanding barriers to establishing a safety culture is helpful for identifying areas where training and competency development can make a significant impact.	Does not offer concrete solutions or strategies for overcoming challenges.
Flott, K., Fontana, G., & Darzi, A. (2019). The Global State of Patient Safety. London: Imperial College London.	Reports global perspective that allows for a comparison of patient safety challenges in South Africa with those in other regions, helping to identify common issues and unique regional challenges. Extensive research and data, offering evidence-based insights into the state of patient safety. Offers recommendations for policy changes, leadership development, and the implementation of safety cultures within healthcare organisations.	
Rodziewicz TL, Houseman B, Vaqar S, Hipskind JE. 2024. Medical Error Reduction and Prevention.	Provides a detailed exploration of strategies and best practices aimed at reducing and preventing medical errors.	Although the article addresses the role of training in error prevention, it does not delve deeply into the

	Authors provide evidence-based strategies for reducing medical errors, such as implementing checklists, enhancing communication among healthcare teams, and using technology to prevent errors. Emphasises the importance of systemic changes in healthcare organisations to prevent errors, such as fostering a culture of safety and continuous learning.	specific competencies required for clinicians to effectively prevent errors.
Zuma, T. et al., 2016 The Role of Traditional Health Practitioners in Rural KwaZulu-Natal, South Africa: Generic or Mode Specific?	Outlines healthcare landscape in rural KwaZulu-Natal, offering insights into how traditional health practitioners contribute to healthcare delivery. Emphasises the importance of cultural competency and the role of THPs in rural communities.	Does not provide sufficient insights into the functioning of modern healthcare systems.
Schlemmer, A. & Mash, B. 2006 The Effects of a Language Barrier in a South African District Hospital	Highlights how language barriers can adversely affect communication between healthcare providers and patients. Effective communication is a cornerstone of patient safety. Underscores the importance of cultural and linguistic competency in healthcare settings.	Effectively highlights the problem of language barriers but does not provide extensive solutions or interventions that could be applied to mitigate these barriers.
Pillay, R. 2008 Managerial Competencies of Hospital Managers in South Africa: A Survey of Managers in the Public and Private Sectors	Article provides an in-depth analysis of the competencies required by hospital managers. By comparing managerial competencies in both public and private sectors, the article offers valuable insights into how different environments might require different skill sets.	Does not directly to patient safety outcomes.
Nagpal, K. et al. 2010. Information Transfer and Communication in Surgery	Article highlights communication as a critical factor in ensuring patient safety during surgeries. Information	Article identifies communication issues, but it does not offer

	transfer during surgical procedures is directly related to healthcare quality.	comprehensive solutions for addressing these problems through training or other interventions.
Naidoo R.& Schoeman R., 2023 Burnout in Emergency Department Staff: The Prevalence and Barriers to Intervention.	Burnout can lead to reduced attention to detail, impaired judgment, and increased medical errors, which are central to discussions of patient safety gaps. Identifies barriers that prevent effective intervention, such as a lack of mental health support, high patient volumes, and limited resources. Understanding these barriers provides insights into the systemic challenges that affect healthcare workers' ability to maintain high-quality care.	
Grasso, V.F. 2011. Early Warning Systems: State-of-Art Analysis and Future Directions	Article provides an in-depth analysis of early warning systems (EWS), which are crucial in preventing adverse events in healthcare settings. The article's focus on detecting early signs of patient deterioration ties directly to research on improving patient safety. Comprehensive overview of existing EWS models highlights current best practices and offers valuable insights into how these systems contribute to reducing clinical errors.	Article heavily focuses on the technical aspects of EWS, which may limit its direct application to studies emphasising human factors such as clinician competency or patient interaction.
Azyabi, A., Karwowski, W. & Davahli, M.R. 2021 Assessing Patient Safety Culture in Hospital Settings	Article provides an in-depth assessment of patient safety culture in hospital environments, which is crucial for understanding how organisational culture impacts healthcare quality and safety.	Article focuses more on the overall culture of safety rather than directly addressing clinician competency development.

	Study employs various assessment models to evaluate patient safety culture and emphasises how healthcare training can be adapted to improve safety culture.	
Gqaleni, T.M.H. & Mkhize, S.W. 2024 Barriers to Implementing Patient Safety Incident Reporting and Learning Guidelines in Specialised Care Units, Kwazulu-Natal: A Qualitative Study	Study directly addresses barriers to implementing patient safety incident reporting, a key component of healthcare quality and safety. Qualitative nature of the study offers rich, detailed insights into the perceptions of healthcare workers, providing a deeper understanding of the cultural and operational barriers to patient safety reporting.	Study emphasises barriers to incident reporting more than directly addressing the training and competency development of clinicians.
Auraaen, A., L., Slawomirski L. and N. Klazinga (2018). The Economics of Patient Safety in Primary and Ambulatory Care: Flying Blind, OECD Health Working Papers	Study emphasises patient safety in primary and ambulatory care settings, which are often overlooked in favour of hospital-centric research. Since primary care forms a significant part of healthcare delivery, particularly in countries like South Africa where access to secondary and tertiary care is limited, the study provides a crucial perspective for understanding patient safety at these levels. Highlights the economic impact of patient safety lapses.	While the paper provides a detailed economic perspective on patient safety, it does not directly address how training models or competency development can mitigate these issues.
Asem, N., Sabry, H.A. and Elfar, E. 2019 Patient Safety: Knowledge, Influence and Attitude among Physicians: An Exploratory Study	Study investigates physicians' knowledge, attitudes, and behaviours concerning patient safety, which directly aligns with the research focus on clinician competency gaps. By exploring how physicians understand and approach patient safety, it provides useful insights into the current gaps that may be addressed through	While it provides critical insights into physicians' attitudes and knowledge, it does not propose specific interventions or training models for addressing the identified gaps.

	targeted training programmes like the Kirkpatrick model.	
Fraser, J. (2015). The Morbidity and Mortality Meeting: Time for a Different Approach? Archives of Disease in Childhood(Fraser, 2016)	Article centres on morbidity and mortality (M&M) meetings, which are important tools for improving patient safety and healthcare quality. It addresses the role of these meetings in identifying medical errors and system failures, which ties directly to the broader theme of patient safety in the research. Article's focus on improving the efficiency of these meetings mirrors the goals of the study in enhancing healthcare quality and patient safety.	While the article is relevant to patient safety, its emphasis is more on the identification and discussion of errors rather than broader competencies, such as leadership, teamwork, and communication, which are also crucial to improving healthcare quality.
Waterson P. et al., 2019 Hospital Survey on Patient Safety Culture (HSPSC): A Systematic Review of the Psychometric Properties of 62 International Studies.	The review encompasses studies from various countries, offering a global outlook on patient safety culture. This broad scope provides a valuable comparative framework for analysing healthcare safety issues in South Africa. Highly relevant for evaluating patient safety in healthcare settings.	Article does not offer specific strategies or models for implementing CBE in healthcare organisations.
Frank, J. R., Mungroo, R., Ahmad, Y., Wang, M., De Rossi, S., & Horsley, T. (2010). Toward a Definition of Competency-Based Education in Medicine: A Systematic Review of Published Definitions.	The study's emphasis on competency frameworks directly supports the objective of improving clinician competency in healthcare quality and patient safety. Systematic review provides a well-structured and rigorous analysis of existing definitions and concepts related to CBE	
Epstein, R.M. and Hundert, E.M., 2002 Defining and Assessing Professional Competence.	Provides a broad and detailed framework for defining and assessing professional competence. Epstein and Hundert's multidimensional definition of	Article lacks practical guidelines for implementing competency-based training models.

	competence – including cognitive, technical, integrative, and interpersonal skills – can help inform understanding of the diverse skills required to enhance patient safety and healthcare quality.	
McGaghie, W.C., Issenberg S.B., Cohen, E.R., Barsuk J.H. and Wayne, D.B., 2011 Does Simulation-Based Medical Education with Deliberate Practice Yield Better Results than Traditional Clinical Education? A Meta-Analytic Comparative Review of the Evidence.	Provides extensive evidence supporting the effectiveness of simulation-based medical education (SBME) over traditional clinical education. Presents SBME as a viable option to address the competency gaps identified in research. The emphasis on deliberate practice aligns well with the goal of achieving measurable improvements in patient safety and quality of care.	Primarily focuses on education and training outcomes, with less emphasis on patient safety as an end result.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 INTRODUCTION

This chapter provides a comprehensive cover of the research design, methodology and theories used for this research. Amongst other aspects included in this chapter are the method of data collection, sampling methods, methods of analysis used, ethical considerations, informed consent and confidentiality.

A longitudinal pre-post study design was used where the knowledge of the participants regarding quality healthcare, patient safety amongst clinicians and quality managers were measured before and after the intervention. This research design was appropriate since the same participants were studied over a certain period. The study's focus was on assessing the experience and knowledge; and determining whether there was a gap in quality healthcare, and patient safety amongst clinicians and quality managers. Based on the outcome of the pre-assessment, a training programme was implemented. The Kirkpatrick' levels 1 and 2 of the four-level evaluation model (Kirkpatrick and Kirkpatrick, 2015) was used to explore and evaluate the effectiveness of the training intervention. The effectiveness of the training intervention was determined through the post-assessment questionnaire (Annexure G) completed by the clinicians and managers following their participation in the healthcare quality management training programme.

In research, several methodological approaches can be employed, each offering unique advantages and limitations depending on the nature of the study and its objectives. Some of the commonly used research methods include quantitative, qualitative, mixed methods, and case study approaches. Quantitative research seeks to examine numerical data, statistical analysis, and objective relationships. Most researchers use surveys, experiments, or other structured data collection instruments, to measure variables and test hypotheses. This is appropriate when the goal is generalisation across populations and when the research involves relationships

among quantifiable factors (Sumathi et al., 2024). The weakness of a quantitative approach is that it cannot address the complexity of human behaviours and experiences to be understood in depth. Considering this study is focused on healthcare quality, patient safety and clinician competency in South Africa, that is context-specific and involves dynamic human-to-human interactions, a quantitative approach alone may not facilitate the depth of understanding needed to effect systemic change.

Qualitative research places emphasis on examining human experiences, perceptions, and social contexts. Research methods, such as in-depth interviews, focus groups, and ethnography, allow researchers to penetrate the subjective experience of individuals and to gather data about social phenomena (Taylor et al., 2015). Qualitative research would assist in examining how healthcare professionals perceive competency gaps within practice, patient safety risks, and challenges to quality in South Africa. However, because qualitative research aims to focus on interpretation, it may be difficult to translate the data into an actionable change, as findings tend to be descriptive and explanatory and less on developing interventions and improvements.

Mixed methods combine both quantitative and qualitative techniques to provide a more comprehensive understanding of a research problem (Creswell and Creswell, 2017). This approach could be useful for studies like this one, where complex issues intersect. For example, quantitative data could measure the frequency of safety incidents, while qualitative data could explain the causes of those incidents. However, while mixed methods can provide a fuller picture, they may still fall short when the goal is not just to understand a problem but to actively implement and evaluate solutions in real time, which is critical in addressing ongoing challenges in healthcare.

The focused nature of case study research, which involves an in-depth exploration of a single (or evidently a few cases) in its context (Flynn and Kramer, 2019), can be especially useful for understanding the specific organisational or contextual factors that may influence healthcare quality or safety, especially in particular hospitals or clinics. However, whilst a case study enables you to look in detail as to what is

happening in a specific context, it may not help the broader learning of an organisation or in generating actionable strategies that may be used across the healthcare system. Action Research (AR) is a participatory and iterative approach that emphasises collaboration between researchers and participants to identify problems, implement solutions, and evaluate outcomes in real-time. AR is particularly well-suited to this study for several reasons, including collaborative problem solving. In AR, the researcher works closely with healthcare professionals, quality managers, and other stakeholders to identify gaps in healthcare quality, patient safety, and clinician competency. Since these stakeholders are directly involved in the research process, AR ensures that the issues being addressed are relevant and grounded in the day-to-day experiences of practitioners. This is crucial in a healthcare setting where top-down approaches may fail to account for the complexity of the working environment (Koshy et al., 2010).

AR is structured around a cyclical process of diagnosing a problem, planning action, implementing interventions, and reflecting on the outcomes before initiating the next cycle. This allows for continuous improvement based on real-time feedback. In this study, AR would enable healthcare organisations to trial different strategies to bridge competency and quality gaps and adjust based on ongoing reflection and results. This iterative nature is particularly beneficial in healthcare, where continuous learning and adaptation are necessary to address evolving challenges. Compared to other methods that might stop at understanding or describing a problem, AR goes further by focusing on implementing practical solutions. The core purpose of AR is to bring about change in practice (Peters et al., 2013). For a study focused on bridging gaps in healthcare quality and safety, this is essential, as it moves beyond identifying issues to actively resolving them, thereby improving clinical practice and patient outcomes.

AR also highlights the importance of context, particularly in a study conducted in the fluid healthcare context that is South Africa, as each healthcare organisation can be faced with diverse challenges based on the resources available, local policies, and the patients who are being served. Because the flexibility of AR allows practice-based context interventions, actions can be specifically contextualized to a certain facility or geographical area (Coles et al, 2020).

Finally, another notable aspect of AR is that it places participants in a position of empowered people through their involvement in the research process. This is particularly significant in the healthcare domain, because clinician involvement and ownership are critical to mobilising successful improvement and safety initiatives. AR provides a space for clinicians to include their own voice to decide on the situation worth improving and determine their own solutions, which may mean they have a sense of responsibility and ownership, and therefore, may result in improvements that are persistent and sustainable. In this research study the action research approach turned out to be a collaborative style as the clinicians and quality managers were both participants in the research process. Action research is often characterised as a research approach that is a combination of research, action, and participation. Thus, it allows for data collection from substantial diversity of sources through a combination of ways (Morgan, 2014; Williams et al., 2022).

4.2 AIM OF THE STUDY

The study aimed to identify the competency gaps in quality healthcare and patient safety among clinicians and quality managers and to explore levels 1 and 2 of the Kirkpatrick model of evaluation to assess the effectiveness of the training in bridging these gaps.

4.3 OBJECTIVES

- To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety using a pre-assessment training questionnaire
- To bridge the competency gaps amongst clinicians and quality managers by training them using levels 1 and 2 of the Kirkpatrick model of evaluation.
- To evaluate participants' knowledge post-training regarding healthcare quality and patient safety.

4.4 RESEARCH QUESTIONS

The research questions that guide this study are:

- What are the healthcare quality and safety competency gaps amongst clinicians and quality managers?
- What is the effectiveness of the intervention using levels 1 and 2 of the Kirkpatrick evaluation model?

4.5 MIXED METHODOLOGY RESEARCH

Mixed methods research is particularly beneficial when a researcher is studying multiple complex phenomena, and neither qualitative nor quantitative methods provide a complete understanding of the phenomena being studied. In mixed methods research, it is possible to triangulate findings and validate outcomes, as well as develop a more enriched understanding of the research problem (Sendall et al., 2018).

There are various ways to design and conduct mixed methods research, including sequential designs (where one phase of research follows another), concurrent designs (where both qualitative and quantitative data are collected simultaneously), and transformative designs (where one type of data is used to inform the collection or analysis of the other type of data) (Tariq and Woodman, 2013).

This study included both qualitative and quantitative research approaches. Qualitative research is open-ended and aims to help us understand the deeper motivations and beliefs behind an issue, as well as the reasoning, opinions, and motivations of those who are involved. Qualitative research can use a lot of different types of data, including words, pictures, or observations, and then it looks at that data to find meaning (Tenny et al., 2025). Interviews, focus groups, observations, and content analysis are just a few of the methods used in qualitative research. Qualitative research aims to help us learn more about how people act and why they act that way (Mohajan, 2018).

Quantitative research is deductive and attempts to quantify the data and generalise results from a sample to the population of interest. This involves gathering numerical

data and analysing it through statistical methods to identify patterns or relationships (Mohajan, 2020). This method often utilises surveys, experiments, structured observations, and statistical analysis. Quantitative research aims to measure and quantify variables, enabling researchers to test hypotheses and make predictions. It is particularly useful in contexts where the researcher wants to establish causal relationships, predict outcomes, or quantify trends (McDermott, 2023).

Conducting the study using a mixed methods approach provides many advantages for the researcher such as providing a holistic investigation combining quantitative and qualitative methods. In doing so, the researcher can develop a richer understanding of the topic being investigated (van Griensven et al., 2014). Quantitative data are useful for determining, in statistical terms, how often or how widely issues of healthcare quality and patient safety gaps occur as identified by clinicians and quality managers. Qualitative data provide researchers with deeper insights by exploring services in terms of underlying reasons, lived experiences, and perceptions. This helps to uncover persistent gaps, as healthcare quality remains a 'hybrid fight' among healthcare constituents (Östlund et al., 2011). As such, mixed methods research provides a more rounded perspective and it is required (McKim, 2017).

Mixed methods allow researchers to triangulate findings from different data sources. This means that they can cross-validate results obtained from quantitative analysis with insights gained from qualitative exploration (McDermott, 2023). Understanding the experiences and perspectives of clinicians and quality managers through qualitative interviews or focus groups can help interpret statistical results in a meaningful way. It can shed light on the nuances of healthcare practices, organisational culture, and systemic factors that influence healthcare quality and patient safety. Identifying unanticipated factors, the mixed methods approach allows researchers to uncover unexpected or unanticipated factors that may influence the research topic (Johnson et al., 2020). While quantitative data can highlight trends and patterns, qualitative data can reveal new insights, perspectives, or variables that were not initially considered. This flexibility enables researchers to adapt their approach and explore emerging themes in greater depth. Enhanced stakeholder engagement, incorporating both quantitative and qualitative methods, can foster greater stakeholder engagement in the research process (Loureiro et al., 2020). Clinicians, quality

managers, and other stakeholders may have different preferences for data collection methods or different perspectives on the research topic. Employing a mixed methods approach has the potential to satisfy a variety of perspectives held by different stakeholders, and will also involve stakeholders in the research process which enables the study findings to be more relevant and applicable.

Despite the literature clearly advocating for mixed methodology research, this approach is not without its issues. First, the researcher must be proficient in qualitative and quantitative methods, as well as integration and analysis of two different forms of data. Second, mixed methods research may require more time, resources, and experience relative to greater expertise in each method. Additionally, mixed methods research is often based on multiple designs and data collection procedures, requiring a more labour intensive and potentially expensive methodology. During the process of analysis, integration of quantitative and qualitative data may be problematic. Researchers need to be able to effectively converge various data sources and be able to interpret them appropriately. This may require specialised analytical frameworks, and as a result, there may not be obvious conclusions. Mixed methods research can leave researchers open to biases, if not conducted with caution. When analysing, researchers may end up over weighting one kind of data versus another, resulting in biased findings or interpretations.

The justification to utilise a mixed methods research strategy for this study was to give a fuller contextual background and to better comprehend the research problem. Similarly, mixed methods research is often applied for the reasons that George (2021) provided as examples:

Contextualisation: By combining methods, the researcher can provide more depth to the conclusions and contextualise the findings. The analysis can be complemented by using qualitative data to support quantitative conclusions (George, 2021).

Credibility: Results on the same topic can be more credible if they are gathered using various techniques. Triangulation is the process of strengthening the validity of the conclusions by ensuring that the quantitative and qualitative data converge (George, 2021).

Also, to help clarify, refine, and confirm meanings and findings. Molina-Azorin (2011) says that having faith in the results is vital for a research endeavour, and using only one method will make it impossible to figure out what kind of influence it had and how big it was. Mixed strategies are suggested to try to get rid of this "method effect" (Molina-Azorín, 2011). This is based on Schulze's (2003) work, which showed that research that uses both quantitative and qualitative approaches is more in-depth, broad, and rich than research that simply uses one of these methods (McKim, 2017; Schulze, 2003). The qualitative method was used to add to the analysis of the research's quantitative section.

Onwuegbuzie and later Ramlo suggest that the best way to support mixed methods research is to say that "good research is good research, whether it comes from the quantitative, qualitative, or mixed research traditions, as long as meaning ensues that represents interpretive consistency" (Onwuegbuzie, 2012; Ramlo, 2016). Qualitative and quantitative research should not be perceived as opposites or competitors; they should rather be understood as complimentary methods that work best for different kinds of research topics or problems (Ritchie, 2013). The qualitative approach to the study allowed for more thorough evaluation of the phenomena, which resulted in a more detailed description. The next section outlines the structure of South African health services to give the reader a clear understanding of how these services are organised.

Given the complex and multi-layered nature of healthcare quality, patient safety and clinician competency in South Africa, a mixed methods approach is the more appropriate method for describing the healthcare experience. A mixed method approach provides a strong methodological framework for developing systemic understanding as well as helping to define practical and context-sensitive remedial solutions. Therefore, after evaluating these options, the decision to employ a mixed methods design is grounded in its ability to offer a holistic view, essential for addressing the nuanced dynamics at play in healthcare settings.

4.6 PHILOSOPHY UNDERLYING THIS RESEARCH

In mixed methods research, various research paradigms or philosophical perspectives underlie the integration of qualitative and quantitative approaches. These paradigms include pragmatism, transformative, and dialectical pluralism. Pragmatism emphasises the importance of selecting research methods based on their utility in addressing the research question rather than adhering to a certain particular philosophical stance. Pragmatism allows researchers to select the most appropriate methods for addressing the research problem, enabling them to combine qualitative and quantitative approaches as needed, thus allowing flexibility in the approach to the research. This paradigm prioritises solving real-world problems, making it well-suited for applied research contexts. However, there are critics who argue that pragmatism may lack a coherent theoretical framework, which can lead to methodological eclecticism and challenges in justifying methodological choices (Kaushik and Walsh, 2019).

The transformative paradigm emphasises social justice, empowerment, and social change as central goals of research. It seeks to challenge existing power structures and promote the well-being of marginalised groups. Transformative research aims to empower participants and promote social change, making it valuable for research in areas such as community development and social work. This paradigm encourages researchers to reflect critically on their own values, assumptions, and positionality, enhancing the rigour and reflexivity of the research process. There is potential for bias as this paradigm may potentially prioritise advocacy over objectivity, leading to possible biases in data collection and interpretation. Generalisability of findings to other settings can be limited with this approach to research (Jackson et al., 2018).

The third paradigm, known as dialectical pluralism, recognises the complexity and diversity of social phenomena and takes into account the various viewpoints and research methodologies. By taking into account various viewpoints and aspects of a research problem, the dialectical pluralist paradigm enables researchers to gain a more in-depth knowledge of the issue. This paradigm gives researchers the inventive flexibility and creative freedom to plan a study and/or develop fresh approaches to considering and answering a research question. Although dialectical pluralism

encourages creativity, working with different viewpoints and approaches to research can also make the process more complex, requiring more time and thought to plan and carry out. Dialectical pluralism can be creative in research, but if it is not done correctly, it can cause misunderstandings or inconsistencies that make it hard to understand research results and draw insightful conclusions (Archibald and Gerber, 2018).

4.7 PRAGMATISM AS A RESEARCH PARADIGM

Pragmatism is a philosophical stance that values practical consequences, the idea of utility, and context in understanding truth and knowledge. Therefore, when pragmatism is applied to mixed methods research, it combines qualitative and quantitative methods, and pragmatism gives researchers a perspective for choosing methods and approaches that fit their research questions to meet the goals specified by the study objectives. Pragmatism has been advocated as an underlying philosophical stance for mixed methods research (Kelemen and Rumens, 2012; Morgan, 2014; Tashakkori and Teddlie, 2021).

Pragmatists state that there are various ways to look at the world, and that multiple methodologies are often best for one research project. Pragmatism uses a blend of methods that include both qualitative and quantitative data (Marchiori, 2018). Pragmatists do not always utilise mixed approaches; they choose the methods that will help them get credible, reliable, and relevant data to solve the research challenge. For pragmatists, the type of research question, the research setting, and the expected effects of the research are the main factors that decide the best method and strategy (Nastasi and Hitchcock, 2015). Pragmatists value both quantitative and qualitative research, and the type of research will determine which one they choose. This means that pragmatism can help with qualitative, quantitative, and mixed methodologies research (Maarouf, 2019).

Even though quality management for healthcare has dominated research in the organisational sciences, I anticipated that the participants employed in healthcare institutions could move beyond objectivist ways of thinking to look at and understand

how knowledge and action are connected in context. This is why the researcher chose this paradigm, based on pragmatism. The literature cited by Kelly and Cordeiro (2020) also supported the point that 'knowing' in this sense has the potential to transform practice (Kelly and Cordeiro, 2020).

As a result, using pragmatism as a research paradigm offers the adaptability, emphasis on useful results, contextual awareness, and problem-solving mindset required to investigate how well the Kirkpatrick training evaluation model fills competency gaps.

The reaction level evaluates how participants responded to the training; it includes getting input on; the training setting, the resources, the efficiency of the instructor, and general satisfaction. Interviews, questionnaires, and surveys are frequently used to gauge responses. Finding out how participants feel about the training and if it lives up to their expectations is the aim. The learning level refers to how much the participants learned from the training that was put into place; it evaluates how much knowledge, skills, or attitudes they gained as a result of the training. It entails assessing how participants' knowledge or abilities have changed.

The behaviour level as the name suggests evaluates participants' behaviour changing as a result of the training. It involves observing changes in behaviour or performance in the workplace as a result of the training. Supervisors, managers, or peers may provide feedback, and performance evaluations may be conducted to assess behaviour change. The goal at this level is to determine whether the training influenced job performance and if participants are applying new knowledge and skills in their roles. Finally, the results show the subsequent impact on the organisation as a result of participants' altered behaviour, thus measuring the tangible outcomes and benefits that result from the training, such as increased productivity, improved quality, potential cost savings, or patient satisfaction (Kirkpatrick and Kirkpatrick, 2006, 2015). With the aid of Kirkpatrick's model, practitioners can ascertain whether or not participants gained knowledge from a training programme, whether or not they were able to apply that knowledge on the job, and/or the programme's impact on the organisation. It enables the researcher to approach the study with a holistic perspective. For a

pragmatist, research starts with a problem, and aims to contribute practical solutions that inform future practice (Kaushik and Walsh, 2019).

For this study, only levels 1 and 2 were used to evaluate the effectiveness of the training programme. Levels 3 and 4 can be evaluated in the future after the participants have had an opportunity to implement the knowledge gained in their workplace. Thus in order to adequately address the knowledge and skills gap, pragmatism was a strong and valuable paradigm to guide this research. Furthermore, the pragmatic view is pluralistic, and oriented towards 'what works' in practice, viewing reality as both singular and plural (Creswell and Clark, 2011; Kaushik and Walsh, 2019). By adopting a pragmatic stance, mixed methods researchers can effectively integrate qualitative and quantitative data, theories, and methodologies to gain a more comprehensive understanding of complex phenomena. They can also consider the practical implications of their research findings and how they can be applied to solve real-world problems.

4.8 RESEARCH DESIGN AND METHODOLOGY

This study was grounded in an AR design, situated within a pragmatic transformative paradigm. The choice of AR reflected the intention not only to investigate the problem of healthcare quality and patient safety but also to involve participants directly in processes that could lead to improvement. The transformative paradigm was equally central, as the study aimed to challenge existing practices, amplify the voices of clinicians and quality managers, and create knowledge that could inform practical change.

In keeping with the research design, mixed methods allowed the researcher to comprehensively explore the research topic through multiple ways that would strengthen the quality of inquiry. Quantitative elements provided the opportunity to obtain statistical information on knowledge gaps, while qualitative elements allowed development of nuance regarding the lived experience, perspectives and challenges of healthcare practitioners. The mixed methods approach provided a more nuanced understanding of the research topic than either could on their own.

This design was intentional as it focused the research questions on the bigger picture of transformative practice. The resulting study, which combined an AR design with a pragmatic paradigm and mixed methods strategies, ensured that the research process was both rigorous and responsive by generating evidence for further dialogue, reflection, and possibilities for change in practice.

4.8.1 Research Methodology

Research methodology is not a settled issue; it is an ongoing matter of debate and contestation. In this regard, Saunderson, Lewis and Thornhill (2019) claim that methodology refers to much more than the tools or procedures; it refers to the philosophical and strategic choices that influence how a researcher develops and completes a research project. Methodology comprises the justification for developing certain data collection and data analysis methods while simultaneously also reflecting wider assumptions about knowledge and reality. In recognition of the contested terrain in which this study is situated, it is important to position research methodology in pragmatic paradigms that are influenced by AR and the study's commitment to practical change. This provides context for the decisions made about the research process, so they align with the research questions, and the goal of practical change.

4.8.2 The South African Health Landscape and Setting

South Africa has nine provinces and 52 health districts, each with unique features and characteristics that impact on delivery of healthcare services. The clinicians and the quality managers came from health establishments within three out of the nine provinces, that is Gauteng, KwaZulu-Natal, and Mpumalanga with different catchment populations and disease burdens, as well as small number from the national offices. Knowledge of quality management in healthcare content was assessed in the pre-training test and following completion of each module via the post-training test using the same questionnaire. Recruitment of participants for the study was from the learners who enrolled in the healthcare quality training programme from the three provinces and a few from the national offices. Other participants were recruited from a health regulator organisation, that is Office of Health Standards Compliance, and also enrolled in the training programme. Figure 4 below shows the distribution of the

health services in South Africa by health establishment type, including where some of the participants work in three out of the nine provinces.

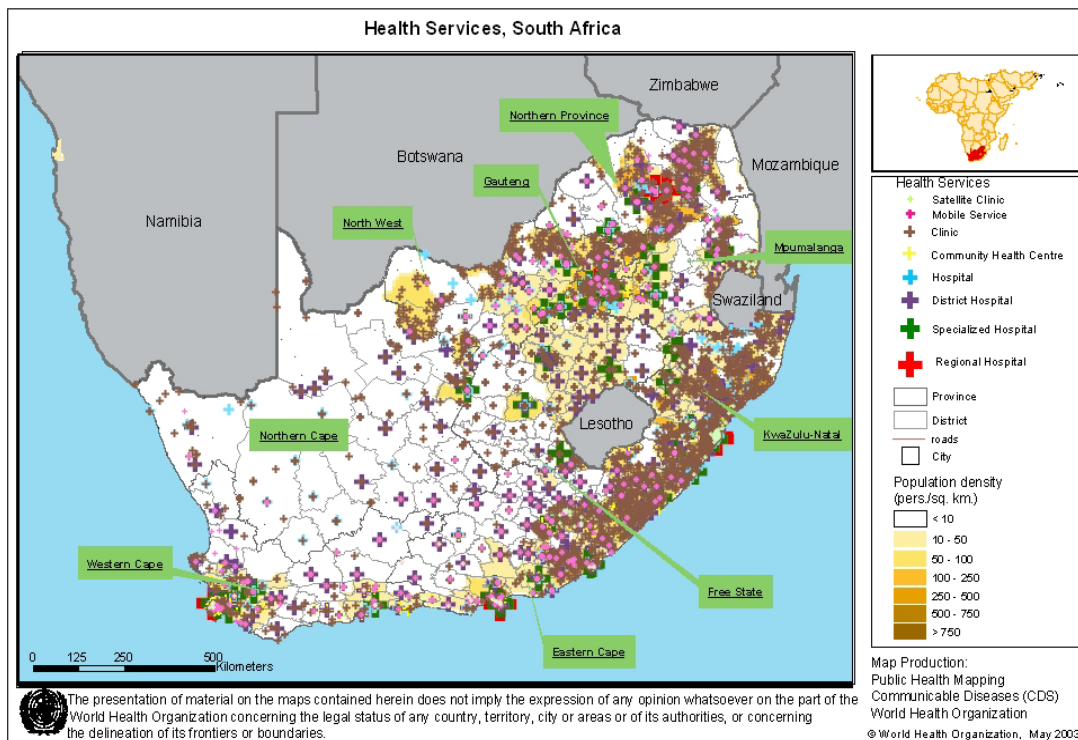


Figure 4: Map 1. Distribution of various types of public health establishments and services in South Africa (World Health Organization, 2003)



MAP 2: South African population density (Geo-Ref.net, 2022).

4.8.3 The Study Population

The study population selected for this research study were clinicians and quality managers from the sub-district, district, and provincial managers responsible for overseeing quality-related activities, as well as a small number from national offices (a health regulatory body, and an academic institution including the National Department of Health employees responsible for supporting quality improvement work in the provinces). The rationale was to ensure that senior management would be the target population to ensure that positive change would be sustained and that quality improvement managers at the senior, middle, and operational management levels would be adequately trained and equipped. The total population of participants enrolled in the pilot training programme was approximately three hundred in total (N=300). The details of the pilot training programme will be discussed below.

4.9 SAMPLING METHOD

According to Singh and Masuku (2014), sampling is the process of choosing a small group of people from a larger group in order to estimate what the whole group is like. Additionally, they state that sampling has two main benefits: it costs less and it takes less time to acquire data (Singh and Masuku, 2014). Many researchers believe that sampling makes it possible for survey participation to be more accurate than the entire population (Saunders et al., 2019). In order to make inferences about populations from samples, sampling is required. By directly observing a subset (or sample) of the population, inferential statistics can be used to ascertain the characteristics of the entire population. In some cases, the size of many populations would make it difficult to measure entire populations. Only a convenience sample can be used because other populations are difficult to reach and cannot be fully studied. The inaccessibility could be related to time, money, or just access. Sampling is necessary in some circumstances because the act of observation itself may jeopardise or destroy the object under investigation.

4.9.1 Probability or Random Sampling

Saunders, Lewis and Thornhill (2019) describe probability sampling as having a known chance, or probability, of selecting each case from the target population, which is typically equal for every case. This implies that the researcher can achieve goals and find answers to research questions that call for statistically estimating the target population's attributes from the sample. Therefore, all constituents have an equal chance of being part of the research (Saunders et al., 2019). Research approaches involving surveys and experiments are frequently linked to probability sampling. Probability sampling, sometimes referred to as "random sampling," is a sampling technique in which each item in the universe has an equal chance of being selected. Simple random sampling, systematic sampling, stratified sampling, and cluster sampling are the four categories of probability sampling (Berndt, 2020; Etikan and Bara, 2017; Saunders et al., 2019). Every member of the population has an equal chance of being selected in basic random sampling. A sampling frame is used to randomly select the data. Stratified sampling is used when there is a sample frame

and the population is not uniform. The individuals in the researcher's group are not all the same. After dividing the diverse population into several identical groups, the researchers take random samples from each group. Compared to other sample selection methods, stratified sampling provides you with a great deal more information about the sample. The first unit is chosen at random in systematic sampling, and the remaining sample units are chosen at regular intervals, such as every tenth element. By using cluster sampling, the target population is separated into groups according to their geographic location.

4.9.2 Non-Probability Sampling

It is impossible to address objectives or answer research questions that require the researcher to make statistical conclusions about the characteristics of the population with non-probability samples because it is not known how likely it is that each case will be chosen from the target population. It is still possible to generalise from non-probability samples taken from the target population, but not based on statistics (Saunders et al., 2019). Also, non-probability sampling can be divided into three types: convenience sampling, purposive sampling, and quota sampling. Convenience sampling is a type of non-probability sampling. Rahi (2017) mentions that convenience sampling is the act of collecting data from a research population that is easy for the researcher to get to (Rahi, 2017). Convenience sampling is when a researcher uses a sample that is easy for them to get to. This method can be used in virtually any type of study, although it is most often employed in both quantitative and qualitative research.

With quota sampling it is easy for the researcher to get to the sample population. They can choose participants based on obvious characteristics like age, sex, and profession that are relevant to the group they are studying (Etikan and Bara, 2017).

In qualitative research, purposive sampling, which is also known as judging or selected sampling, is a common category of non-probability sampling. In purposive sampling, researchers choose persons or situations on purpose based on particular criteria that are crucial to the objectives of the research. In probability sampling, on the other hand, every member of the population has a known chance of being chosen. Researchers

use their judgment and knowledge to pick persons for purposive sampling who have qualities, experiences, or information that they think will help them answer their study questions or reach their goals. The purpose of the selection process is to gather robust information (Campbell et al., 2020).

Using purposive sampling, the health cohort included in the study was selected from the group that participated in a Healthcare Quality Management Training which was conducted online by Professor Rubin Pillay, Chief Innovation Officer at the Heersink School of Medicine of the University of Alabama at Birmingham and included face-to-face contact sessions which were used to answer any queries related to the training content and for networking purposes. The training started in August 2023 and ended in March 2024 with the course participants completing an online post-assessment questionnaire in July 2024 as part of determining the effectiveness of training intervention using levels 1 and 2 of the Kirkpatrick model of evaluation. The aim was to include all the quality managers and clinicians who participated in the training from three of the provinces enrolled in the healthcare quality pilot training programme, a few managers from the OHSC, as well as managers from one of the major academic institutions in Gauteng, and from the NDOH responsible for overseeing quality in the provinces. The literature talks about the problems with getting good population coverage using web-based surveys and calls this "coverage bias." Some of the reasons for poor response rates could be that some health facilities don't have online connection, some participants don't know how to use a computer, or that they lack internet access (Dykema et al., 2013; Tourangeau, 2017).

As noted by Omona (2013), the most common method of sampling in qualitative research is purposive sampling. It is argued and emphasised that in this sampling approach, individuals, groups, and settings are considered for selection if they are 'Information-rich' (Patton, 2022) to help answer the research objectives (Omona, 2013; Patton, 2022). However, it will also be important for the process of purposeful sampling to be objective to ensure that the sample stands up to independent scrutiny. It is worth noting that the purpose of this research was not to make use of the sample to generalise the findings, but to develop quality management for healthcare training following the gaps identified and with regard to the environment in which the

participants work; and to explore the effectiveness of the training intervention using levels 1 and 2 of Kirkpatrick model of evaluation to bridge competency gaps and improve quality.

The researcher's inclusion criteria for participants were:

- Participants who are recognised as clinicians and are patient-facing.
- Quality managers working in the healthcare facilities participating in the High-Reliability Health Care for South Africa, Fundamentals of Quality and Patient Safety pilot training programme.
- Sefako Makgatho Health Sciences University lecturers responsible for quality and patient safety at the academic hospitals.
- Office of Health Standards Compliance managers responsible for quality training, analysis of complaints, adverse events and inspection data and quality standards development.
- National Department of Health managers responsible for overseeing quality improvement activities within provinces and quality mentors were also included.

The participants involved were carefully selected based on their work experience, seniority in their present employment, and their interest shown in the project, previous education and dedication to complete the training programme.

Respondents were selected for reasons directly related to the research problem. The exclusion criteria used were:

All the non-clinical attendees and those participants who enrolled in the training including the clinicians and quality managers who did not complete the pre-training assessment questionnaire.

4.10 QUESTIONNAIRE DESIGN

Questionnaires often form the foundation of all survey-based statistical measurements, the use of this survey instrument ought to accurately measure an element of interest. As a result, the research question and the questionnaire's content

must be closely related. According to Song et al (2015) a researcher must understand the significance of a well-designed questionnaire and whether it measures the metrics it is supposed to measure. Compared to interviews, the questionnaire has the advantage of reaching a larger audience, but it also has the drawback of being less individualised than other data collection techniques (Song et al., 2015).

In designing the questionnaire, the structure of the questionnaire was first decided and the methodology to be used in collecting data was considered. In addition, I ensured that the content of the questionnaire would be easily understood by participants and included the fundamentals of quality and patient safety content that was meaningful to the participant's work environment. The authors Bell and Waters (2018) argue that it is difficult to produce a good questionnaire as the researcher needs to ensure that it will collect specific data to answer research questions and objectives (Bell and Waters, 2018). Bearing this in mind, I ensured that the fundamentals of quality and patient safety videos on demand and textbook informed the content of the training modules and the literature review which subsequently informed the structured questionnaire, titled 'Pre-and Post training Assessment Questionnaires of the National Health Quality Improvement Plan (NHQIP)'. The pre-training assessment questionnaire was structured into three parts; part A consisting of demographics, part B consisting of details of culture in the organisation, and part C comprising details related to competency and knowledge. The post-training assessment questionnaire comprised of only part C related to details on competency and knowledge. In this study, the questionnaire was used as the research instrument. One of the reasons was because of the geographical dispersion of the study participants and their work commitments. These sections created themes founded on the research objectives of this study.

The five stages of questionnaire design and testing summarised below in Figure 5 as recommended by Brancato et al. (2006) were employed.

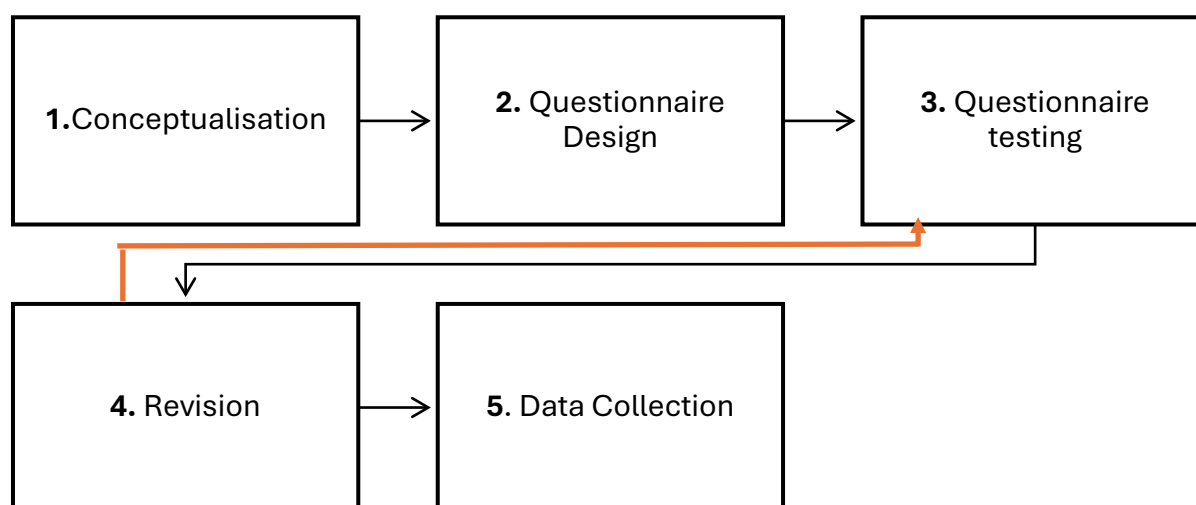


Figure 5: Five stages of questionnaire design and testing (adapted from Brancato et al., 2006)

4.11 THE PILOT TRAINING PROGRAMME

The Department of Health with the support of some of the members of the Lancet National Commission developed a Plan of Action following the release of the Lancet Global Health Commission Report (2019) to improve the health system. Subsequently, in 2020 the Director General of Health approved the National Health Quality Improvement Plan for the country and this plan is detailed with guidelines and a road map specifying clear objectives to improve the health system, targets, and indicators to monitor the performance of health establishments (National Department of Health, 2020b). With the move towards NHI, the plan needs to include both the public and private healthcare providers to develop best practices. A critical component of the implementation of National Health Insurance is ensuring that quality of care, as defined in the regulations for different categories of health establishments published in 2018, is delivered within all the health facilities (National Department of Health, 2018). It is within this context that the National Health Quality Improvement Plan was developed for the country to fast-track the provision of safe quality care in South Africa's health establishments. One of the key components of the plan was capacity-building through a training programme across the system of each Quality Learning Centre, which would

involve both the public and private sectors (National Department of Health, 2013). The official title of the training programme was High-Reliability Health Care for South Africa:

During the conceptualisation and contextualisation of the training programme into the South African setting it was agreed by the NHQIP technical working group and the researcher that the Fundamentals of Quality and Patient Safety and its purpose would be critical to encourage a culture of improvement, a shared understanding, and an approach to quality improvement across all the facilities in the country. This training programme would be a practical, hands-on training for managers, quality improvement teams, and frontline workers. Aiming to assist managers to support their staff in developing quality improvement plans, and the active, ongoing implementation thereof. Lastly, the training aims to establish a culture of continuous quality improvement and culture change within the health facilities and the health system.

The pilot training programme is funded by Health and Welfare Sector Education (HWSETA) through bursaries as part of the support to the National Department of Health Quality Improvement Plan. The programme has been approved for The Africa Institute of Health Leadership in association with the Heersink School of Medicine and The University of Alabama at Birmingham. The participants of the pilot training programme were enrolled in the programme after completing a Work-Based Learning Programme Agreement. The duration of the pilot training programme is six months and upon completion of training, the participants will be evaluated through practical course work which will be followed by issuing of the certificate. The participants will be granted access to the course material for a further one year. This is to ensure that the participants following completion of the training programme are able to conduct quality improvement workshops for colleagues to encourage continuous professional development. In addition, the participants should conduct workshops in their health establishments, and surrounding health establishments in their local referral networks to share best practices and improve healthcare quality and patient safety.

4.12 THE MANUAL/HANDBOOK FOR TRAINING

The pilot training programme was delivered using video on demand and a manual/handbook called 'High-Reliability Healthcare: Fundamentals of Healthcare Quality and Patient Safety' (Pillay, 2023). The handbook was first published in 2019 and revised to include the South African context in 2023. This course textbook was accompanied by the workbook which comprised the exercises and projects designed to provide the learners/participants the opportunity to apply the tools and techniques necessary to support quality management activities in their workplace. The videos were based on the manual/handbook and were mostly filmed in hospital settings in South Africa by Pillay who was the main facilitator/Instructor of the training programme. The course was therefore delivered in the same sequence as the chapters in the manual/workbook and was tailored to the South African landscape. There are eleven chapters of the book uploaded online and each chapter has a series of modules/videos presented by the course instructor (Pillay, 2023), and additional reading materials including PowerPoint presentations which the course participants could access whenever they logged into the Moodle app or on the link. The outline of the chapters will be discussed below under the development of questionnaire statements.

In creating the questionnaire, the important aspect was to determine the effectiveness or ineffectiveness of the training intervention. The questions were derived from the different chapters of the book and also informed by the literature review. The questionnaires were aimed at addressing the research questions and the objectives thereof.

4.12.1 The questionnaire topics

The first section included questions about the participants:

Section A: Tell us about yourself. Examples of questions are summarised below:

- Age and gender.

- The number of years of working experience in healthcare; in which sphere of health service delivery is your basic professional qualification? Level of seniority; having been involved in healthcare quality and patient safety activities, etc.
- The quality improvement and patient safety training you have attended in the past, the length of the training and the institutions that offered the training. Have you received any formal training in Healthcare Quality and Patient safety? If you have received any training on Healthcare Quality and patient safety, was it a credit-bearing course, etc.

The participant's information was necessary to assist in understanding the level of experience and knowledge the individuals possessed and the areas where they were working.

Section B: Tell us about your organisation

1. Your workplace – the information about your organisations or workplace is critical as I wanted to understand the organisational culture that existed as culture plays a critical part in impacting quality and safety – in order to improve patient safety and quality, healthcare organisations should generally cultivate a culture of safety.
2. The province where you come from.
3. Your thoughts about quality and safety in your workplace; enablers to implementing quality; challenges to implementing quality in your workplace.
Your organisation's approach to quality improvement – healthcare organisations should create policies to improve patient safety and care quality.

The above topics which formed part of the questions were informed by the study objectives and aims, including the literature review as presented in chapter three.

Section C: Table 4 below shows how the question statements related to participants' self-assessment of current knowledge and understanding of key quality management principles were created to align them with the research objectives and chapters in the manual/handbook.

Table 4 : Questionnaire Statements and how they were created

High-Reliability Healthcare: Fundamentals of Healthcare Quality and Patient Safety Textbook (Pillay, 2023)	Examples of objectives for the chapters	Research objectives	Research Questionnaire/ survey
Chapter 1: Introduction to Healthcare Quality Management ,	1. Understanding of methods used to collect measurement data. 2. Identify issues to be considered in development of data collection plans. 3. Recognise data sources for e-measures.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety. To evaluate participants knowledge post-training regarding healthcare quality and patient safety	Participants rating of their level of understanding of dimensions of healthcare quality, quality, quality assurance, quality control and quality management systems. Participants' understanding of the role that their organisational governance structures play in quality and safety programmes.
Chapter 2: High-Reliability Organisations	1. Understanding of the concept of high reliability organisations. 2. Identify common challenges to implementing these elements. 3. Understanding of how to overcome these challenges.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety. To evaluate participants knowledge post training	Participants rating of their level of understanding of the concept of high reliability organisations; characteristics of High Reliability Organisation; understanding how to measure reliability and unreliability; how to translate

High-Reliability Healthcare: Fundamentals of Healthcare Quality and Patient Safety Textbook (Pillay, 2023)	Examples of objectives for the chapters	Research objectives	Research Questionnaire/ survey
		regarding healthcare quality and patient safety.	unreliability into metrics in medicine; implementation of High-Reliability Organisation best practices and how to create reliability statements for your unit/organisation.
Chapter 3: Performance Measurement. James Harrington (1991): 'Measurement is the first step that leads to control and eventually to improvement. If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it.'	1. Understanding of methods used to collect measurement data. 2. Identify issues to be considered in development of data collection plans. 3. Recognise data sources for e-measures.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety. To evaluate participants' knowledge post training regarding healthcare quality and patient safety.	Participants' rating of their level of understanding of quality improvement process; purpose of performance measures; how to formulate performance measures; how to ensure data driven decision-making making; how to select performance goals, etc.
Chapter 4: Obtaining Measurement Data	1. Understanding of the role of valuation in quality management activities. 2. Compare and contrast different formats for displaying measurement data.	To assess the knowledge of clinicians and quality managers in healthcare	Participants' rating of their level of understanding of how to design a data collection process; how to identify data sources; different

High-Reliability Healthcare: Fundamentals of Healthcare Quality and Patient Safety Textbook (Pillay, 2023)	Examples of objectives for the chapters	Research objectives	Research Questionnaire/ survey
	3. Apply methods for interpreting healthcare performance measurement data. 4. Recognise performance results warranting further investigation	quality and patient safety. To evaluate participants' knowledge post-training regarding healthcare quality and patient safety	methods of data collection; developing collection tools; determining the required sample size; implementing a data collection process and managing the collected data, etc.
Chapter 5: Evaluating Performance	1. Show an understanding of the role of evaluation in quality management activities. 2. Compare and contrast different formats for displaying measurement data. 3. Apply methods for interpreting healthcare performance measurement data. 4. Explain the role of comparative performance data in performance evaluation.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety. To evaluate participants' knowledge post training regarding healthcare quality and patient safety.	Participants rating of their level of understanding of the purpose of performance evaluation; different methods of displaying data; how to select the most appropriate graphic representation for data; how to identify trends; how to construct and interpret control charts and how to use comparative data to drive improvement.

High-Reliability Healthcare: Fundamentals of Healthcare Quality and Patient Safety Textbook (Pillay, 2023)	Examples of objectives for the chapters	Research objectives	Research Questionnaire/ survey
Chapter 6: Improving Performance	Demonstrate an understanding of how improvement projects are formed. 2. Compare and contrast common performance improvement models. 3. Describe steps of common performance improvement models. 4. Recognise how to select project objectives and team participants.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety. To evaluate participants knowledge post training regarding healthcare quality and patient safety.	Participants' rating of their level of understanding of how improvement projects are developed; the purpose of the Plan-Do-Study-Act cycle in quality improvement efforts; using the Plan-Do-Study-Act cycle to make positive changes; Six Sigma improvement model.
Chapter 7: Improvement Tools and Techniques	1. Describe frequently used quantitative and qualitative improvement tools. 2. Choose improvement tools to use during different steps of an improvement project. 3. Explain techniques used to achieve more reliable performance.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety To evaluate participants' knowledge post training regarding healthcare	Participants rating of their level of understanding of tools and techniques to improve performance; the difference between quantitative and qualitative tools and continuous quality improvement. How to use the following tools: brainstorming; affinity analysis; cause and effect

High-Reliability Healthcare: Fundamentals of Healthcare Quality and Patient Safety Textbook (Pillay, 2023)	Examples of objectives for the chapters	Research objectives	Research Questionnaire/ survey
		quality and patient safety.	diagram/fishbone; force field analysis; workflow diagram.
Chapter 8: Managing Patient Safety and Risk	1. 1. Understanding of the relationship between patient safety and risk management. 2. Identify techniques to evaluate and improve the safety of healthcare processes. 3. Describe the impact of information technology on patient safety. Recognise risk management activities.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety. To evaluate participants' knowledge post training regarding healthcare quality and patient safety.	Participants' understanding of their organisational approach to patient safety. Participants' rating the level of their understanding of how to develop patient safety measures; the difference between medical error, adverse event and preventable adverse event; difference between medical error and medical negligence; how to manage clinical risk and approaches to root cause analysis (RCA).
Chapter 9: Managing Healthcare Resources	1. Describe the goals of resource management initiatives. 2. Identify tactics used by providers and medical insurers to decrease under- and overuse of resources.	To assess the knowledge of clinicians and quality managers in healthcare	The participants were expected to strongly agree; agree; neither; strongly disagree or disagree with the

High-Reliability Healthcare: Fundamentals of Healthcare Quality and Patient Safety Textbook (Pillay, 2023)	Examples of objectives for the chapters	Research objectives	Research Questionnaire/ survey
Chapter 11. Managing the Patient Experience of Care	1. Explain the difference between patient experience and patient satisfaction. 2. Understanding the clinical case for improving patient experience and the business case for improving clinical experience. 3. Demonstrate an understanding of Patient Experience, Patient Satisfaction, Quality Improvement (QI), Individualised Patient Care (IPC). 4. Recognise the importance of customer service/patience experience within healthcare organisations. 5. Identify AIDET five steps to achieving satisfaction, and understanding AIDET. 6. Understand the concept of patient and Staff Rounding.	To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety. To evaluate participants' knowledge post training regarding healthcare quality and patient safety.	Participants' rating of their level of understanding.

Table 5: The grading scale for the self-assessment (Section C) questionnaire (Based on Dreyfus, 2004)

Stages	Description
Novice	Little or no knowledge of the subject
Beginner	Basic grasp of the concept
Competent	Having the required knowledge to do the job to the level expected of a comparable professional / employee
Proficient	Well advanced in the concept and able to train others to a competent level
Expert	A thought leader in the concept, influencing what is taught to those in levels 1-4 of understanding

Based on Dreyfus's skills acquisition model (Dreyfus, 2004)

4.12.2. Pilot Testing and Distribution of the Survey Tool

The questionnaire was circulated to a few subject matter experts in the area of healthcare quality and patient safety. The rationale was for them to evaluate the questionnaire for potential problems such as wording and content for respondents. In addition, the review of the questionnaire was also done by the three clinicians who were not going to participate in the research study. The feedback received was incorporated accordingly; thereafter the questionnaire was circulated to the same experts for final inputs and evaluation before it was used for testing. For participants to be able to provide a valid and reliable measurement, the wording, structure, and layout made allowance for the nature and characteristics of the respondents. During the design of the questionnaire as shown above, the researcher ensured that the instructions were concise to avoid confusion in the interpretation of what was being asked. The aim was to gather the most significant information to address the objectives of the research study. In addition, since the questionnaire was to be completed online, it was important to ensure that the questions were unambiguous to avoid frustrating the respondents and allowing them to fully respond to the questions.

Saunders, Lewis, and Thornhill (2019) indicate that before sending out the questionnaire, a pilot test should be done with 10 to 15 people to make sure it worked, the questions were clear, and the people who answered the questions could do so and follow the instructions. This would help detect faults in the questionnaire that weren't meant to be there and guess how long it would take to fill it out. In addition, this initial testing of the tool makes the research more reliable (Saunders et al., 2019).

The questionnaire pilot testing was done prior to data collection and was carried out using systematic methods, since the questionnaire was to be self-completed electronically. Self-administration was important as the participants were employees in different institutions, and they were going to be able to administer it at their own convenience, and there was not going to be any need to set up any interviews. However, the deadline was stipulated in the email which was sent with the link to access the questionnaire and the letter which welcomed the participants to the pilot training programme. The questionnaire was tested using the National Department of Health Knowledge Hub system through which the participants were initially going to

access their training modules. The National Department of Health Knowledge Hub is a personalised continuous professional development platform that connects healthcare workers to relevant, up-to-date resources and training opportunities (Knowledgehub.health.gov.za). Three master's, four doctoral degree students and four experts in quality improvement work were approached to register in the system to participate in the testing of the questionnaire. The survey was pre-tested for content validity and reliability among this group, and was amended following the pre-testing (Annexure B).

Thereafter feedback was provided to the Knowledge Hub team, employees of the NDOH responsible for coordination of the activities of the Knowledge Hub who incorporated all the changes. It was important to revise the questionnaire based on the test findings to avoid frustrating the participants during the completion of the questionnaire. The final testing of the revised questionnaire was done on a subject matter expert and myself before the training started. Bell and Waters (2018) advise that, 'However pressed for time you are, do your best to give the questionnaire a trial run', as without a trial run, you have no way of knowing whether your questionnaire will succeed. In conclusion, the strategies listed below to create the questionnaire, taking into account the numerous recommendations found in the literature, as outlined by Song, Son and Oh (2015).

- Appropriately operationalise the key concept for the target population.
- Choose a clear response format.
- Generate items and confirm the final item using content validity.
- Sufficiently pilot the questionnaire using item analysis.
- Demonstrate reliability and validity.
- Finalise the scale.

4.13 VALIDITY AND RELIABILITY IN THE DEVELOPMENT OF THE RESEARCH QUESTIONNAIRE

4.13.1 Validity of the Questionnaire

In research, validity refers to the extent to which a questionnaire or any research instrument measures what it intends to measure. In other words, validity concerns whether the questionnaire accurately captures the construct or concept it is supposed to assess. It also refers to whether the measuring instrument measures the behaviour or quality it is intended to measure. Therefore, a trustworthy questionnaire that yields results that are meaningful is considered valid. There are many kinds of validity that researchers think of when designing a questionnaire: content, construct, criterion (concurrent, predictive) and face validity.

Each validity type has unique problems and offers unique perspectives on the instrument's quality. The ability of the questionnaire items to adequately cover the construct's entire universe is the foundation of content validity. It aids in proving that the inquiries are thorough, pertinent, and indicative of the construct. Expert judgment or comparing questionnaire items to established theory or literature are still the most common ways to evaluate content validity.

Construct validity determines whether the questionnaire actually measures the theoretical construct it claims to measure. It entails examining the correlation between your questionnaire scores and additional variables or measurements that are theoretically connected to the construct. According to Strauss and Smith (2009), factor analysis, convergent validity (a correlation with the related measures), and discriminant validity (using unrelated measures) can all be used to assess construct validity.

Criterion validity assesses whether the scores obtained from the questionnaire correlate with an external criterion that is already established. There are two subtypes of criterion validity: firstly, concurrent validity which evaluates the extent to which the scores obtained from the questionnaire correlate with those obtained from a criterion

measure administered at the same time. The second is predictive validity, which examines whether the scores obtained from the questionnaire predict future behaviour or outcomes (Ranganathan et al., 2024).

Finally, face validity is the degree to which the instrument appears, face-wise, to measure what the instrument is supposed to measure. This is a subjective evaluation from the viewpoint of the respondent and authors with expertise. Face validity is not a strong form of validity, but it is a way of getting a little bit of assurance the questionnaire appears relevant and makes sense to the respondent (Ranganathan et al., 2024). Validating a questionnaire is ultimately very important for valid and reliable research results. Researchers will often use validity types in combination to thoroughly evaluate the quality of their instruments.

The conclusions from the analyses are credible due to the use of a validated measurement tool (Sürücü and Maslakçi, 2020). To check for validity, the questionnaire that was given out was compared to the study's objectives. A mixed method approach was used since the validity of research findings in qualitative investigations is linked to the credibility, confirmability, dependability, and transferability of scientific discoveries. These criteria were utilised to make the research results more reliable and the study itself more rigorous. The fact that the poll was anonymous gave the participants more confidence that they could answer honestly without worrying about what would happen.

4.13.2 Reliability of the Questionnaire

Reliability pertains to the consistency of a measurement instrument in producing comparable outcomes across different instances of use (Sharma, 2016). Similarly, Pillay (2023) emphasises the consistency of data obtained through a measurement tool or human judgment, whether administered by various individuals or at different points in time (Pillay, 2023). A reliable measurement tool consistently yields dependable results, which is crucial in advancing knowledge, particularly in contexts like quality improvement efforts.

Cronbach's Alpha, a metric for internal consistency created by Lee Cronbach in 1951, is typically used to evaluate reliability (Sharma, 2016). It is frequently used to evaluate the instrument's reliability, especially in surveys that use questionnaires (Voyce et al., 2015). Cronbach's Alpha is a measure of how closely related a group of survey or test items are to one another, according to Vaske et al. (2017). Cronbach's Alpha is helpful for assessing reliability with binary-type data and for large-scale datasets, as Sharma (2016) emphasizes (Sharma, 2016; Vaske et al., 2017). In order to ensure validity and reliability, researchers must ensure internal consistency before utilizing an instrument. Cronbach's Alpha calculations are frequently used by researchers to evaluate the reliability of their questionnaires. Higher internal consistency is indicated by higher Cronbach's Alpha values, although this suggests a range of acceptability across disciplines. For research purposes, levels of 0.70 or higher are generally considered acceptable.

4.14 DATA COLLECTION

Data collection is of utmost importance to the success of a study. It is essential to realise that the quality of research results and the eventual recommendations depend on the rigor of data collection in the study. In this study, a web-based self-administered survey method was used, given its widespread usage and the predominantly employed status of the participants, as discussed by Song, Son, and Oh (2015). At the start of the questionnaire, I provided respondents with a clear and concise explanation of the purpose and potential value of the survey (Saunders et al., 2019). This information was included on the first page of the questionnaire to encourage participation by highlighting the contribution their responses could make to improving healthcare quality and patient safety, while also reaffirming that participation was entirely voluntary (Dillman et al., 2014). Bias was eliminated by using a web-based, self-administered questionnaire to eliminate face-to-face interaction, as the researcher knew the majority of the participants and had previously been involved and supported quality improvement initiatives in the provinces while working at the NDOH. Web-based self-administered questionnaires offer ease of execution at the respondent's convenience, are becoming particularly significant as the availability of computers becomes increasingly widespread, are cost-effective, the respondents are not pressed

for time, and uphold confidentiality (Rea and Parker, 2014). The main disadvantage is that it is limited to populations that have access to email and a computer.

The survey instrument, serving both as the method and the tool for data collection, was distributed through Google forms. The survey pre-training assessment questionnaire used the following survey link: <https://forms.gle/nZAiAJUYnqUjewBH7> (Annexure F) and titled as 'Pre-Training Assessment Questionnaire'. Participants were invited to partake in the survey via email, receiving links to access and complete the self-reporting questionnaires. Notably, respondents' submissions were anonymised and aggregated through Google forms.

There were many practical and methodological reasons for choosing a questionnaire as the method of data collection. Considering the geographic diversity of the participants and their busy work schedules, the questionnaire provided an efficient way to collect data while placing minimal time demands on participants. A survey format also provided a means of standardising participant responses, which would allow for a systematic analysis of and comparison between groups of participants. The questionnaire contained entirely predetermined questions, which also meant that all the data collected were relevant and connected to the evolving key themes and aspects of the study – healthcare quality, patient safety and clinician and manager competency. This narrowed the focus of the data collection and obtained the valid and reliable data wanted. Overall, the questionnaires allowed both quantitative and qualitative data to be collected, thereby making the process practical and adaptable, and supporting a mixed methods approach to understand the complex relationships between healthcare quality, patient safety and clinician and manager competency within the South African context.

This approach to data collection not only ensured the accessibility and convenience of survey administration but also maintained the integrity and confidentiality of participant responses.

4.15 DATA ANALYSIS METHODS AND INTERPRETATION

Data collection is the first step in data analysis, which then involves managing the data as previously mentioned and interpreting it to make sense of it using descriptive or explanatory interpretations. The mixed methods approach included a qualitative element was undertaken to complement the analysis of the quantitative component of this research. Both the qualitative and quantitative aspects of this study were derived from the objectives of the study. The qualitative and quantitative aspects of this research were used to generate wide-ranging information to guide data analysis towards conclusions and recommendations of the study, which will be addressed in chapter six. The two data analysis methods are discussed below.

4.15.1 Methods of Analysis

Descriptive statistical analysis was completed on the collected variables to be able to begin to observe the patterns. In addition to this, a one-tailed T-test was completed to examine the level of understanding of such key quality management principles. The T-test is one of the most common statistical methods used to determine whether the mean difference of Two groups is statistically significant. Mishra et al. (2019) provide a definition of the T-test. The T-test is a statistical test that compares the means or the proportions of two samples. The T-test is considered to be a hypothesis test that compares the null hypothesis that the difference of the group means or proportions is equal to zero with an alternative hypothesis that the difference is not equal to zero. Mishra et al. (2019)

In this analysis, the percentage of interest is the 'Novice' and 'Beginner' categories combined, which represent the gap while the categories 'Competent', 'Proficient' and 'Expert' represent a reasonable level of understanding. A significant reduction in percentage of the 'Novice' and 'Beginner' categories, after training, is an indication of an improved level of understanding.

Hypotheses

Null Hypothesis: The level of understanding of key quality management principles is the same pre-and post-training.

Alternative Hypothesis: The level of understanding of key quality management principles is improved post-training.

Statistical Software Used

1. Microsoft Excel
2. R Version 4.0

4.16 DATA MANAGEMENT

According to Borghi et al. (2018), data management in research refers to a range of activities pertaining to the organisation, documentation, storage, and distribution of data (Borghi et al., 2018). Data management responsibilities include data capturing, metadata production, data quality, storage and backup, data archiving, and data sharing (Annexure F). The participant's demographic data was anonymised, and the questionnaires containing confidential information which included personal data such as age, sex, work location and position held, amongst others, were kept in a restricted secured laptop which required the use of a password to access the information. The name folder where the information was kept was not easily identifiable either. The data management was in line with the ethical principle of ensuring confidentiality and privacy of the information before, during, and beyond the research project (Saunders et al., 2019).

4.17 QUANTITATIVE DATA ANALYSIS TECHNIQUES

Descriptive statistics (measures of frequency, central tendency, dispersion or variation) are generated to provide high-level information about the variables of interest and to summarise data in a useful and meaningful way. In analysing data from the questionnaire which was completed before the commencement of the online training and after exposure to the training modules, a one-tailed T-test (paired

observations) was conducted to determine the impact of the training programme. If the p value was less than the prescribed level of significance, then the pilot training programme would have had a positive impact.

4.17.1 Qualitative Data Analysis Techniques

A summative content analysis was conducted to make sense of the data. Summative content analysis looked at the material and the context behind it (Vaismoradi et al., 2013). This approach was essential for identifying patterns, grouping and coding words and ideas, and uncovering meanings that went beyond surface-level responses. By systematically organising the data, the analysis provided deeper insights into participants' perspectives, ensuring that the qualitative findings added critical depth and nuance to the overall study.

4.18 ETHICS

In the context of research, Saunders et al. (2019) provide the following definition: Ethics are the rules that guide you on how to act when it comes to the rights of people who are the subject of your work or who are affected by it. In South Africa, human research ethics committees make a distinction between different kinds of information-gathering operations. If you want to publish the information, you don't need ethics approval for things like reviewing patient records, mapping processes, looking at District Health Information System data, and interviewing patients to see how well programmes and services are working for quality improvement within an institution. If you want to publish or share the results of your research study outside of your institution, like in a research journal or at a research conference, you need to get ethics approval first. Ethical issues related to research and evaluation can arise at every stage of developing a project or research interest.

The basis and purpose of ethical research is to cause no harm and, if possible, to deliver some development for the participants in the study. According to Walliman (2011), research ethics concerns are divided into two categories: the researcher's

principles of integrity, honesty, and openness; and how the researcher handles research participants in terms of informed consent, privacy, anonymity, and courtesy (Bhattacharjee, 2012; Walliman, 2010). For this research study, the proposal was submitted to the Cape Peninsula University of Technology (CPUT) for review and was approved. Ethical approval for conducting the study was obtained from CPUT (Ethics Clearance Number: 2021FBMSREC O78) (Annexure A). A letter of support was also obtained from the National Department of Health (Annexure B). All the ethical concerns were addressed before any data was collected. The ethical principles proposed by Beauchamp & Childress were used to guide this study (Beauchamp and Childress, 1983):

1. Autonomy is defined as the capacity of a rational individual to make an informed and uncoerced decision.
2. Justice means an equal and fair distribution of resources and treatment.
3. Beneficence refers to the act of doing good or a state of kindness.
4. Non-Maleficence is defined as the act of doing no harm.

According to Walliman (2010), there are two facets of ethical problems in research: first, the researcher's values include integrity and being truthful and forthright. Second, informed consent, confidentiality, anonymity, and civility are all related to how the researcher handles research participants (Walliman, 2010). To ensure anonymity, the information collected was stored in a manner that could not be linked with the participants such as demographic and employment data. Each of the participants was provided with sufficient information on the intended research during registration to prepare them for informed consent. The researcher made certain that only voluntary participation was undertaken, as well as their freedom to withdraw from the study at any time. Lastly, the research was carried out in compliance with the ethical mandate to present the results in a thorough and truthful manner.

4.19 INFORMED CONSENT

To maintain their trust, the research was done with the participants, not on them. The participants were provided with relevant information about the research objectives and

were also informed that their participation was voluntary, and that they could withdraw during the training which was part of the research study. Participants were given time to read the information sheet (Annexure E) during registration which was clear and easy to comprehend, they were able to make a fair assessment of the study in order to agree to participate in the study and complete the questionnaires. In addition, for any questions related to the questionnaires, the participants were given the contact details of the relevant persons to contact to ask questions before participating in the study.

4.19.1 Protecting confidentiality and anonymity

According to Wiles (2012), confidentiality and anonymity are distinct but related concepts; confidentiality refers to the need to keep identifiable information about individuals private; anonymity refers to how data are kept confidential (Wiles, 2012). In practice, confidentiality refers to making sure that the identities of the study participants are kept secret from everyone but the researcher. The participants' demographic details were stored separately and not disclosed. Identifiers were used during the online surveys, preventing participants' names from being linked to the information. The importance of maintaining confidentiality and anonymity was emphasised in the information sheet during registration and on completion of the survey. The participants were assured that all the information obtained through the survey would be used solely for the purpose of the research study.

The focus of the chapter was the research design and research methodology, including the rationale for the choice of mixed methodology for the purpose of a research question. The objectives and the problem statements were restated. It may be indicated that the research design and relevant methodologies were developed with the aim of obtaining reliable and valid data to bridge the healthcare quality and safety competency gaps to integrate knowledge and practice. The presentation of the research findings and analysis of results is discussed in chapters five and six.

CHAPTER FIVE

QUANTITATIVE DATA ANALYSIS AND DISCUSSIONS

5.1 INTRODUCTION

The previous chapter discussed research methodology; reviewed the types of research methodology, and the research methodology that would be used in the study; and described the process of participant sampling, and data collection. The integration of Kirkpatrick's Levels 1 and 2 of training evaluation contributed significantly to informing the methodology, implementation, and outcomes of the study. Level 1 evaluated participants' responses to the training intervention, thus affording prompt responses regarding relevance, delivery and the perceived application of the training. The feedback from this level confirmed the training was entertaining and aligned with the professional needs of the participants. Level 2 evaluated the extent to which participants' knowledge and understanding of key principles of quality management had improved after the training. This level used a pre-assessment and post-assessment to provide objective learning outcomes.

Including levels into the study was a key point in growing the study and it provided more insight when assessing the hybrid training model. The unique approach of linking dual evaluation of effectiveness allowed for both methodological evaluations to use their purpose of the study and transformation support through the intervention. It was evident in the findings that the training improved the participants competencies in quality healthcare and patient safety. Moreover, it highlights the use of the Kirkpatrick model in a practical way to address a significant shortfall in the development of workforces and connected the relevance of training evaluations based on new knowledge on quality improvement concepts.

This chapter describes the findings from the study's quantitative components using pre and post training assessments, and the results are presented and discussed in this chapter. The data collected from participant's responses was analysed using

Microsoft Excel and R Version 4.0. The results include descriptive statistics presented as tabulations and graphs.

The research objectives that guided the quantitative data collection and analysis were:

- To assess the knowledge of clinicians and quality managers in healthcare quality and patient safety using a pre-assessment training questionnaire
- To bridge the competency gaps amongst clinicians and quality managers by training them using Levels 1 and 2 of the Kirkpatrick models of evaluation.
- To evaluate participants' post-training knowledge of healthcare quality and patient safety.

The quantitative component of the effectiveness of the training using Levels 1 and 2 of the Kirkpatrick evaluation models was implemented. The research questions guiding the quantitative component of the study were the following:

- What is the level of knowledge regarding healthcare quality and patient safety within health establishments among quality managers and clinicians?
- What is the level of knowledge with respect to healthcare quality and patient safety competency within health establishments among quality managers, and clinicians post-training?
- Will the Level 1 and 2 of Kirkpatrick model of evaluation bridge the competency gaps amongst clinicians and quality managers?

5.2 POPULATION AND SAMPLE SIZE

The questionnaire was circulated to 357 participants who had enrolled in the study pilot training programme which was the population of this study. The sample was a convenience sample of 209 responses received from clinicians and managers. The non-clinical staff not in managerial positions were excluded. The participants who did not complete the pre-assessment questionnaire were also excluded from completing the post-assessment questionnaire.

5.3 THE RESEARCH INSTRUMENT

In this research, a structured questionnaire was used to gather data from a group of participants who were geographically dispersed and had significant work-related commitment. The questionnaire was divided into three main parts related to the objectives of the study so that the key areas of research were adequately addressed. In Part A, in addition to asking for the demographic information of the participants, each participant's age, gender, professional title, years of experience or practice, and education were collected. This information was necessary for shaping the research and for examining the potential influence of the participants' demographic make-up on the perceptions of organisational culture and competency. In Part B, the existential reality of organisational culture was explored through the perception of the participants on the current culture of their healthcare organisation where notions about leadership, communication, and team dynamics were evaluated. The purpose of this section of the questionnaire was to gain understanding of how organisational culture could influence clinician competency and impact patient safety. In Part C, issues related to competency and knowledge were explored through several questions on self-directed and reported clinical competency, professional continuing education activities, and familiarity and knowledge of patient safety proceedings.

5.4 DEMOGRAPHIC RESULTS

The questionnaire was arranged to ask a set of demographic questions to provide background and as a prelude to asking questions that related to the specific research problem and objectives. The demographic section of the questionnaire collected detailed information about the participants, including gender, age, primary professional role, current work position, and degree of seniority. It also examined the degree of their involvement in activities related to patient safety and healthcare quality, as well as the type of training they had received in the areas of patient safety and quality, and whether this was credit-bearing. The most important reason for asking these demographic questions was to provide context for understanding the background characteristics of the respondents, which are relevant for their perspectives on organisational culture and competency.

5.4.1 Gender

A total of 209 participants completed the questionnaire, with the gender distribution consisting of 145 females and 64 males. The findings indicate a higher representation of women in the healthcare sector compared to men. This trend may be attributed to historical and cultural perceptions, where nursing and related healthcare roles were traditionally associated with women. As a result, the field continues to be predominantly female, reflecting the lasting influence of these gendered norms within the South African healthcare context.

5.4.2 Age of Respondents

The age distribution among respondents reflects the typical demographics of the healthcare workforce, with a decline in representation for those aged 55 and above. This aligns with retirement policies in the public sector, where employees retire between the ages of 55 and 65. The findings support the research objective of assessing clinicians' and quality managers' knowledge in healthcare quality and patient safety, as age and experience may influence knowledge retention and competency gaps (World Health Organization, 2022). Older healthcare professionals may have institutional knowledge but might require updated training to keep pace with evolving healthcare quality standards. Consequently, fewer individuals from these age groups were represented in the sample, mirroring the reality of an aging workforce transitioning out of active service. According to WHO (2021), continuous professional development is essential for older healthcare professionals to remain proficient in emerging patient safety practices (World Health Organization, 2021).

The age distribution of the respondents is depicted in Figure 6 (Population Pyramid)

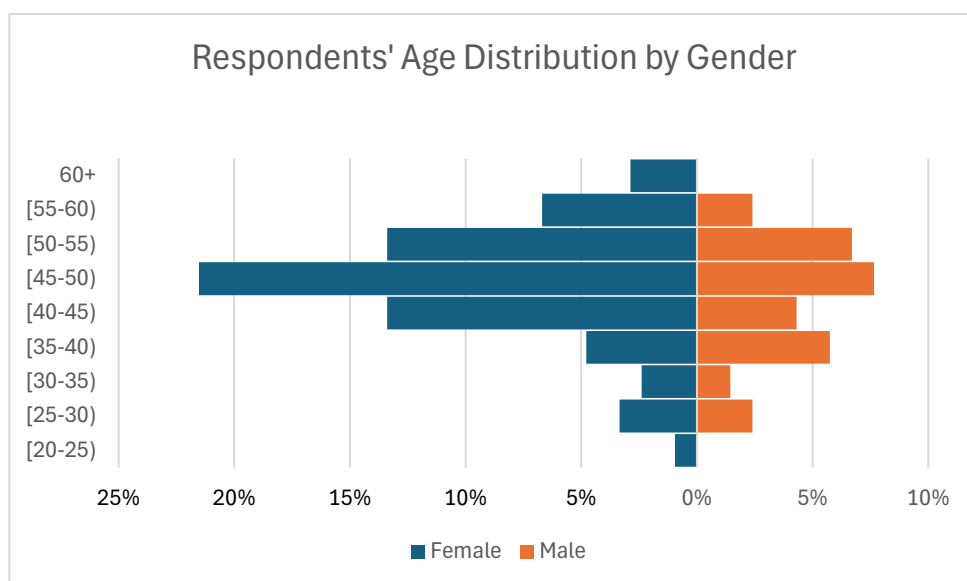


Figure 6: Age distribution by gender

Table 6: Age range and gender distribution of the clinicians and quality managers

Age of respondents	Females	Males	Percentages
20 - 25 years	1%	0%	1%
25 - 30 years	3%	2%	5%
30 - 35 years	2%	1%	3%
35 - 40 years	5%	6%	11%
40 -45 years	13%	4%	17%
45 - 50 years	22%	8%	30%
50 - 55 years	13%	7%	20%
55 – 60 years	7%	2%	9%
60 years and above	3%	0%	3%
Total	70%	30%	100

5.4.3 Primary Role Proportions

The participants were asked to indicate the respective positions they held within the organisations they worked for, choosing between clinical, non-clinical and management. Thirty percent (62) were clinical staff, 52% (109) were in management positions and 18% (38) were non-clinical staff but in management positions overseeing quality, and were thus included in the analysis.

5.4.4 Sphere of Health Care Service Delivery

The nursing discipline had the highest number of respondents (117) followed by allied health professionals registered with HPCSA. These included social workers, dietitians, clinical technologists, and radiographers (27). Other disciplines included medical officers, clinical medicine, medical scientists, researchers, health regulators, and public health medical specialists (61), and there was no data from 4 entries, meaning there was nothing written or selected by the respondents. The findings show that nurses remain the backbone of the health system, hence it will be important for the South African Nursing Council to ensure that continuous professional development for nurses is implemented to ensure that their competencies remain monitored to prevent avoidable harm and errors. Patient safety competencies in nursing are critical for healthcare quality, and nurses need to implement safety measures throughout their scope of nursing practice (Mortensen et al., 2022). Also, in the past when quality managers were appointed, the focus was on nurses who had been in the field for several years. The challenge was that there was no consideration of the competencies necessary to oversee quality improvement work or to enhance the quality of care and patient safety. Other disciplines were ignored or not considered appropriate to oversee or manage improvement work even though they also contributed to the provision of care and the safety of users in the health sector. There is a saying that quality is everyone's business, therefore individual healthcare professionals responsible for service delivery should be afforded the opportunity to become quality managers or oversee quality work once they have acquired the requisite competencies (National Department of Health, 2013, 2007).

The distribution of primary roles indicates that nurses comprised the highest number of respondents, highlighting their central role in healthcare service delivery. The historical practice of appointing experienced nurses as quality managers without structured competency assessments has led to gaps in quality improvement capabilities. This supports the research objective of bridging competency gaps through training. Expanding quality management roles beyond nurses to include other professionals would improve interdisciplinary collaboration and enhance patient safety (Mortensen et al., 2022).

Links to the research question:

Will Levels 1 and 2 of the Kirkpatrick model bridge the competency gaps among clinicians and quality managers?

The current reliance on nurses without structured competency frameworks highlights the need for targeted training.

Mortensen et al. (2022) emphasise that competency-based training in quality management should be interdisciplinary and involve various healthcare professionals to ensure a holistic approach to patient safety.

5.4 5 Level of Seniority

The data indicated that almost all respondents were in executive management (44), middle management (44), junior management (29), senior management (26), and operational staff (27). There were also respondents in a quality assurance coordinator, clinical programme coordinator, and a number of medical officers (14). 25 of the respondents had left this section blank. The findings indicated that 68% of respondents had management positions. This is significant as it indicates that the workforce has a wealth of experience and tenure in the healthcare sector. In addition, we can observe that there are a number of junior and senior staff members who bring valuable insight, for they are well-placed, having served in the capacity of senior employees and leaders, and they contribute to the coalition for quality and safety. However, many of them may not have had professional training and education in quality assurance, risk management, and patient safety. This highlights a need for using structured education as a measure of accountability, experience alone does not guarantee competency for healthcare quality management (Vincent-Lambert and Stein, 2024). The study aimed to ascertain knowledge through the lens of a post-training evaluation, and the rationale was that managers might use evidence-based practices in their organisations through soliciting this training.

The research question poses the following: 'What is the level of knowledge regarding healthcare quality and patient safety in health establishments among quality managers and clinicians post-training?'. Even though many of the managers can be said to have some experience, it is important to provide a structured training plan for them to be

able to effectively manage quality. Giovanelli, Rotondo and Fadda (2024) report that healthcare managers who did not undergo structured training may find it difficult or impossible to engage in systematic quality improvement, highlighting the need for formalised development of competencies. This lack of training presents a huge problem because healthcare quality management and patient safety requires specific knowledge and skills to enable evidence-based practice, compliance monitoring and enacting quality improvement initiatives (Giovanelli et al., 2024). Without reasonable training, managers will struggle to understand and respond to systematic problems, enforce clinical quality standards, or encourage a safety culture in their teams.

5.4.6 Involvement in healthcare quality and patient safety activities

The results showed that 84% of the people who answered were actively involved in activities related to healthcare quality and patient safety, whereas 16% said they were not involved in this area. The survey's high level of engagement is crucial because being involved in actions that improve healthcare quality and patient safety is a key part of making the healthcare system better and getting better results for patients. The fact that these people are involved shows that they have firsthand experience and knowledge of the real-life problems and challenges that come with keeping quality and safety standards in healthcare, within the scope of this study.

Healthcare professionals' engagement in quality and patient safety activities is important for establishing a culture of accountability and continuous improvement in the healthcare environment. Participating encourages professionals to discover either an omission of an objective in current work practiced or produced plans to help minimise hazards and include evidence-based actions towards limiting adverse events and enhancing patient care outcomes. Participation leads to improved interprofessional collaboration since health quality activities often necessitate the involvement of clinicians, administrators, and quality managers, and therefore, allows for a whole systems approach to solving systemic issues.

In the South African situation, where resource constraints and workforce shortages are a significant issue, engagement in those activities is of utmost importance.

Healthcare professionals engaged in quality and safety initiatives are more likely to perform well in a resource constrained context, by ensuring highest possible use of resources offered and maintaining a high standard of care. They also contribute to capacity building in the healthcare system by building best practices and local capacity, which is also a key part of reforming patient safety and quality in healthcare sustainably.

The sixteen percent (16%) of respondents reporting no engagement in the above activities may also reflect barriers such as a lack of training and awareness of the activities, or lack of opportunity through their organisations. Furthermore, many health services typically face challenges like staff shortages, which contributes to heavy workloads and limits clinician participation in carrying out quality improvement activities. This information illustrates the need for more inclusive opportunities in which all health care professionals can engage in quality and safety activities, so that all members of the health care team can make a contribution to improve safety and effectiveness in health delivery. The study highlights the perceived importance of participation in these activities, and identified the potential for organisations to influence participation through targeted interventions at all workforce levels.

5.4.7 Type of Training

The participants reported various types of training received on healthcare quality and patient safety. A total of 81 respondents indicated that they had undergone in-service training, while 35 had attended conferences and seminars on these topics. Twenty-seven respondents received training from external providers, and 21 reported being self-taught, indicating that they had independently acquired knowledge on healthcare quality and patient safety. Additionally, 36 respondents stated that this question did not apply to them, as they had not received any formal training in these areas. Nine respondents selected 'other' and specified alternative forms of training, which included benchmarking, online courses, on-the-job training, and the Knowledge Hub system which is an NDOH platform that provides continuous professional development to healthcare workers with access to current resources and training opportunities.

5.4.8 Credit-Bearing Course

The question posed was whether participants had received any training in healthcare quality and patient safety that was credit-bearing; 83% (157) of the participants responded in the negative, implying that they had mostly attended training where they did not receive any credit for attending the course, 17% (32) attended training which yielded credits, and 20 participants did not respond to the question and thus there was no data to report. This poses a challenge because training that does not offer credits normally does not evaluate the participant's knowledge pre- and post-attendance of the said training. It has been observed that in most of training programmes offered without any evaluation or recognition of attendance, the participants do not fully participate and do not increase their knowledge. In these circumstances, the employees would attend the training and following the training, there would not be any follow-up or on-site mentoring and competency assessment to assess the knowledge and skills post-training. Hence, the problems of quality and safety therefore continue to escalate due to a lack of assessment of competency within the work environment both in organisations and health facilities. Traditionally medical and nursing educational training has focused on the care of individual patients presenting with different illnesses and injuries, and less attention and time is spent educating healthcare professionals on wider professional issues such as how patient care depends on the contributions of a multidisciplinary team and continuous quality improvements.

5.4.9 Informal Training

The participants were asked whether they had received any informal training in healthcare quality and patient safety. Informal training, in this context, refers to non-structured or non-accredited learning opportunities such as workshops, on-the-job training or short courses not leading to a formal qualification. Of the respondents, 65% (106 participants) indicated that they had attended some form of informal training, while 38% reported no participation in such activities. Additionally, 45 participants did not provide a response to the question.

The findings highlight a significant gap in the formalisation, coordination, and evaluation of healthcare quality and patient safety training programmes. Until recently, there has been limited effort to standardise training initiatives or to ensure that participants receive formally recognised certification upon completion. In South Africa, very few academic institutions offer dedicated quality improvement training programmes, and some universities only incorporate these topics as modules in broader leadership and management courses.

Structured and formalised training is important in terms of having common knowledge and skills across the healthcare workforce. Structured and formalised training is also an indication of how valued the programmes are since they are designed to improve the performance of those involved in care and quality improvement activities. An absence of structured and comprehensive training means that the challenges of dealing with adverse events and safe patient care are continuous. Additionally, without formalised training, some healthcare professionals are less prepared to meet their responsibilities and conduct themselves competently especially with little evidence to guide them in technology-driven and rapid transformation of care practices. If improved training is not introduced with the healthcare workforce, we will struggle to build a competent workforce that can support high-quality and safe care.

5.5 SECTION B: PARTICIPANTS' ORGANISATION AND QUALITY WORK

Section B of the questionnaire was designed to gather information about the organisations or workplaces of the participants, with an emphasis on issues pertaining to quality. Participants were able to select the responses that best reflected their attitudes and behaviours at work from a list of multiple choices for each of the section's ten questions. Additionally, a Likert scale was used to determine the participants' degree of agreement with various statements. From "strongly agree" to "strongly disagree," the scale provided a comprehensive picture of their views on issues related to organisational quality. This mix of question types ensured a comprehensive examination of workplace quality dynamics. Additionally, this approach provided a

systematic framework for understanding respondents' perspectives on quality-related issues in diverse healthcare settings.

5.5.1 Respondents per Facility Type

Thirty-nine percent (81) of the respondents were employed at district hospitals, 25% (52) at provincial hospitals, 12% (26) at regional hospitals, and 10% (20) at primary healthcare clinics. An additional 12% (25) were based at the national level, including managers responsible for overseeing quality initiatives across provinces, representatives from the National Department of Health, the Office of Health Standards Compliance working closely with healthcare facilities, and management staff from Sefako Makgatho Health Sciences University. A further 2% (5) indicated 'other' but did not specify their workplace. Participants were asked questions related to workplace quality practices, selecting responses that best aligned with their current place of employment.

Table 7 below that shows the questions asked and the various responses from participants presented as percentages.

Table 7: Workplace-related practices

Questions asked related to quality in the workplace	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Non-response
Improving the quality healthcare in my workplace is not easy.	48%	19%	6%	17%	4%	6%
Leadership is solely responsible for quality improvement initiatives.	15%	25%	6%	33%	15%	6%
In my workplace quality improvement is valued.	28%	45%	9%	11%	1%	6%
In my workplace, not all employees are involved in the development of quality improvement plans.	15%	51%	6%	16%	7%	5%
Comprehensive consultation with all employees contributing to the issue to be improved is necessary.	59%	29%	4%	2%	1%	5%
Quality improvement is only the responsibility of the Quality Managers/Quality Improvement Coordinators.	5%	7%	8%	26%	49%	5%
In my workplace, all individuals affected by the issue to be improved are included in the quality improvement process.	23%	35%	13%	19%	5%	5%
Developing quality improvement plans is frustrating to me.	4%	14%	14%	45%	17%	6%
In my workplace, the resources necessary for quality improvement are allocated for other purposes.	8%	18%	28%	29%	12%	5%
In my workplace, quality improvement is not prioritised.	16%	21%	14%	36%	7%	6%
In my workplace, key individuals resist any new ideas.	11%	30%	20%	25%	9%	5%
The organisational culture where I work values change in the quality of healthcare services.	15%	48%	16%	14%	1%	6%
In my workplace quality improvement takes place in silos.	10%	28%	23%	26%	7%	6%
The organisational environment where I work values change to the quality of healthcare services.	15%	48%	17%	13%	2%	5%
In my workplace, key individuals obstruct change.	11%	25%	20%	29%	10%	5%
My organisation supports change in the quality of healthcare services.	23%	48%	15%	8%	1%	5%
In my workplace, there is no incentive to implement quality improvement activities.	15%	35%	19%	16%	10%	5%

My organisation has a Quality Management System (QMS) that works	Strongly Agree	Agree	Neither	Disagree	Strongly disagree	Non-response
My organisation has a QMS that works.	9%	37%	19%	26%	4%	5%
In my organisation, we intend starting a QMS.	12%	37%	28%	11%	4%	8%
My organisation had a QMS, but it failed to make improvements.	3%	18%	31%	32%	8%	8%
In my workplace, there are no resources (time/money/people) for a QMS.	9%	23%	19%	33%	10%	6%
We need someone to train us on how to implement a QMS.	24%	42%	5%	16%	6%	7%

The findings related to questions about quality in the workplace in Table 7 above are discussed below.

5.5.2 Improving the quality of healthcare in my workplace is not easy

The results show that 67% of the respondents either strongly agreed or agreed, 21% either strongly disagreed or disagreed, 6% chose neither and there were 6% non-responses. A positive organisational culture is fundamental in fostering a workplace environment conducive to improving healthcare quality. Such a culture emphasises collaboration, accountability, and a shared commitment to safety and excellence. Effective leadership plays a pivotal role in establishing this culture by setting clear expectations, prioritising patient safety and fostering a mindset of continuous quality improvement. This approach not only enhances patient outcomes but also improves the overall patient experience by promoting trust and satisfaction within the healthcare system. The above viewpoint is supported by Wong et al. (2021) who state that the organisational culture is an important determinant of patient safety in a healthcare organisation, one that influences safety outcomes and management systems (Wong et al., 2021).

In line with this, the publication of the Norms and Standards Regulations Applicable to Different Categories of Health Establishments by the Minister of Health in February 2018 was a significant policy intervention aimed at promoting and protecting the health

and safety of both healthcare users and personnel (National Department of Health, 2018). These regulations, which became effective in February 2019, consist of 22 sub-regulations addressing key domains such as user rights, clinical governance, clinical care, clinical support services, facilities and infrastructure, governance and human resources, and general provisions. Each domain outlines specific standards designed to guide healthcare facilities in achieving and maintaining high-quality care.

Despite these regulatory frameworks, challenges remain in their implementation, as highlighted in the 2021/2022 OHSC Annual Inspection Report (Office of Health Standards Compliance, 2022). Governance and human resources, the lowest-performing domain in the report, are critical inputs for a functional and effective health system. The findings revealed systemic issues such as the absence of functional clinic committees, non-compliance with performance management systems, and ineffective occupational health and safety management. These deficiencies undermine the capacity of healthcare organisations to deliver safe and high-quality services, affecting both patient and staff experiences.

The OHSC report aligns with the sentiments expressed by 67% of respondents in this study, who indicated that improving the quality of care in their organisations is challenging. These challenges are often exacerbated by resource constraints, workforce shortages, and inconsistent enforcement of regulatory standards. Addressing these barriers requires a multifaceted approach that includes strengthening leadership capacities, ensuring compliance with performance and safety standards and investing in human resources and infrastructure.

In addition, establishing a culture of quality improvement relies on more than just compliance with regulations, it requires participation from every level of the organisation. Healthcare workers also need to be provided with training, time, and resources to actually implement quality improvement initiatives. At the same time, leadership needs to promote transparency, accountability, and constructive communication to align quality and safety standards with organisational goals. If an organisation emphasizes quality improvement as a priority, the workplace can become one where quality improvement is ingrained and unfettered.

5.5.3 Leadership is solely responsible for quality improvement initiatives

Forty-eight percent of the participants (48%) strongly disagreed or disagreed with the statement, whilst 40% strongly agreed or agreed, 6% chose neither option, and the remaining 6% did not respond. Quality improvement is a collective responsibility, requiring the active participation of all healthcare workers to ensure its success and sustainability. While leadership plays a crucial role in guiding and supporting quality improvement efforts, the responsibility does not rest solely with them. Effective quality management depends on the involvement of all staff members, fostering a shared commitment to continuous improvement across every level of the organisation.

Creating an environment conducive to quality improvement necessitates inclusive engagement, where each staff member understands their role and contributes to the organisation's quality objectives. This principle is emphasised in the NDOH Quality Improvement Guide of 2013 and the OHSC Quality Standards promulgated in 2018 (National Department of Health, 2018, 2013). Both frameworks highlight staff involvement as a fundamental principle of quality management systems, aligning with international standards such as ISO 9001:2015, which stress the importance of engaging people as a key factor in achieving quality objectives (National Department of Health, 2013).

By involving all staff members, organisations can build a culture of ownership and accountability, ensuring that quality improvement initiatives are not only implemented effectively but also sustained over time. This collective approach helps to embed quality practices into everyday operations, promoting innovation, collaboration, and resilience in addressing healthcare challenges. Leadership's role, therefore, is to create the conditions for such involvement through effective communication, resource allocation, and the establishment of a supportive organisational culture – while empowering staff to take active roles in driving quality improvement efforts.

5.5.4 In my workplace quality improvement is valued

An overwhelming 73% of respondents either strongly agreed or agreed, while only 12% disagreed or strongly disagreed with the statements presented. Additionally, 9% of participants selected 'neither agree nor disagree', and 6% did not provide a response. These findings underscore the growing concerns surrounding healthcare quality and patient safety, particularly in the context of increasing healthcare expenditure.

Healthcare organisations that ensure the competence of individuals providing healthcare services is a vital element in strengthening patient care quality and safety. Hospitals and workplaces must prioritise quality improvement initiatives, as the costs associated with providing poor-quality care are substantial. These costs extend beyond the obvious financial implications, including the substantial burden of medical litigation, which exacerbates the strain on the healthcare sector's resources. Poor-quality care not only leads to adverse patient outcomes but also undermines trust in the health system, compounding its negative effects. Addressing these challenges requires a concerted effort to embed quality improvement as a core organisational value, ensuring sustainable and equitable healthcare delivery.

5.5.5 In my workplace, not all employees are involved in the development of quality improvement plans

Sixty- six percent (66%) of the respondents believed (strongly agreed or agreed) that not all employees are involved in the development of quality improvement plans, 23% strongly disagreed or disagreed, whilst 6% responded neither, and 5% did not respond. For quality improvement plans to achieve the results intended, all employees should be involved in quality initiatives and ought to take part during the development of quality improvement plans. The development of quality improvement plans requires an understanding of the systems and processes in the health system. Therefore, if other categories of employees are excluded, quality improvement plans will not be able to achieve the intended results of closing the gaps in the health system. The

engagement of other categories of staff is important and is a requirement stated in quality management principles.

5.5.6 Comprehensive consultation with all employees contributing to the issue to be improved is necessary

An impressive 88% of respondents either strongly agreed or agreed, while only 3% strongly disagreed or disagreed. Additionally, 4% selected 'neither agree nor disagree', and 5% did not respond. These results highlight the critical role of employee involvement in establishing a successful and sustainable quality management system within any organisation or workplace.

Engaging all employees in identifying and addressing areas for improvement is fundamental to the success of quality management initiatives. Consultation with staff fosters a sense of ownership and teamwork, creating a collaborative environment where diverse perspectives contribute to effective problem-solving. Teamwork, in turn, is instrumental in optimising resources and distributing the workload efficiently, both of which are essential for the development and implementation of comprehensive quality improvement plans. By involving employees at all levels, organisations can ensure that improvement efforts are well-informed, widely supported, and sustainable over the long term. This inclusive approach not only enhances the effectiveness of quality management systems but also cultivates a culture of continuous improvement and shared accountability.

5.5.7 Quality improvement is only the responsibility of the Quality Managers/Quality Improvement Coordinators

Seventy-five percent (75%) of the respondents strongly disagreed or disagreed, whilst only 12% strongly agreed or agreed, 8% responded neither, and 5% were non-responses. Quality is a shared responsibility among all employees within the healthcare sector and across all services, emphasising the need for collective engagement in quality improvement efforts. Quality managers or quality coordinators, however, play a pivotal role in this process, as they are tasked with consolidating

individual quality improvement plans into a comprehensive, establishment-wide quality improvement strategy.

Beyond the collation of plans, quality managers bear the responsibility of overseeing the execution of these initiatives, ensuring that they are effectively implemented and aligned with the organisation's overarching goals. This involves coordinating resources, monitoring progress, addressing barriers to implementation, and fostering collaboration among stakeholders. By guiding the transition from planning to execution, quality managers ensure that quality improvement efforts translate into tangible outcomes, ultimately enhancing healthcare delivery and patient safety.

5.5.8 In my workplace, all individuals affected by the issue to be improved are included in the quality improvement process

Fifty-eight percent (58%) of the respondents strongly agreed or agreed, 24% strongly disagreed or disagreed, whilst 13% responded with neither and 5% were non-responses. It is vital to include the individuals affected by the issues to be improved to encourage teamwork or team stability and a sense of ownership.

5.5.9 Developing quality improvement plans is frustrating to me

Sixty-two percent (62%) strongly disagreed or disagreed, 18% strongly agreed or agreed, whilst 14% responded with neither and 6% were non-responses. The employees need to be involved in the development of quality improvement plans since they know their systems better and therefore should be able to develop plans that can achieve positive results. Eighteen percent (18%) of the respondents who saw the development of the quality improvement plans as frustrating should be supported by the quality managers to be able to adapt to this vital quality improvement activity.

5.5.10 In my workplace, the resources necessary for quality improvement are allocated for other purposes

The responses to the question regarding the allocation of resources for quality improvement reveal a divided perspective among participants. A significant proportion, 41% of respondents, strongly disagreed or disagreed with the statement that resources necessary for quality improvement are allocated for other purposes. This indicates that a considerable number of participants perceive resources as being appropriately or sufficiently dedicated to quality improvement initiatives.

Conversely, 24% of respondents strongly agreed or agreed with the statement, suggesting that in some organisations, resources intended for quality improvement are being redirected to other priorities. This viewpoint reflects a potential challenge in aligning resource allocation with the strategic goals of quality management.

Meanwhile, 28% of participants responded with 'neither agree nor disagree', indicating uncertainty or ambivalence regarding the allocation of resources in their workplaces. This could suggest a lack of clarity or visibility around how resources are distributed or used, potentially highlighting the need for better communication and transparency. Finally, 5% of respondents did not provide an answer to the question, which may suggest either disengagement with the topic or a lack of sufficient information to form an opinion.

These findings underscore the critical role of management in ensuring that resources for quality improvement are not only made available but are also allocated and utilised effectively. Without dedicated and properly managed resources, the implementation of quality management systems may face significant obstacles, limiting their potential to drive meaningful improvements in healthcare delivery and patient outcomes (Kruk et al., 2018; National Department of Health, 2013).

5.5.11 In my workplace, quality improvement is not prioritised

Forty-three percent (43%) of the respondents believed that quality is prioritised by the workplace strongly disagreed or disagreed, 35% strongly agreed or agreed that quality is not prioritised, 14% responded 'neither' and 6% were non-responses. The workplace needs to prioritise quality improvement to enhance accountability for health professionals such as clinicians and quality managers, for resource efficiency, and for identifying and minimising errors while maximising the use of effective care, and improving outcomes and patient experience of care and satisfaction.

5.5.12 In my workplace, key individuals resist any new ideas

Forty-one percent (41%) strongly agreed or agreed, 34% strongly disagreed or disagreed, whilst a large minority of respondents, namely 20%, chose neither, and 5% did not respond. Staff attitudes often exist in an environment where staff morale is low and change ideas are not communicated timeously. Positive staff attitudes, often stemming from those who have been involved in quality initiatives, should be able to influence those who are resistant to change; and quality managers should be able to play an effective role in ensuring that teamwork is encouraged.

5.5.13 The organisational culture where I work values change in the quality of healthcare services

A majority, 63% of respondents, either strongly agreed or agreed with the statement, indicating that many perceive their organisational culture as supportive of efforts to enhance healthcare quality. This suggests that within these workplaces, there is a foundational readiness to embrace and implement changes aimed at improving service delivery and patient outcomes. Fifteen percent (15%) of respondents strongly disagreed or disagreed with the statement, reflecting a notable minority who feel their organisational culture does not sufficiently prioritise or support changes to improve healthcare quality. This perspective highlights potential barriers that could impede the adoption of quality improvement initiatives in these environments, such as resistance to change or misaligned priorities. Additionally, 16% of participants selected 'neither

agree nor disagree', suggesting uncertainty or ambivalence about their organisational culture's stance on change in healthcare quality. This could point to variability in how quality improvement is perceived or implemented across different departments or units.

Only 6% of respondents did not provide an answer, possibly indicating disengagement or a lack of awareness regarding the organisation's cultural values around quality improvement. These findings emphasise the importance of fostering an organisational culture that actively values and supports change aimed at improving healthcare services. Management plays a critical role in cultivating this culture by encouraging innovation, addressing resistance to change, and ensuring that quality improvement is embedded as a core organisational priority. An environment that values and supports change is essential for driving sustainable improvements in healthcare quality.

5.5.14 In my workplace quality improvement takes place in silos

Thirty-eight (38%) percent strongly agreed or agreed with the statement, 33% strongly disagreed or disagreed, 23% chose 'neither' and 6% were non-responses. According to de Waal et al. (2019), a survey conducted on collaboration, which was defined as the willingness of units to work together, having mutual understanding, and a common vision, sharing resources, and achieving collective goals, found that silos existed in 83% of the responding companies and a significant number, namely 97% of the respondents, said that silos hurt the performance of their organisations (de Waal et al., 2019). Quality improvement needs teamwork to maximise resources, improve communication, and ensure sustainability. Collaboration and teamwork foster effective communication and coordination among healthcare providers responsible for improvement programmes. In the workplace effective management must be able to establish and encourage a culture that promotes collaboration and active participation by the healthcare professionals across different disciplines.

5.5.15 The organisational environment where I work values change to the quality of healthcare services

A significant percentage of respondents strongly agreed or agreed with the statement (63%), 15% strongly disagreed or disagreed, whilst 17% responded with neither, and 5% did not respond. Managers can help improve the quality by implementing the requirements of the norms and standards regulations prescribed in 2018 by the Minister of Health to achieve certification (National Department of Health, 2018). This is an ongoing process of assessment that encourages continuous quality improvement. In addition, systems can be redesigned to avoid errors that cause harm to patients.

5.5.16 In my workplace, key individuals obstruct change

The single largest group (less than half), 39% of respondents, strongly disagreed or disagreed with the statement, indicating that in many workplaces, key individuals are not perceived as barriers to change. This suggests that a significant proportion of participants work in environments where leadership and influential figures are supportive of, or at least not resistant to, quality improvement initiatives.

Conversely, 36% of the respondents strongly agreed or agreed, highlighting a substantial proportion who feel that key individuals within their workplaces do obstruct change. This perception points to a potential challenge in implementing quality improvement initiatives, as resistance from influential individuals can significantly impede progress and undermine organisational efforts toward continuous improvement. Indicating a lack of direct experience with such obstruction or variability in the perception of resistance across different contexts or departments, 20% of participants selected 'neither agree nor disagree'. The remaining 5% did not respond to the question.

These findings highlight the critical need to address resistance to change at an individual level, particularly among those in influential positions. Leadership and management must take proactive steps to engage key individuals, addressing their

concerns, fostering a shared vision, and building consensus to ensure the successful implementation of quality improvement initiatives. Overcoming resistance is essential to creating an environment conducive to meaningful and sustainable organisational change.

5.5.17 My organisation supports change in the quality of healthcare services

A significant 71% of the respondents strongly agreed or agreed with the statement, 15% chose 'neither', 9% strongly disagreed or disagreed with the statement, whilst 5% were non-responses. A significant proportion of respondents indicated that their organisations support quality improvement initiatives and are well-positioned to achieve better health outcomes and reduce morbidity and mortality. However, the findings highlight the need for improved resource allocation to support quality improvement efforts. Efficient resource distribution, waste reduction, and optimisation of outputs are critical to ensuring the effectiveness and sustainability of these initiatives.

5.5.18 In my workplace, there is no incentive to implement quality improvement activities

Fifty percent (50%) of the respondents strongly agreed or agreed, whilst 26% strongly disagreed or disagreed with the statement; 19% of the respondents chose 'neither' and 5% were non-responses. Half of the respondents reported that their workplace did not provide incentives to support the implementation of quality improvement activities. Incentivising quality improvement efforts can yield significant benefits for healthcare organisations, patients, and healthcare providers, including clinicians and quality managers. Incentives can enhance patient outcomes by fostering consistent application of evidence-based practices and improving overall care quality. They can also boost operational efficiency, reducing costs through streamlined processes and waste elimination.

Additionally, incentives contribute to positive patient experiences by promoting a culture of safety and responsiveness within healthcare settings. For healthcare staff,

such incentives can improve morale, motivation, and engagement, leading to better teamwork, collaboration, and professional satisfaction. They also encourage continuous professional development and innovation, which are essential for addressing evolving healthcare challenges. By aligning organisational goals with individual performance, incentives help create a sustainable framework for achieving high-quality, patient-centred care.

5.5.19. Summary of the findings from Section B

This section highlighted key challenges and perceptions regarding quality improvement in healthcare organisations, aligning with the study's objectives and research questions. Notably, while most respondents (73%) agreed that quality improvement is valued in their workplaces, nearly half (48%) found it difficult to implement, indicating systemic barriers such as resource constraints (29% reported that QI resources were allocated elsewhere) and resistance to change (41% perceived that key individuals obstructed new ideas). These findings align with the research question assessing knowledge and competency gaps in healthcare quality and patient safety, and underscore the need for structured training interventions, as emphasised in the Kirkpatrick model (Kirkpatrick and Kirkpatrick, 2015). Furthermore, the limited involvement of all employees in QI plan development (66% agreed not all staff are included) reflects organisational silos, a common challenge in healthcare QI efforts (Dixon-Woods et al., 2012). Additionally, the absence of a fully functional quality management system in many organisations – only 46% agreed their QMS works effectively – suggests a need for targeted training, as supported by the respondents' interest in QMS training (66%). These insights reinforce the study's objective of bridging competency gaps through education and structured QI frameworks, as recommended by Vincent and Amalberti (2016) in enhancing healthcare safety culture (Vincent and Amalberti, 2016).

5.6 CHALLENGES TO IMPLEMENTING QUALITY IMPROVEMENTS

Implementing quality improvement in healthcare settings requires a supportive environment where enablers such as strong leadership, adequate resources, and a

culture of collaboration are present. However, achieving this is often hindered by various challenges that obstruct the establishment and sustainability of effective quality management systems. These challenges, deeply rooted in organisational structures and processes, can impede the consistent delivery of safe, high-quality healthcare.

From a list of options participants in the study were asked to identify the barriers they face in implementing QI initiatives within their workplaces. These barriers highlight systemic and operational issues, such as insufficient training, limited resources, and resistance to change, which collectively undermine efforts to establish a culture of continuous improvement. Understanding these challenges is critical for addressing the gaps in healthcare quality and patient safety and for driving targeted interventions that strengthen organisational capacity to implement QI effectively. The discussion that follows explores these challenges in detail, providing insights into their implications for achieving sustainable improvements in healthcare delivery.

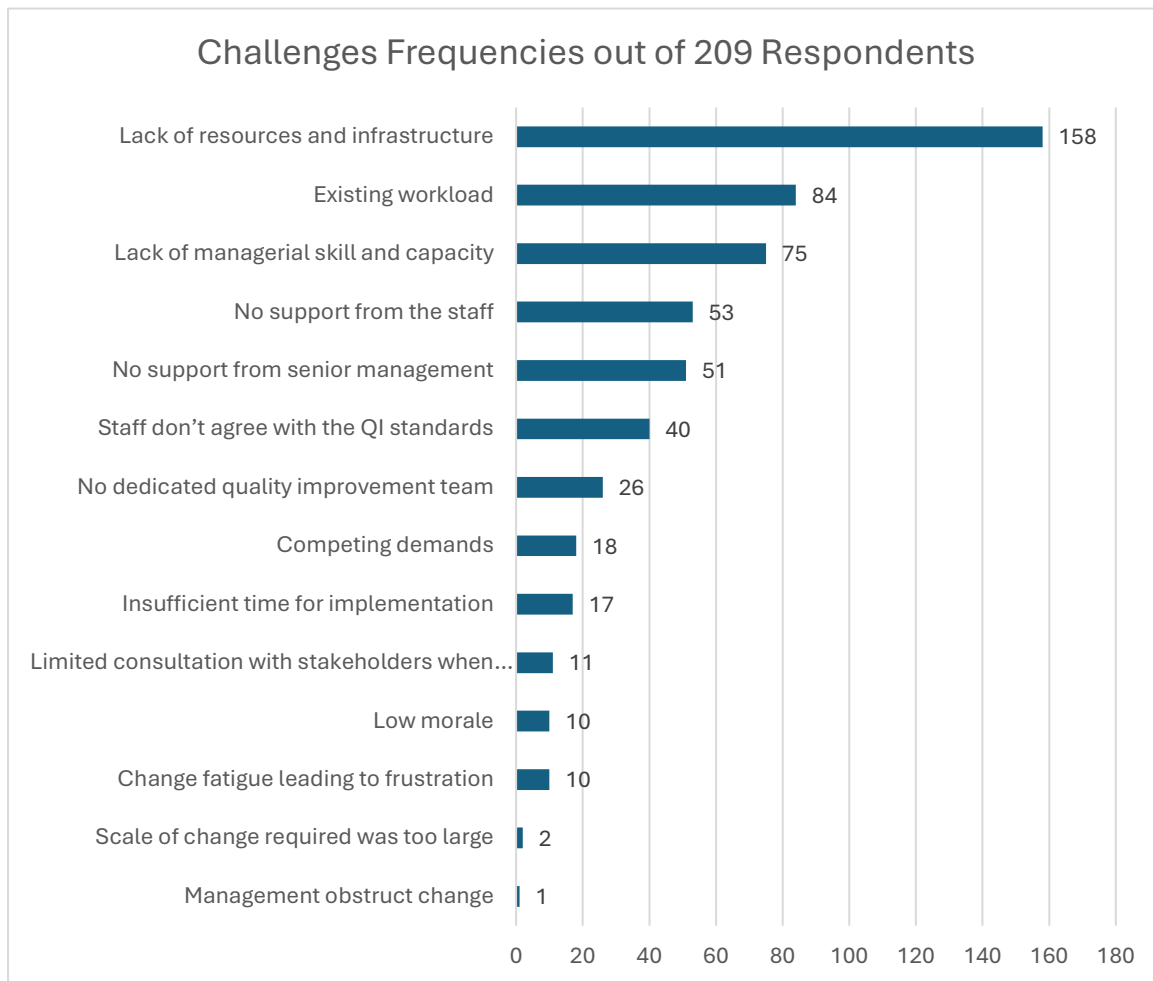


Figure 7: Challenges to implementing Quality Improvements in the workplace

5.6.1 Lack of infrastructure and resources emerged as major challenges to implementing quality in the workplace.

The Presidential Health Summit Report published in 2018 identified the existing infrastructure of health facilities as substandard, with dilapidated and unsafe facilities being prevalent challenges in South Africa. Out of 209 respondents 158 selected lack of infrastructure as a challenge to implementing quality in the workplace. Infrastructure shortcomings contribute to a range of challenges, including inadequate infection control, poor ventilation, insufficient waiting areas, and a lack of cleanliness. Poorly ventilated healthcare facilities compromise both the quality of care and the safety of patients and staff. The IOM 2001 report highlighted that many medical errors were attributed to faulty equipment and substandard hospital conditions (Institute of

Medicine (US) Committee on Quality of Health Care in America, 2001; Rodziewicz et al., 2025; Wolfe, 2001). For meaningful performance improvement to occur, adequate resources must be made available. However, some improvements can be achieved without additional resources by optimising existing processes, addressing inefficiencies, and encouraging staff to perform their designated roles effectively.

The term 'lack of resources' is often broadly applied to encompass both human and financial constraints. Insufficient human resources and inadequate budgets for improvement initiatives are key factors contributing to the failure of quality improvement projects. Such failures not only undermine the success of improvement efforts but also negatively affect staff morale, weakening the organisational culture. When improvement projects fail to produce tangible outcomes, teams may become disillusioned, and the absence of visible, scalable positive changes can further demotivate staff. Consequently, ensuring adequate resource allocation and strategic project management is essential for fostering a culture of sustained quality improvement and achieving measurable success in healthcare settings.

5.6.2 Existing workload

Eighty-four respondents selected existing workload as a challenge. Currently, in South Africa, there is a critical shortage of doctors and nursing staff both in public and private sectors and this is the result of fewer people being trained as nurses due to the closure of a significant number of nursing colleges. The de-professionalisation of healthcare professions such as the erosion of nursing education standards, has placed considerable strain on the healthcare system. Furthermore, despite completing their medical education, many doctors remain unemployed due to government budgetary constraints. As patient numbers continue to rise in clinics and hospitals, the risk of patient harm during service provision or access increases, contributing to the prevalence of medical errors.

Excessive workloads negatively impact service delivery. For example, prolonged patient waiting times compromise the quality of care as healthcare providers prioritise quantity over quality to mitigate complaints. This can lead to repeat visits by patients

due to the substandard care they initially received. Moreover, the overwhelming workload poses a significant barrier to the implementation of quality improvement initiatives. Staff are often compelled to focus on immediate patient care rather than dedicating time to quality improvement activities, such as team meetings aimed at driving necessary changes (Maphumulo and Bhengu, 2019).

Quality improvement team meetings are essential for fostering shared learning and understanding. They provide a platform where staff can collaboratively identify and discuss strategies to enhance service delivery. However, when workloads are excessive, these critical discussions are deprioritised, further hindering an organisation's ability to achieve meaningful and sustainable improvements in care quality. Addressing workload challenges is therefore pivotal to creating an environment conducive to both effective service delivery and quality improvement efforts.

5.6.3 Lack of managerial skills and capacity

Seventy-five respondents selected a lack of managerial skills and capacity as a challenge to implementing quality in the workplace. A lack of managerial skills and capacity exacerbates challenges in the healthcare system, as some individuals are unable to effectively fulfil their management responsibilities to ensure consistent delivery of high-quality care without patient harm. One of the critical issues facing the South African health system is the absence of standardised competencies for managers, particularly those responsible for overseeing quality improvement initiatives. Many managers are appointed to their roles with quality management experience considered advantageous but not essential, leading to unclear definitions of their roles and responsibilities concerning quality.

This issue is compounded by the absence of standardised quality improvement training curricula in South African academic institutions and nursing colleges. Only in recent years have such institutions begun incorporating quality improvement courses or modules into their programmes. The findings of the 2016/17 inspections of the leadership and governance domain highlighted the lack of effective governance

structures in most health establishments (Office of Health Standards Compliance, 2017). Where structures existed, there was often no evidence of proper oversight, accountability or effective management.

The situation has not significantly improved over time. The 2021/22 Annual Inspection Report continues to show non-compliance with governance and human resources standards in many health establishments, largely due to management's failure to adhere to performance management systems (Office of Health Standards Compliance, 2022). Governance and human resources are critical inputs for a functional health system, directly affecting service delivery and the ability to provide high-quality healthcare. Addressing these managerial gaps is essential for improving oversight, accountability, and the overall effectiveness of healthcare delivery systems.

5.6.4 No support from the staff

Fifty three respondents noted no support from the staff. The above challenges selected by a large number of respondents are critical and should be addressed to create a culture in the organisations or in health establishments where health service delivery needs to improve. The organisational culture provides a sense of identity for employees and the identity increases staff well-being.

The challenges identified by participants align with the study's research question on competency gaps and barriers to healthcare quality and patient safety. The most frequently cited challenge, 'Lack of resources and infrastructure' (76% of respondents), reflects systemic limitations that hinder QI efforts. This finding aligns with previous literature highlighting that inadequate funding and resource allocation impede the implementation of quality management systems in healthcare (Maphumulo and Bhengu, 2019; Rispel, 2016). Additionally, workload pressures (40%) and lack of managerial capacity (36%) further emphasise the need for structured training interventions to equip healthcare professionals with the necessary skills to drive QI initiatives (Hughes, 2008; National Department of Health, 2007). Resistance to change, whether from staff (25%) or senior management (24%), highlights cultural barriers that necessitate leadership engagement and stakeholder collaboration

(Kotter, 2008). Moreover, the absence of dedicated QI teams (12%) and insufficient consultation (5%) underscore the necessity for interdisciplinary collaboration, as recommended in effective healthcare quality frameworks (Bendowska and Baum, 2023). Addressing these challenges through capacity-building initiatives and leadership-driven strategies will be essential in achieving the study's objective of bridging competency gaps and enhancing healthcare quality and patient safety.

5.7 ENABLERS FOR QUALITY IMPROVEMENT

The participants were asked to select statements that would describe enablers to implementing quality improvement in their workplace. The graph below shows how they responded to the statements. The enablers in this context are those elements in the workplace that foster a positive environment or culture leading to the provision of safe, quality healthcare or implementation of quality management systems that will promote quality and safety.

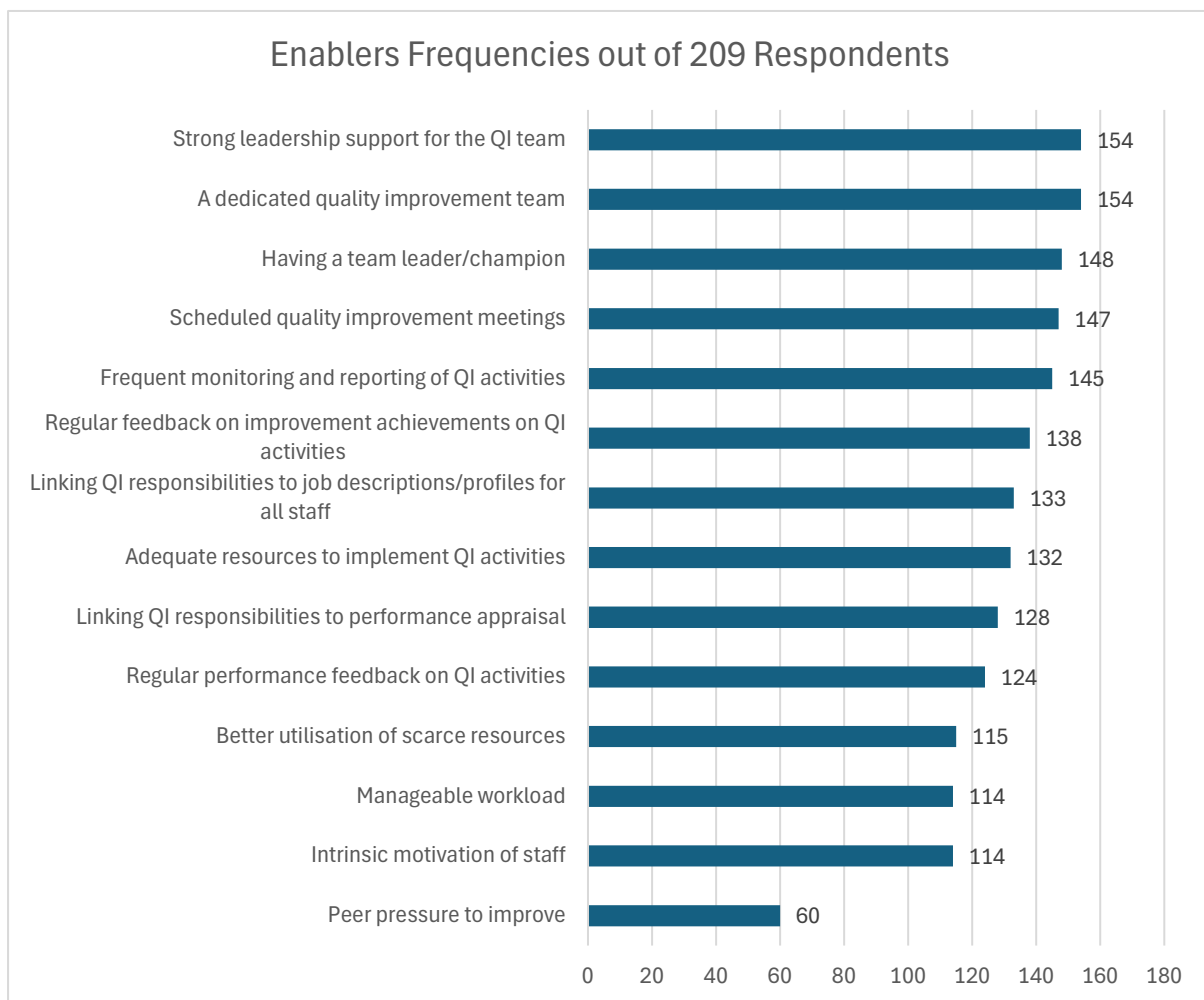


Figure 8: Enablers to Implement Quality Improvement in the workplace

5.7.1 Strong leadership support for the team

The above measure received a significant response from participants, and it is therefore not surprising that for any transformation to take place, leadership support is required and necessary. NDOH policy on quality healthcare states that quality is about leadership, shared learning, and evidence-based practices (National Department of Health, 2007). If quality and safety are to be seen as a strategic priority for all staff, then leadership must make it a key focus of their attention. Leadership should ensure that the required resources are available to facilitate the implementation of quality management systems in the workplace. Leadership support is quintessential to maintain interest in the work of improvement, providing a valuable source of

accountability, and accurate assessment of successes and failures as the organisation progresses. Leaders should also review the information that is submitted from facilities and provide learning opportunities. Employees should be able to measure the performance of the health system by choosing the correct measurement aligned with the organisational goals to improve quality. Quality improvement teams will need to be empowered by leadership by creating time and space for improvement activities to take place in the organisation. Leaders can also empower the improvement plan by being available to help problem-solve policy-level challenges, and to assist in making changes that may apply to multiple health establishments within the district or province.

5.7.2 Teamwork for Quality Improvement

154 respondents chose a dedicated quality improvement team as an enabler. Teamwork is seen as critical as it encourages everyone's involvement, and also fosters an environment for shared learning and increasing knowledge. To implement any quality standards or measurements to promote patient safety and healthcare quality, there must be a multidisciplinary team. Quality improvement teams in healthcare should include a diverse range of staff members, reflecting the multidisciplinary nature of healthcare delivery. Team members may include nurses, doctors, security personnel, cleaners, administrative clerks, and nutritionists, among others. For example, efforts to reduce healthcare-associated infections (HAI) require a comprehensive approach involving various roles. Cleaners as well play a critical role in maintaining a sterile environment, while clinicians provide medical expertise, and infection prevention and control (IPC) managers offer specialised guidance on best practices.

The success of such initiatives hinges on effective leadership. The team leader who drives the HAI improvement efforts is responsible for maintaining momentum, ensuring adherence to improvement plans, and coordinating regular team meetings. This collaborative approach fosters accountability, leverages diverse expertise, and enhances the overall effectiveness of quality improvement initiatives.

5.7.3 Having a team leader/champion to drive quality improvement work

148 respondents chose having a dedicated team leader as an enabler and for performance improvement. The organisations or health establishments must be able to identify a team leader or champion who will be able to drive improvement projects aligned with organisational goals to improve the quality of care and patient safety. Without a champion, performance improvement is likely to not succeed.

5.7.4 Scheduled quality improvement meetings

147 respondents identified scheduled quality improvement meetings as enablers. For any improvement project to succeed, there must be a dedicated team to drive the project, and the team must be able to create a clear structure, and regular scheduled meetings to ensure that services are not disrupted. Once the meetings are scheduled, this will enable planning for regular and consistent attendance to the meetings by members.

5.7.5 Frequent monitoring and reporting of quality improvement activities

A total of 145 respondents identified frequent monitoring as a key enabler for quality improvement activities. In any quality improvement initiative, continuous monitoring is essential to evaluate the performance of projects and ensure that the anticipated outcomes are achieved. Monitoring provides critical insights into whether interventions are effective or require adjustments, enabling timely corrective actions to maintain progress. For monitoring to be effective, it must be an ongoing process with a clear frequency agreed upon by the team, ensuring accountability and consistency. Frequent monitoring also fosters a culture of data-driven decision-making, empowering teams to track measurable improvements, identify trends, and address challenges proactively. This systematic approach ensures that quality improvement efforts remain aligned with organisational goals and contribute to the delivery of safe, high-quality healthcare.

The enablers identified in this study, while numerous and not exhaustive, have the potential to significantly impact the workplace, staff, and patients. Quality improvement enablers play a crucial role in reducing medical errors and healthcare-associated infections, enhancing health outcomes, and improving staff experience. Among the priorities identified by respondents, leadership that actively supports quality improvement teams emerged as a key enabler. Strong leadership commitment is vital to establishing robust governance structures with clearly defined roles and responsibilities, as well as fostering functional quality improvement teams. Such leadership is essential for developing a quality improvement vision and strategy that aligns with organisational goals and drives sustained progress toward safe, high-quality healthcare delivery.

The participants were able to select the enablers to implement the quality in their workplace and Figure 8 depicts the enablers as prioritised by the respondents. Subsequently, challenges to implementing quality improvements in the workplace were identified as depicted in the following section. The challenges are presented in descending order, starting with the ones the respondents see as the most challenging to the least.

5.7.6 Quality management system

An important area addressed in the study concerning the workplace is quality management systems (QMSs) that work and achieve desired objectives for improved outcomes. According to Pillay (2023), quality management provides a structured approach to maintaining and enhancing high-quality patient care across all levels of the healthcare system, from individual practitioners to departments and entire organisations. Pillay identifies three core activities of quality management: measurement, which involves quantitatively comparing results against performance requirements; assessment, which uses performance data to determine whether acceptable quality levels are achieved; and improvement, which entails systematic and continuous efforts to enhance the overall effectiveness and value of healthcare services (Pillay, 2023).

QMSs play a pivotal role in fostering accountability, standardisation, and continuous improvement in healthcare organisations. By integrating these fundamental activities, QMSs provide a framework to deliver patient-centred, safe, and efficient care. This not only improves clinical outcomes but also enhances patient satisfaction and experience, while reducing healthcare costs through better resource allocation and waste minimisation. The findings of this study reflect respondents' perceptions of QMS, highlighting both their importance and the challenges faced in their implementation. These insights underscore the critical need for a robust QMS to address existing competency gaps and drive sustainable improvements in healthcare quality and patient safety.

5.7.7 My organisation has a quality management system that works

43% percent of the respondents strongly agreed or agreed with the statement, 30 strongly disagreed or disagreed, whilst 19% responded with neither, and 5% were non-responses. A well-implemented quality management system can harness multiple positive results, including reduced morbidity and mortality rates, and improved patient satisfaction and experience.

5.7.8 In my organisation, we intend starting a quality management system

49% percent of the respondents strongly agreed or agreed, 15% strongly disagreed or disagreed, whilst a higher number of respondents, 28% responded with 'neither' and 8% were non-responses.

5.7.9 My organisation had a quality management system, but it failed to make improvements

A significant proportion, 40% of respondents, strongly disagreed or disagreed with the statement, suggesting that in many cases, quality management systems are perceived as effective in driving improvements within their organisations. This perspective indicates confidence in the systems' abilities to enhance healthcare quality and patient

safety. However, 21% of respondents strongly agreed or agreed, reflecting that a notable minority believe their quality management systems have not achieved the intended improvements. This sentiment highlights potential issues such as ineffective implementation, insufficient resources, lack of staff engagement, or misalignment of the system with organisational goals.

Remarkably, 31% of the participants selected 'neither agree nor disagree', suggesting a substantial level of uncertainty or ambivalence. This could indicate a lack of awareness or clarity regarding the outcomes of quality management systems in their organisations, emphasising the need for improved communication and transparency about system performance and achievements. Additionally, 8% of respondents did not provide an answer, possibly due to disengagement or insufficient information to form an opinion.

These findings underscore the importance of evaluating and continuously improving quality management systems to ensure they effectively address organisational needs and drive tangible improvements. Organisations should focus on identifying and addressing barriers to implementation, fostering staff engagement, and regularly assessing the impact of their quality management systems to build trust and confidence in their efficacy.

5.7.10 In my workplace, there are no resources (time/money/people) for quality management system

32% percent of respondents strongly agreed or agreed, 43% strongly disagreed or disagreed, 19% responded with 'neither' and 6% were non-responses. The resources for quality management systems are critical as the lack thereof or mismanagement of resources can result in inefficient processes being implemented, resulting in poor patient outcomes, increased medical errors and patient safety being compromised.

5.7.11 We need someone to train us on how to implement a quality management system

An overwhelming 66% of respondents strongly agreed or agreed with the statement, 22% strongly disagreed or disagreed, 5% responded with 'neither' and 7% were non-responses. Quality improvement in healthcare relies heavily on strong and effective leadership. However, the public healthcare sector faces significant governance challenges, as highlighted by the 2022/2023 OHSC Annual Inspection Report and unpublished Annual Returns recommendation reports, which point to the prevalence of acting appointments in management positions (Office of Health Standards Compliance, 2023). This lack of permanent leadership and governance contributes to widespread non-compliance with regulatory requirements, ultimately compromising healthcare quality and patient safety. Moreover, inadequate leadership inhibits organisational learning, which is critical for driving change, improving competencies, and delivering high-quality care.

Effective leadership is essential for fostering an organisational culture that supports change, setting clear objectives for improvement, and mobilising the necessary resources to achieve these goals. The findings under the quality management systems theme reveal that the organisations represented by respondents often lack appropriate QMSs that align with ISO 9001 principles (2015). The International Organization for Standardization underscores the pivotal role of leadership in the successful implementation of quality management systems (International Organization for Standardization, 2015). Therefore, prioritising comprehensive training in quality management systems across all levels of leadership and management is imperative to address these gaps, ensure compliance, and promote sustainable improvements in healthcare quality and safety.

The identified enablers align closely with the research objective of bridging competency gaps among clinicians and quality managers while fostering a culture of healthcare quality and patient safety. Strong leadership support (74% of respondents) and the presence of a dedicated QI team (74%) were the most frequently cited enablers, emphasising the critical role of leadership commitment in driving QI

initiatives (Institute of Medicine (US) Committee on Quality of Health Care in America, 2001). Additionally, structured processes such as scheduled QI meetings (70%), frequent monitoring and reporting (69%), and regular feedback on QI activities (66%) suggest that embedding QI practices within organisational workflows enhances sustainability and effectiveness (Mortimer et al., 2018). The integration of QI responsibilities into job descriptions (64%) and performance appraisals (61%) further reinforces the need for accountability in quality management (Jalilvand et al., 2024). Adequate resource allocation (63%) remains an essential factor, aligning with previous findings that resource availability directly impacts the success of QI programmes (Pain et al., 2024). Furthermore, intrinsic motivation (54%) and manageable workloads (54%) were highlighted as key human factors that contribute to sustained engagement in QI efforts (Breed et al., 2020). Addressing these enablers systematically will facilitate the study's goal of improving healthcare quality and patient safety through competency-building initiatives and structured QI implementation strategies.

How would you describe your organisation's overall approach to quality and patient safety?

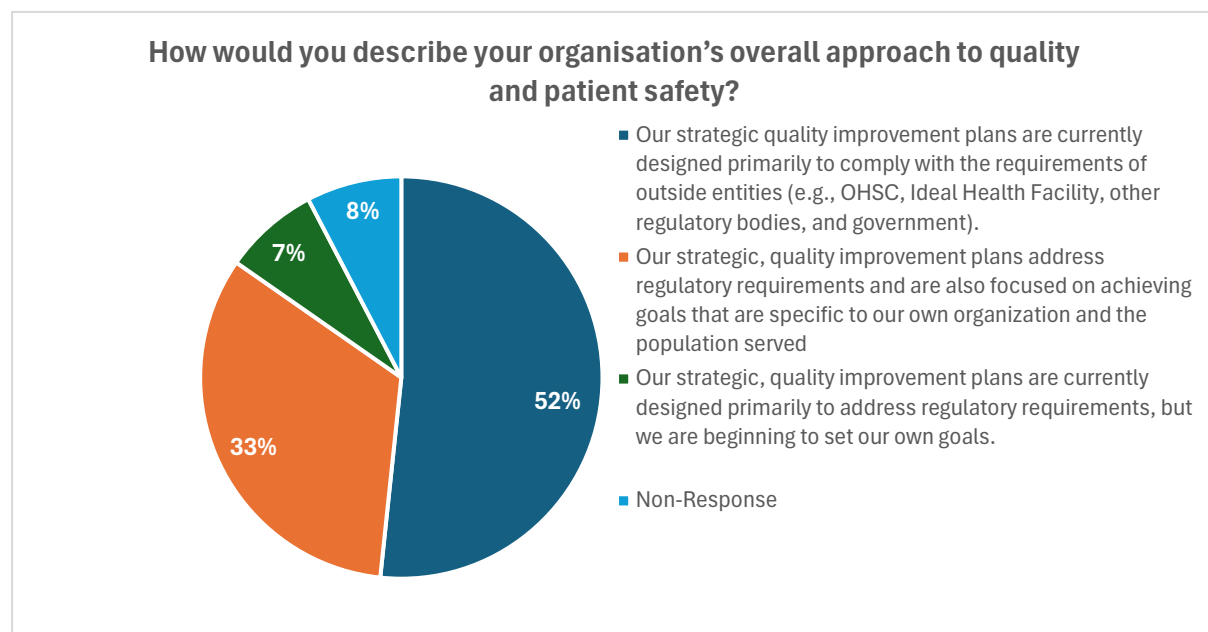


Figure 9: Organisation's approach to quality and patient safety

In response to the organisational overall approach to quality and patient safety, 52% of the respondents indicated that their organisation's strategic quality improvement

plans are currently designed primarily to comply with the requirements of outside entities such as the OHSC, Ideal Health Facility, other regulatory bodies, and government amongst others. Yet only 7% of the respondents mentioned that the strategic and quality improvement plans address regulatory requirements and are also focused on achieving goals that are specific to the organisation and the population served. Therefore, it is important for the strategic plan and QI plans to address organisational goals that are specific to them to identify areas for improvement, streamline processes and reduce waste. By developing and implementing strategic and quality improvement plans, organisations can improve their operations, enhance patient care, and better serve the population they serve.

Which of the following statements best describes the role your governance structure plays in your organisation's quality and safety programmes?

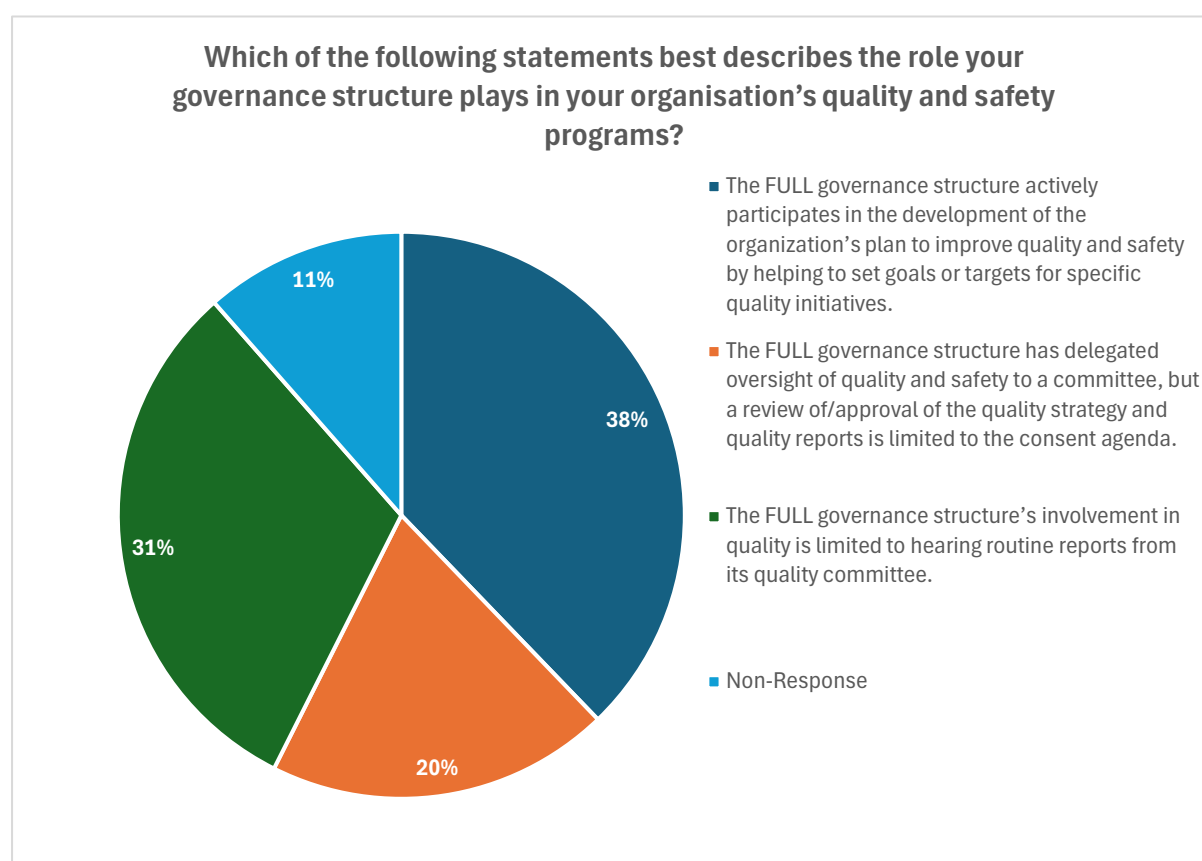


Figure 10: The role of the governance structure in the organisation's quality and safety programmes

38% of the respondents stated that the full governance structure actively participates in the development of the organisation's plan to improve quality and safety by helping to set goals or targets for specific quality initiatives. However, 20% of the respondents mentioned that the oversight of quality and safety has been delegated to a committee,

though a review of and approval of the quality strategy and quality reports is limited to the consent agenda. The challenge with not delegating full responsibility to the committees responsible for overseeing quality and safety programmes is the delay in decision-making and holding the teams accountable.

How would you describe the role the CEO or operational manager plays in your quality and safety programmes?

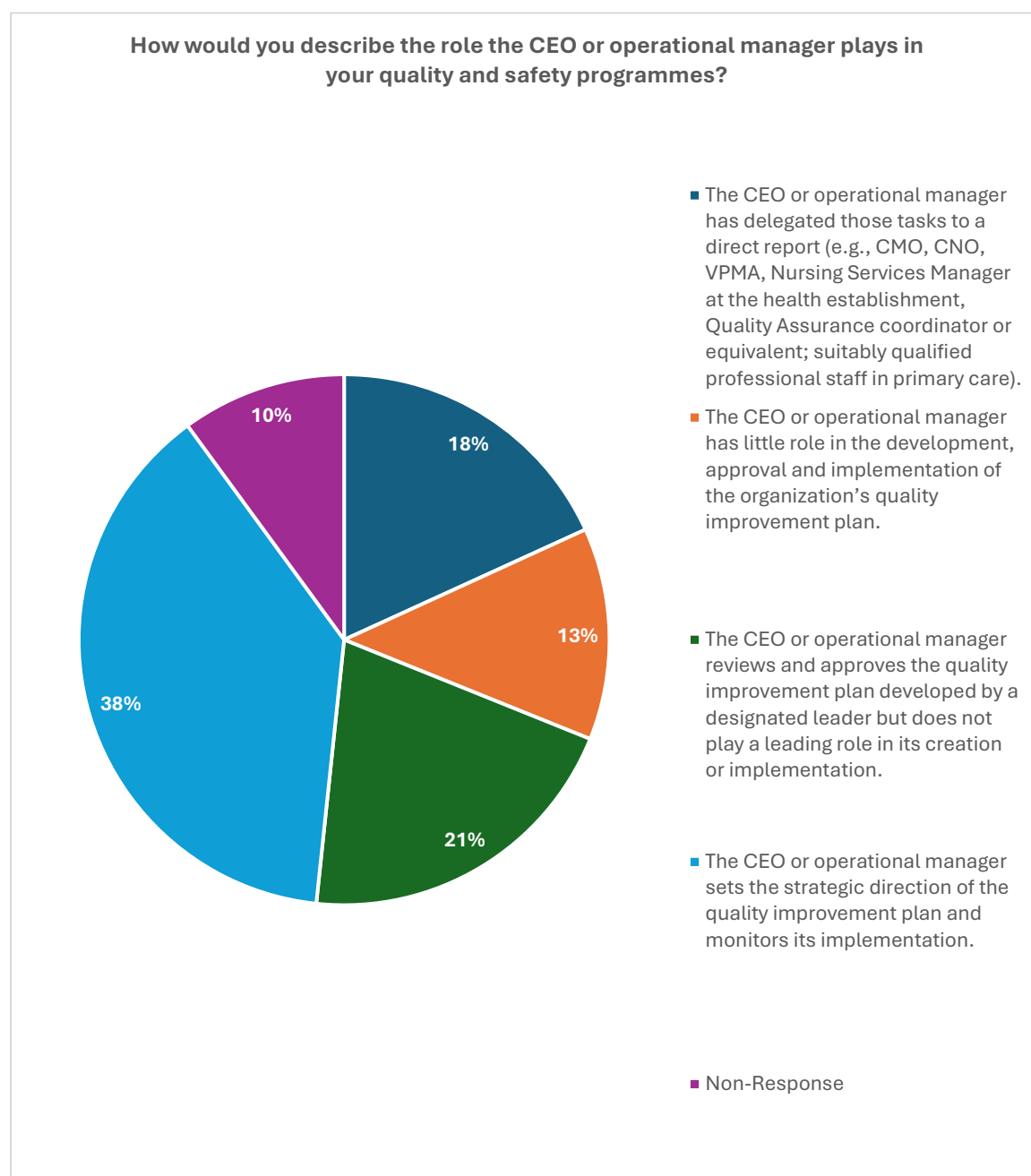


Figure 11: The role the CEO or operational manager plays in quality and safety programmes

Thirty-eight percent of the respondents indicated that the CEO or operational manager sets the strategic direction of the quality improvement plan and monitors its implementation. On the contrary, 13% indicated that the CEO or operational manager has little role in the development, approval and implementation of the organisation's quality improvement plan.

How would you describe the frequency with which doctors LEAD quality improvement initiatives, when appropriate, throughout the organisation?

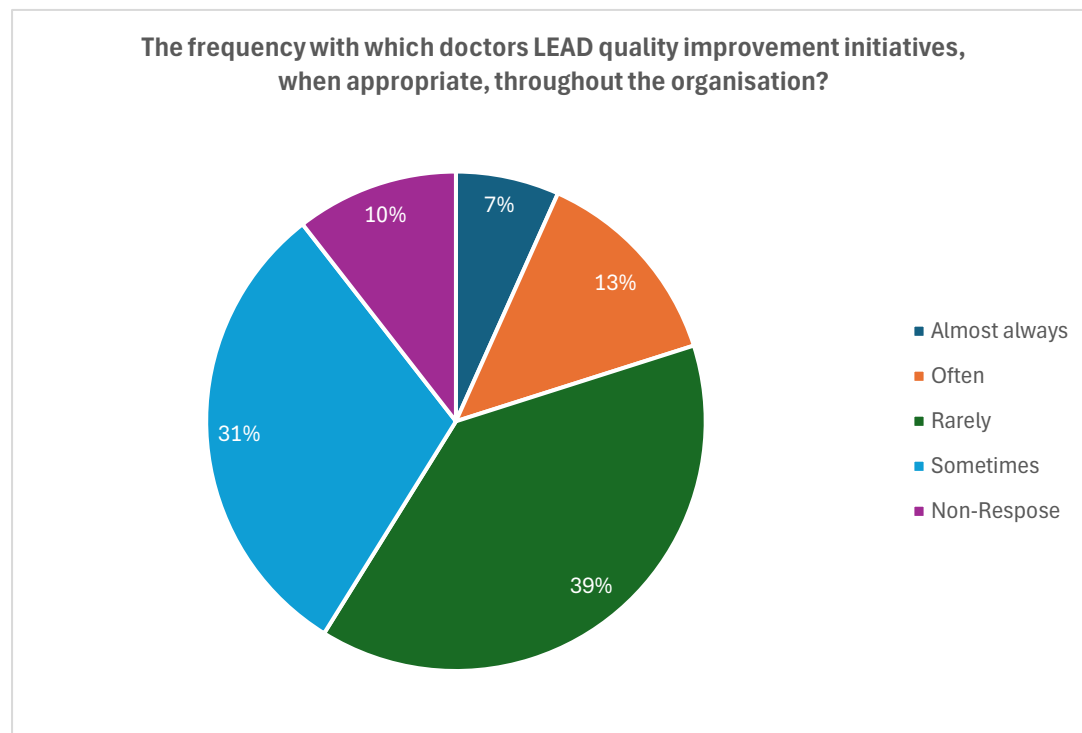


Figure 12: The frequency doctors LEAD quality improvement initiatives, when appropriate, throughout the organisation

Thirty-nine percent of the respondents indicated that doctors rarely LEAD quality improvement initiatives, when appropriate throughout the organisation. Only 7% of the respondents indicated that doctors almost always LEAD quality improvement initiatives throughout the organisation.

Overall, how would you characterise doctor PARTICIPATION in quality improvement activities in your organisation? (NA for services that do not include doctors in their staff establishment)

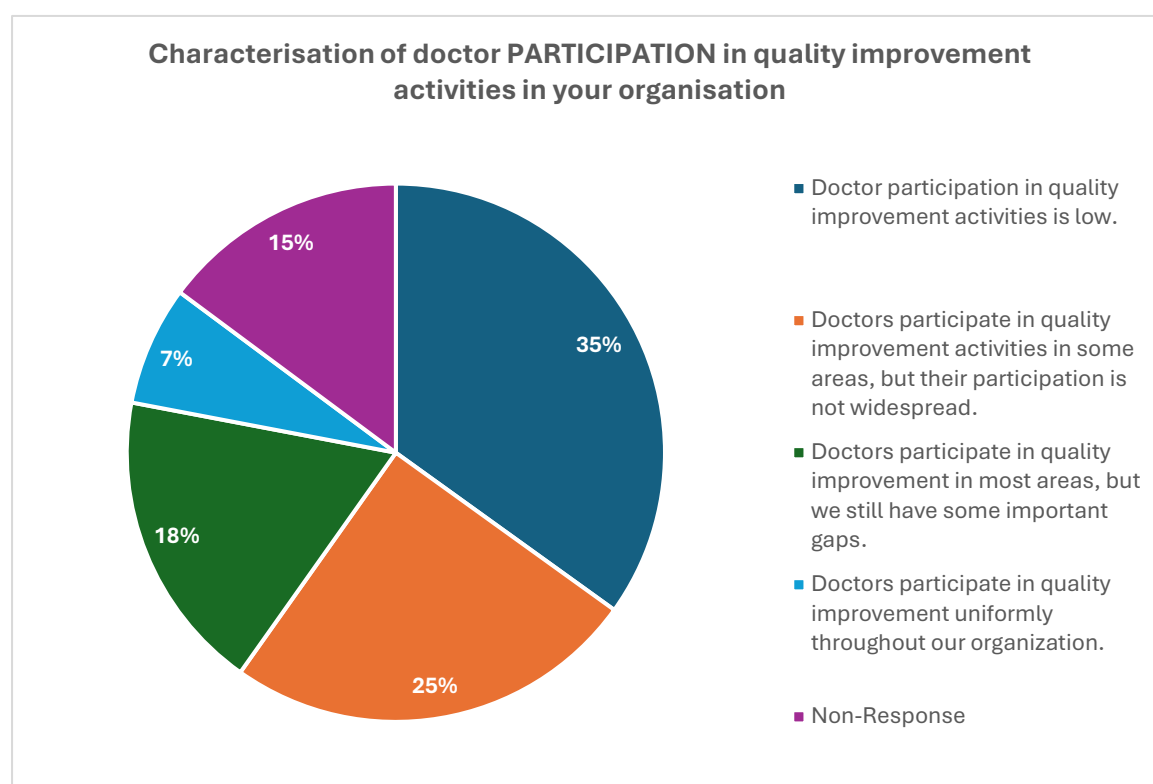


Figure 13: Characterising doctor's participation in quality improvement activities in their organisation

In response to characterising doctor's participation in quality improvement activities in their organisation, about 35% of respondents indicated that doctor's participation in quality improvement activities is low; only 7% of the respondents indicated that doctors participate in quality improvement uniformly throughout their organisation.

Compared to all the strategic goals your organisation pursues, which of the following best describes the priority your organisation gives to improving quality and patient safety issues?

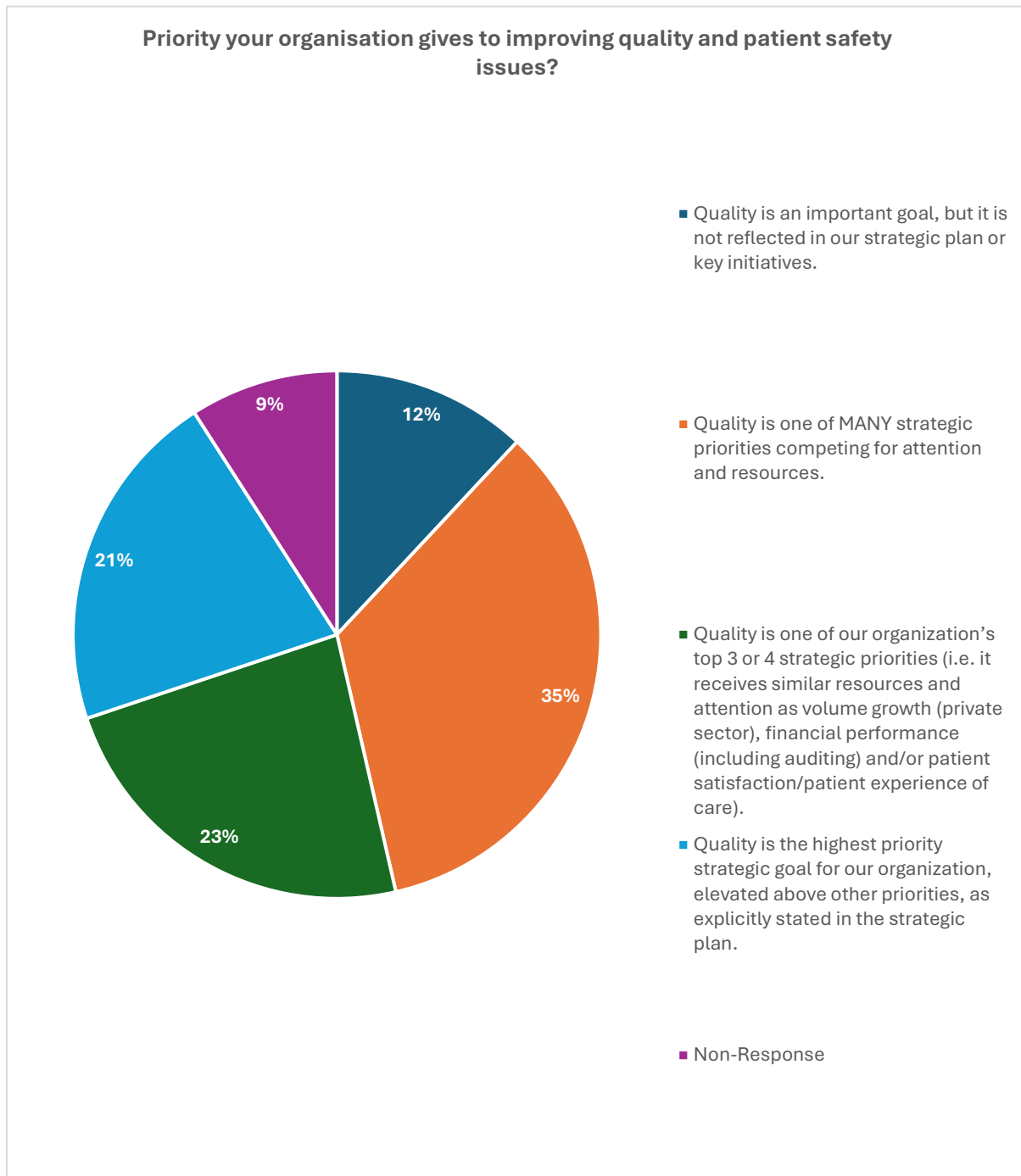


Figure 14: Priority to improving patient safety and quality issues

Thirty-five percent of the respondents indicated that quality is one of many strategic priorities competing for attention and resources, that best describes the strategic goals which the organisation pursues and the priority their organisation gives to improving

quality and patient safety issues. Approximately 12% of the respondents indicated that quality is an important goal, but it is not reflected in their strategic plans or key initiatives.

How would you describe your organisation's approach to measuring different aspects of quality and safety?

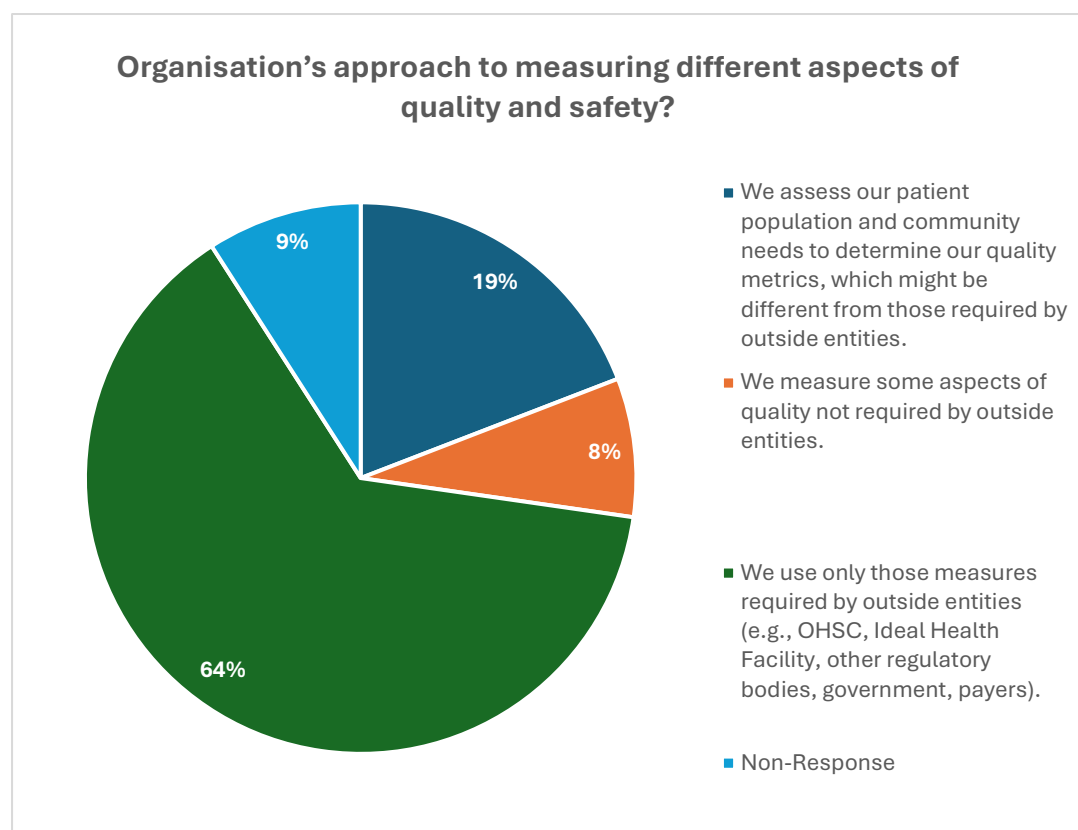


Figure 15: Approach to measuring different aspect of quality and safety

In response to how the respondents would describe their organisation's approach to measuring different aspects of quality and safety, 64% stated they only use the measures required by outside entities (e.g., OHSC, Ideal Health Facility, other regulatory bodies and government players), while only 8% said they measure some aspects of quality not required by outside entities.

How would you describe your organisation's approach to reporting or displaying data on quality measures, internally, WITHIN your organisation?

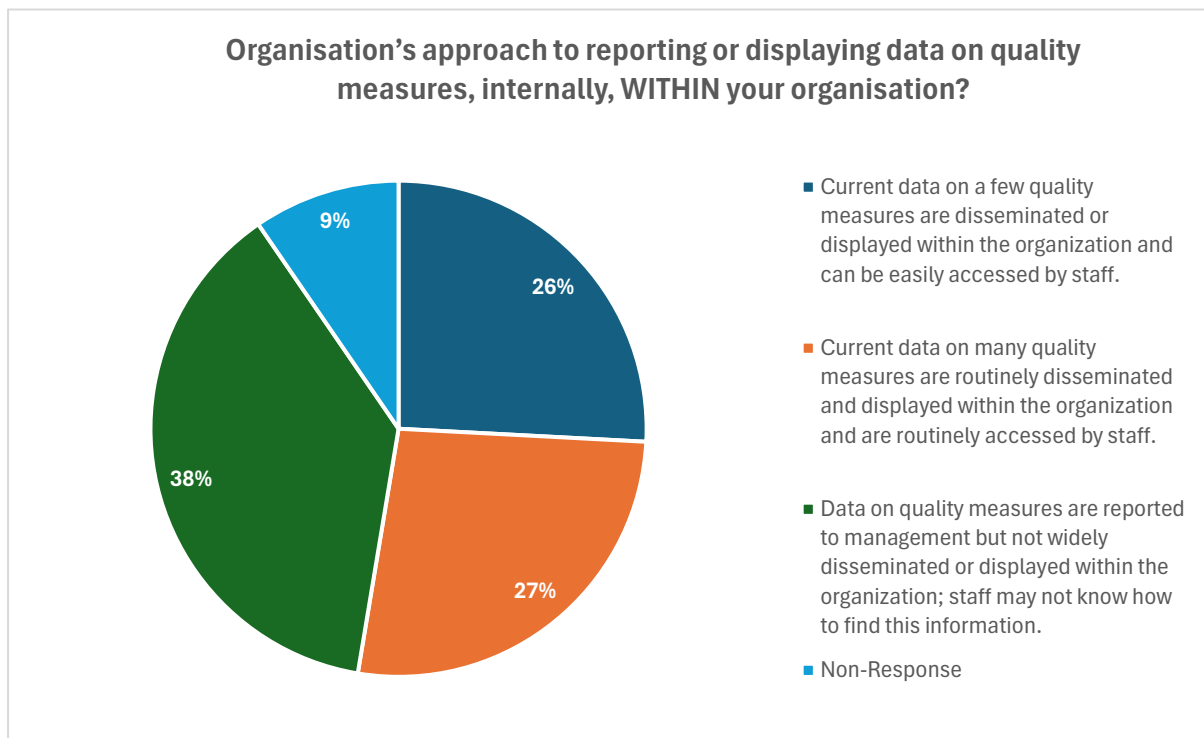


Figure 16: Organisation's approach to reporting or displaying data on quality measures

Thirty-eight percent of the respondents indicated that data on quality measures are reported to management but not widely disseminated or displayed within the organisation, and that staff may not know how to find this information when asked to describe their organisation's approach to reporting or displaying data on quality measures, internally within the organisation.

How would you describe your organisation's approach to making the public aware of measures of the quality of your organisation's care? (e.g., on your website or posted within the hospital in public areas)

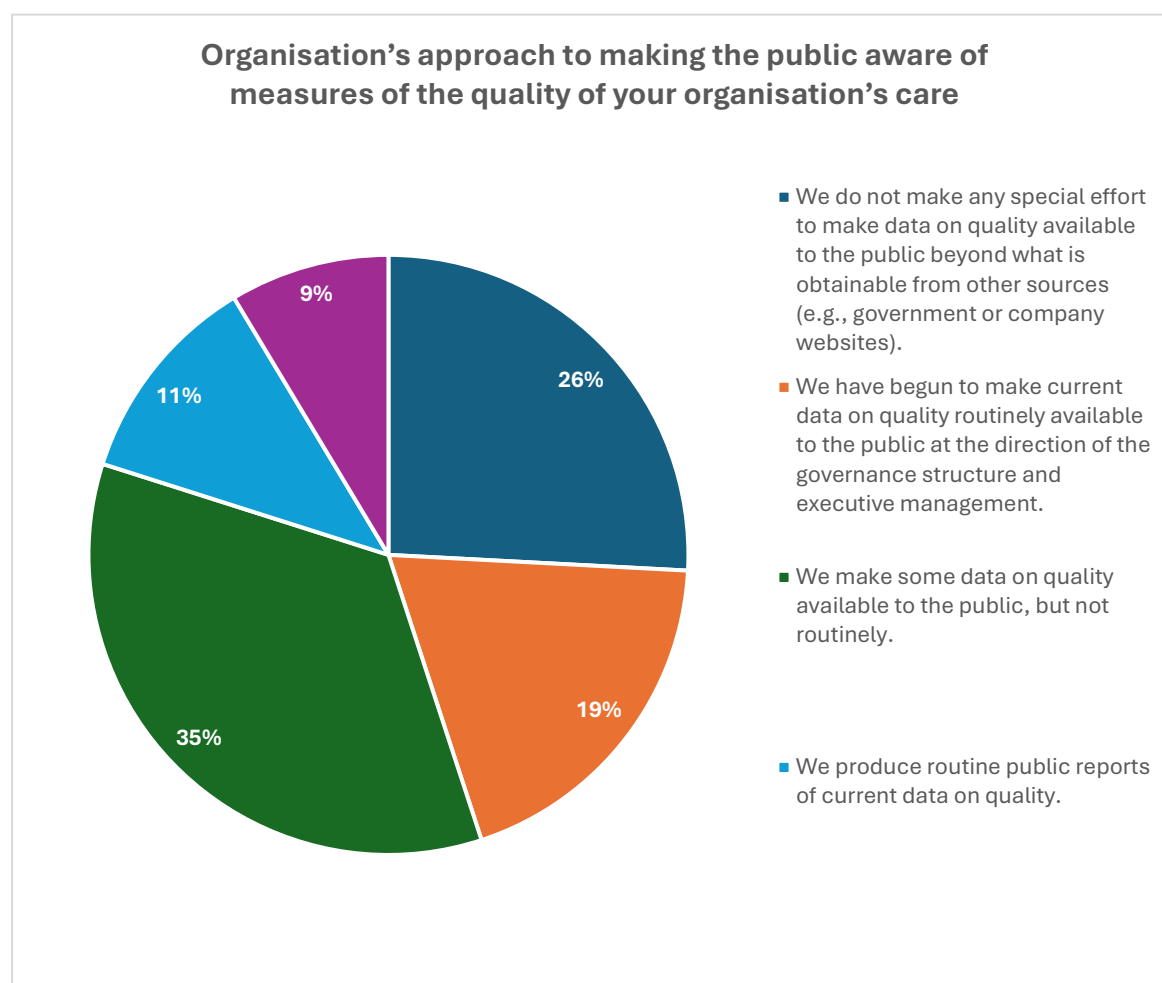


Figure 17: Organisation's approach to making the public aware of measures of quality-of-care of the organisation

When asked to describe their organisation's approach to making the public aware of measures of quality of care (e.g., on the website or posted within the hospital in public areas), 35% of the respondents stated that they make some data on quality available to the public but not routinely.

Does your organisation include improvement on quality measures in the key performance areas for any category listed below: (e.g., incentive compensation or bonus payments)

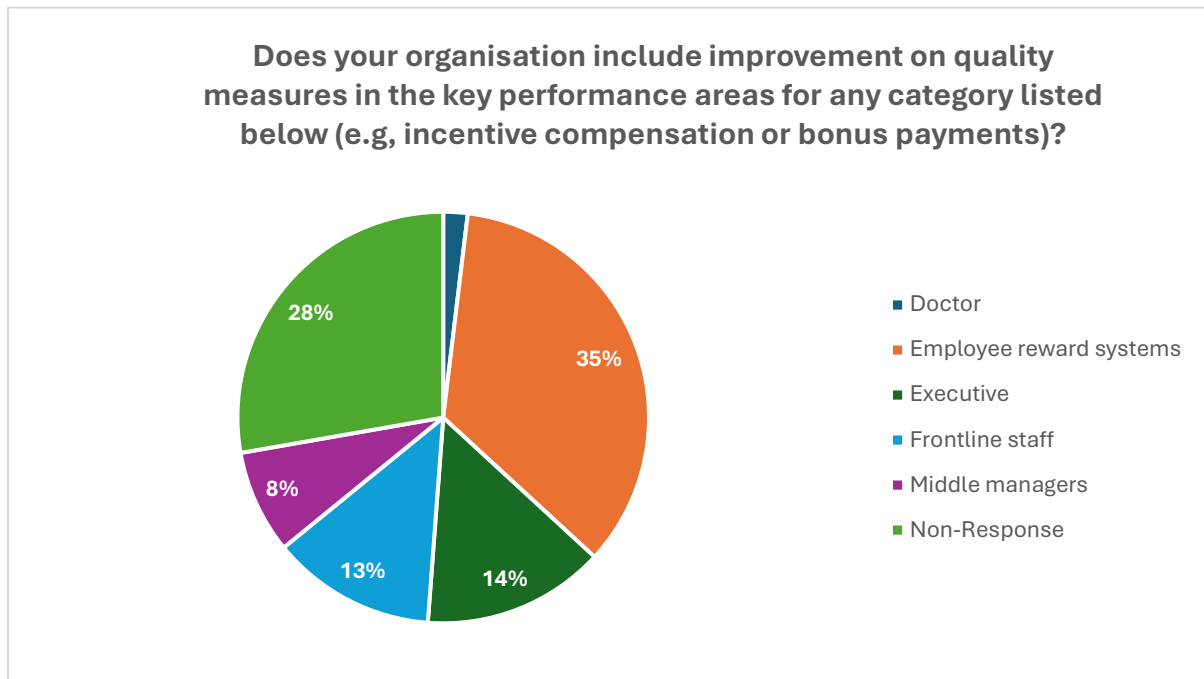


Figure 18: Inclusion of improvement on quality measures in key performance areas for different staff categories

Thirty-five percent of the respondents indicated that incentive compensation or bonus payments for improvement on quality measures in key performance areas are included in employee reward systems; 2% indicated that doctors are the least indicated category to have improvement on quality measures included in their key performance areas.

How would you describe the level of support that information technology (IT) of all kinds provides for your quality and safety improvement programmes (IT includes the entire effort, both the people and the technology)?

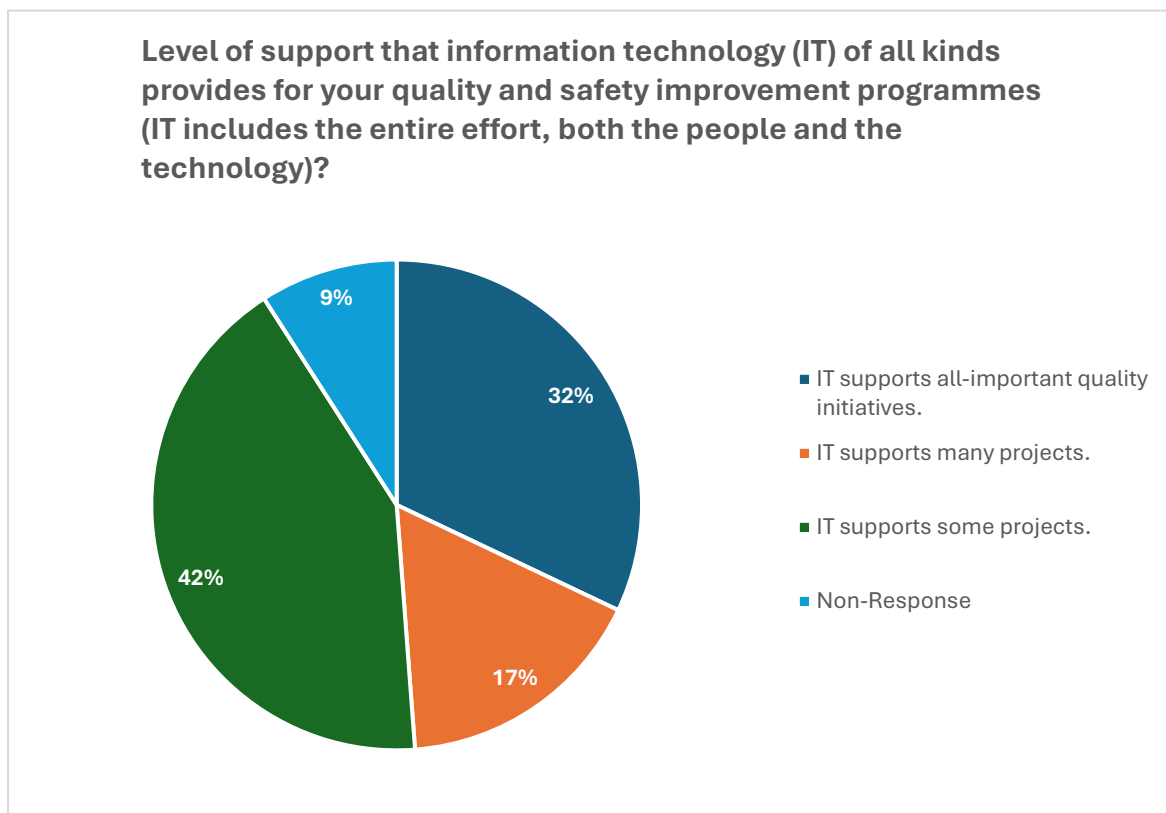


Figure 19: Level of support that IT provides for quality and safety improvement programmes

Forty-two percent of the respondents indicated that IT supports some quality and safety improvement projects, whilst 32% of respondents specifically stated that IT supports all important quality initiatives.

How would you describe your organisation's approach to measuring the degree to which you have established a safety culture?

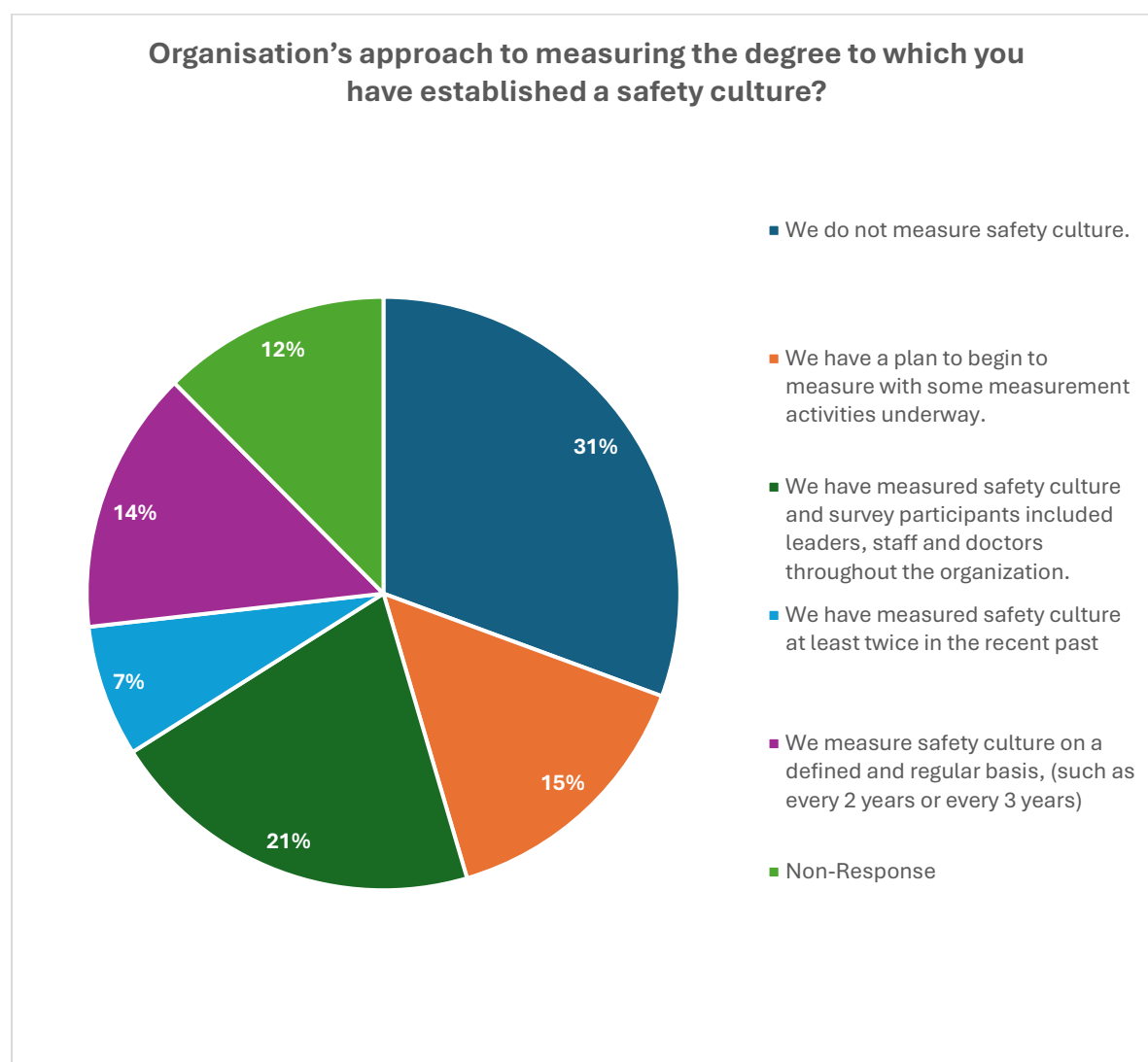


Figure 20: Organisation's approach to measuring the degree to which your safety culture is established

In describing their organisation's approaches to measuring the degree to which safety culture is established, 21% of the respondents indicated that they do not measure safety culture, while 7% said they had measured safety culture at least twice in the recent past.

Under what circumstances does your organisation conduct a root cause analysis?

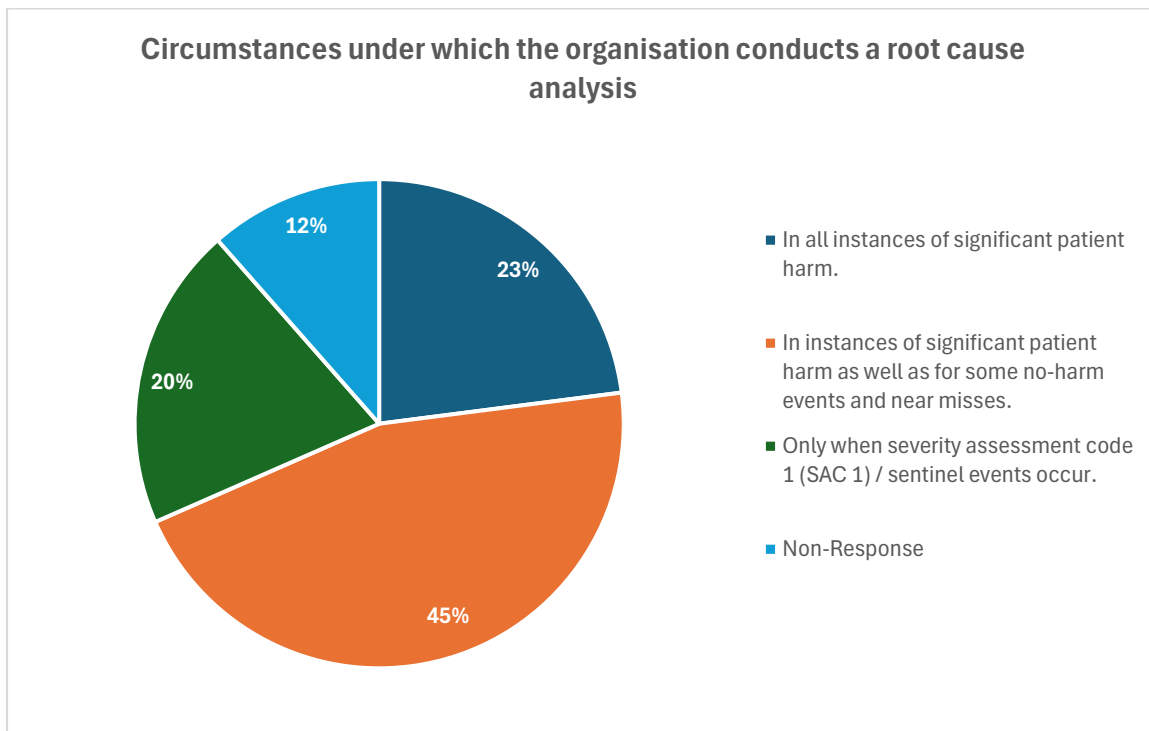


Figure 21: Circumstances under which organisations conduct root cause analysis

Forty-five percent of the respondents indicated that the organisation conducts a root cause analysis in instances of significant patient harm as well as for some no-harm events and near misses. 23% and 20% of the respondents respectively indicated they conduct a root cause analysis in all instances of significant patient harm and only when severity assessment code1 (SAC)/ sentinel events occur.

Does your organisation combine information from comprehensive systematic analysis of several different events to identify system problems that may have contributed to a number of adverse events or no harm events? Examples of system problems are miscommunication during transition in care.

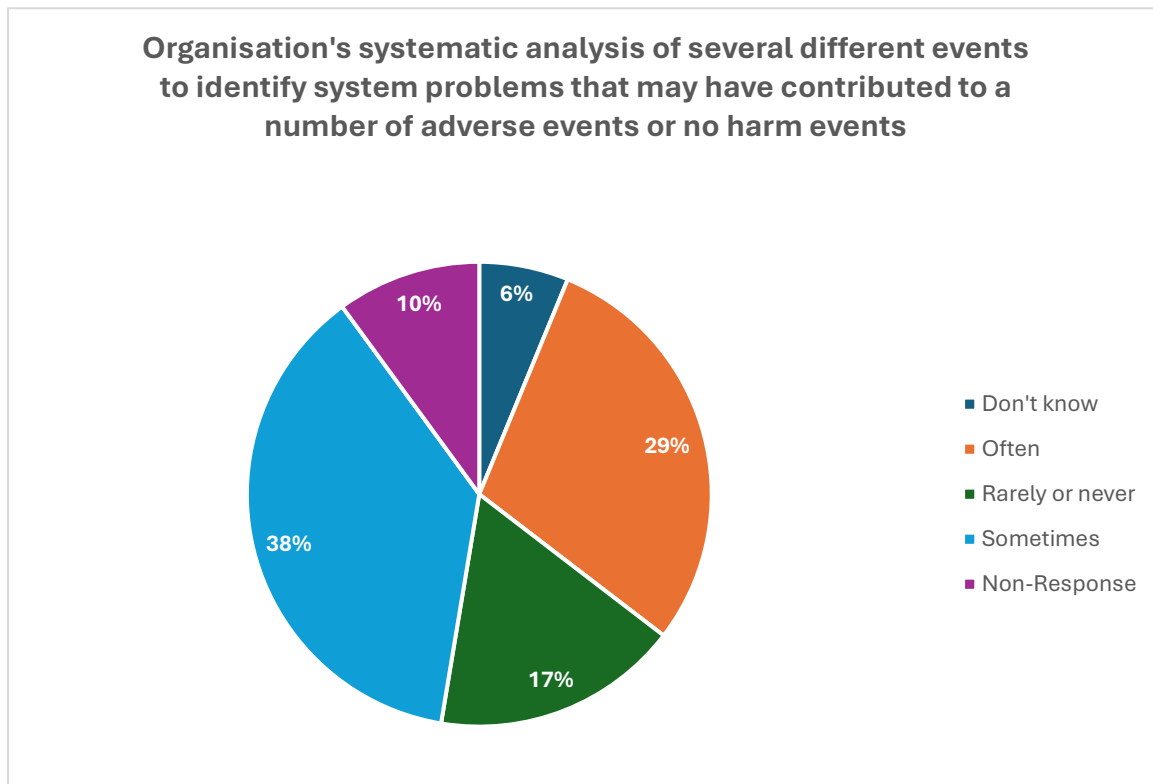


Figure 22: Combination of information from comprehensive systematic analysis of several different events to identify system problems

When asked whether the respondents' organisations combine information from comprehensive systematic analyses of several different events to identify system problems that may have contributed to a number of adverse events or no harm events, 38% indicated they sometimes do while 6% said they do not know.

Have these analyses of different events revealed any such system problems as ineffective time-outs, patient identification errors, computerised provider order entry (CPOE) overrides?

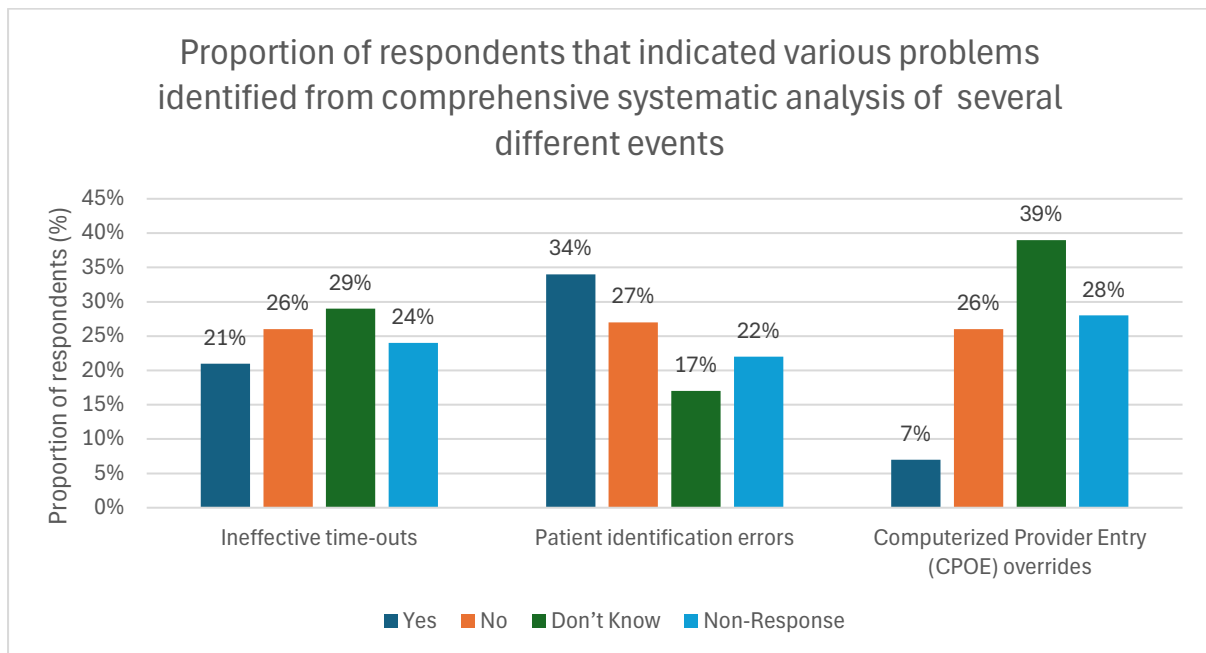


Figure 23: System problems revealed by analysis of different events

When further asked if the analyses of different events revealed any such system problems, 34% indicated yes to patient identification problems, 21% to Ineffective time-outs and 7% to CPOE overrides.

Imagine a scenario where a doctor/nurse enters a patient's room and does not wash his or her hands. Consider whether or not a member of the cleaning staff team in the room would speak up and ask the doctor/nurse to wash hands before touching the patient.

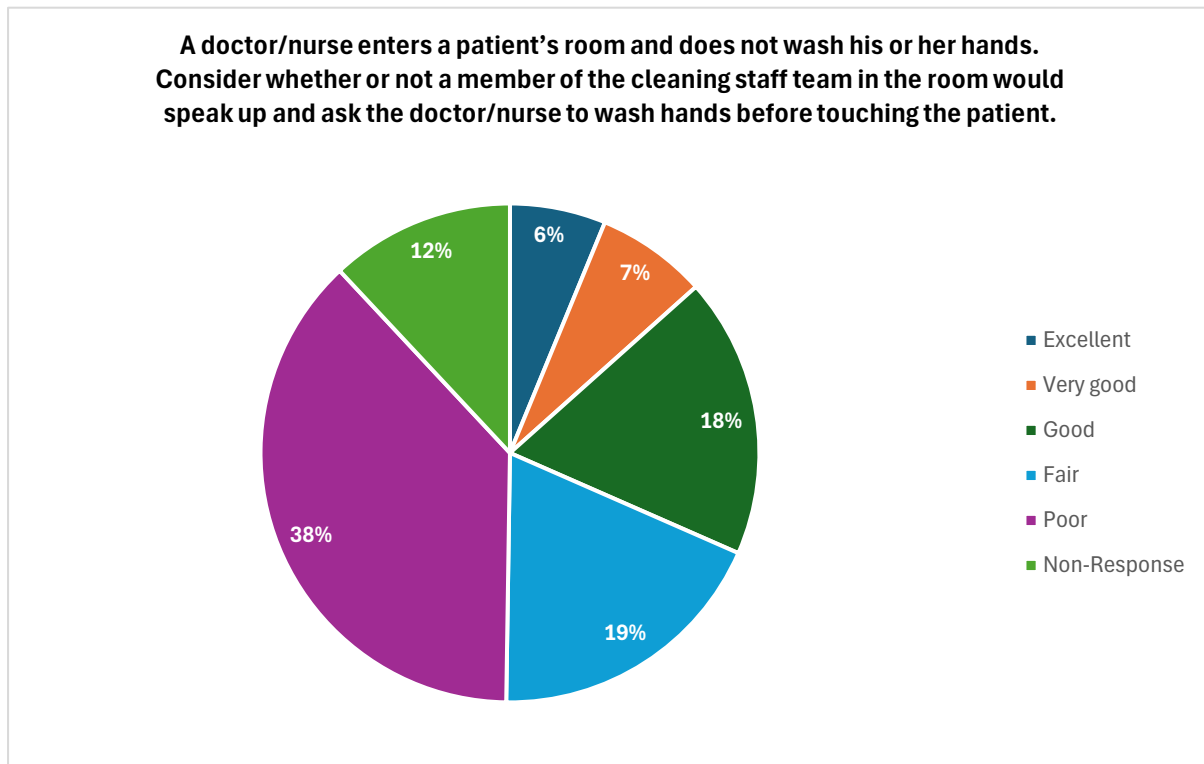


Figure 24: Members of the cleaning staff in the room speaking up when doctors or nurses do not wash hands

Six percent of the respondents said it was excellent for members of the cleaning staff to speak up if the nurses and doctors were not washing hands before touching patients, 7% said it was very good, 18% said it was good, 19% said it was fair, 38% said it was poor for them not to speak up, many might have felt it was not their place to speak up and 12 did not respond.

Does your organisation regularly measure specific attributes of trust

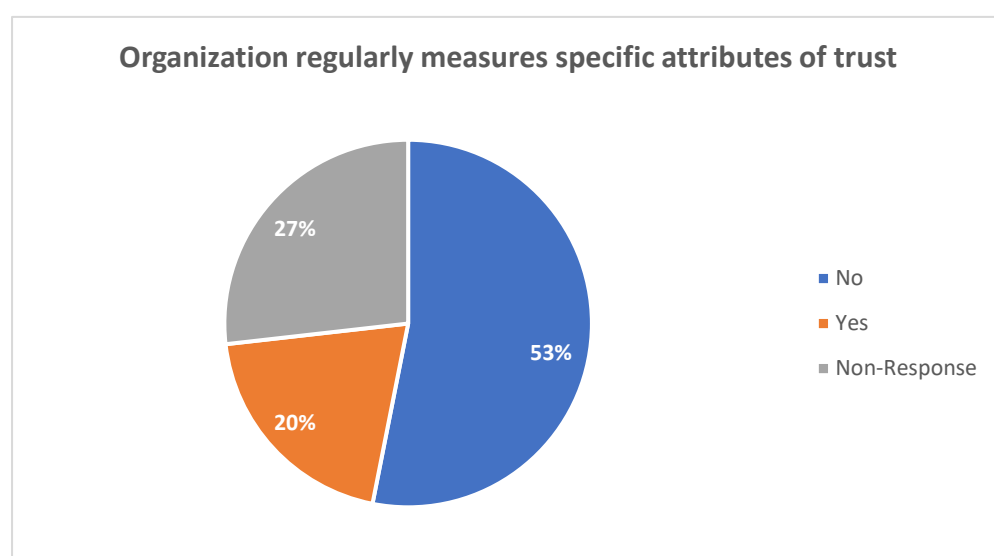


Figure 25: Measurement of specific attributes of trust

When responding to whether their organisation regularly measures specific attributes of trust, 53% indicated that they do not, while 20% indicated that they do. There was however a relatively high non-response rate.

How would you rate your organisation's effectiveness in establishing high levels of personal accountability among all staff and employees for adhering to safe practices? For instance, think of how often peers hold each other accountable for adhering to the use of two patient identifiers.

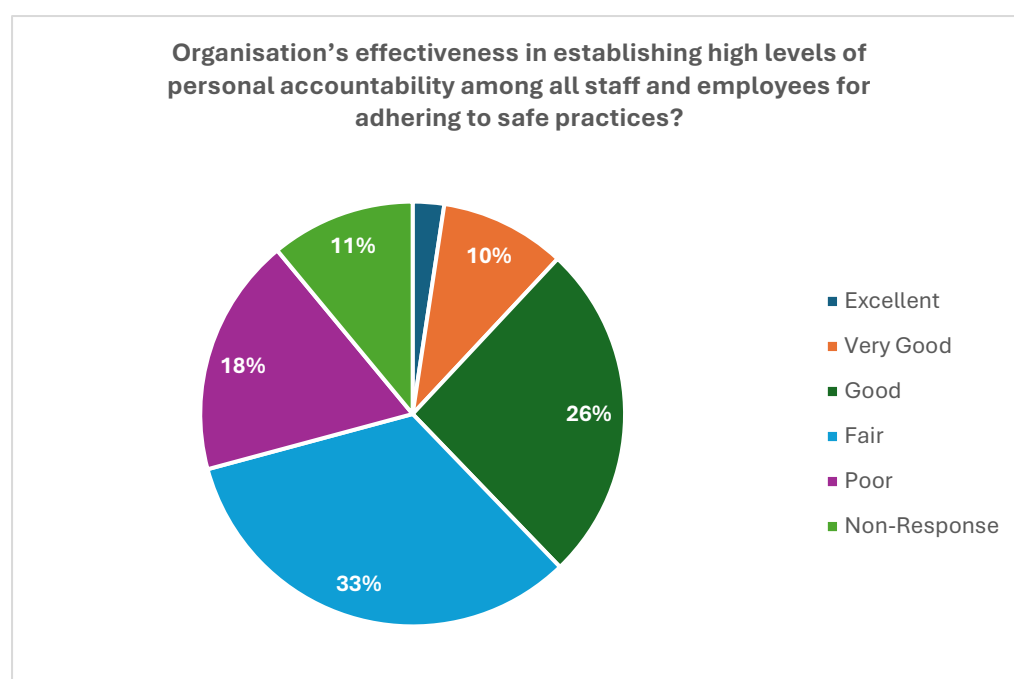


Figure 26: Integrated Competency Development Framework for Healthcare Quality Training

When asked to rate their organisation's effectiveness in establishing high levels of personal accountability among all staff and employees for adhering to safe practices, only 2% of the respondents indicated 'excellent' and about 18% rated their organisations as 'poor'. The majority (33%) of the respondents rated their organisations as 'fair'.

Does your organisation have clear and transparent policies and procedures that evaluate patterns of behaviour and routine causes of patient safety incidents, such as an incident decision tree or investigation template, to determine contributory factors to patient safety incidents

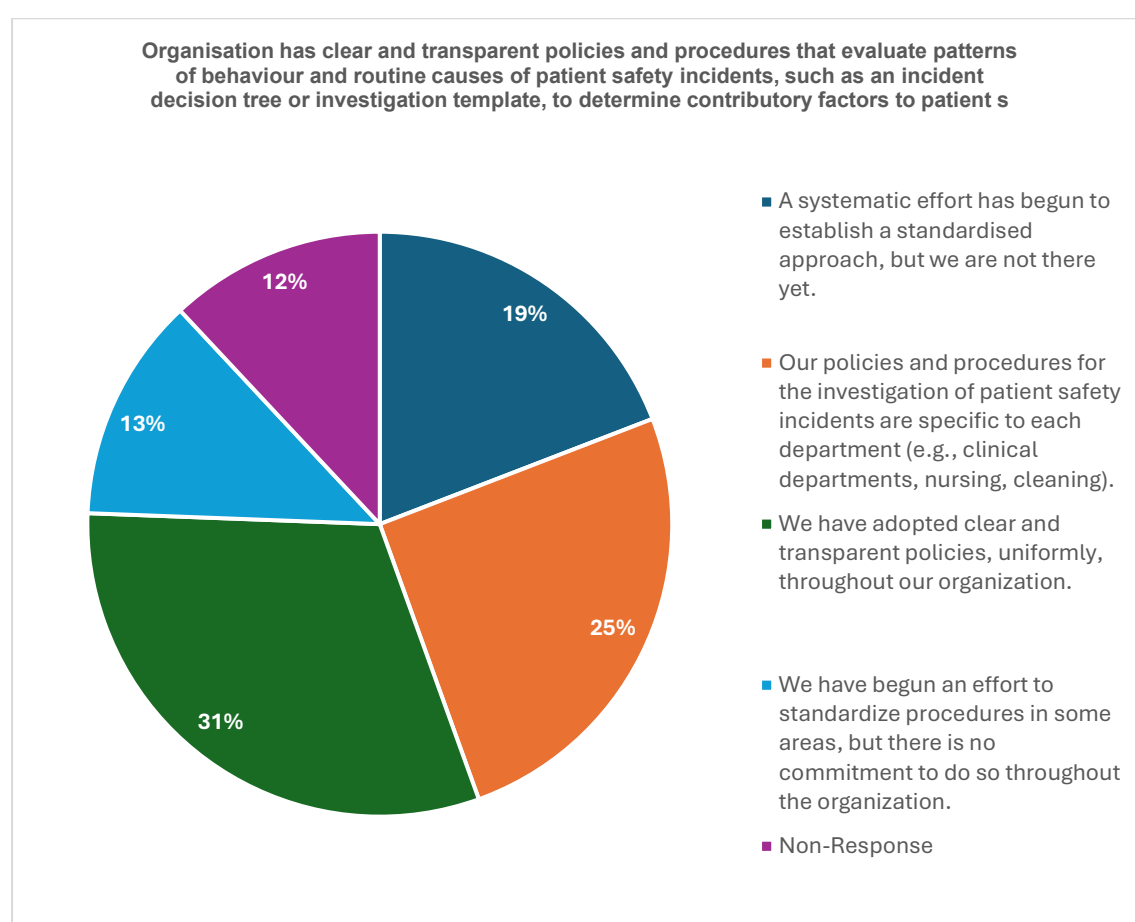


Figure 27: Policies and procedures that evaluate patterns of behaviour and routine causes of patient safety incidents

When asked whether their organisations have clear and transparent policies and procedures that evaluate patterns of behaviour and routine causes of patient safety incidents, such as an incident decision tree or investigation template, to determine contributory factors to patient safety incidents, 31% indicated that they had adopted

clear and transparent policies uniformly throughout the organisation. About 19% of the respondents indicated that they had begun to establish a standardised approach, but were not yet there, while a further 13% was also in the beginning phase although there was no commitment to cover the entire organisation.

About 25% of the respondents indicated that their policies and procedures for the investigation of patient safety incidents are specific to each department.

How would you describe your organisation's approach to quality improvement?

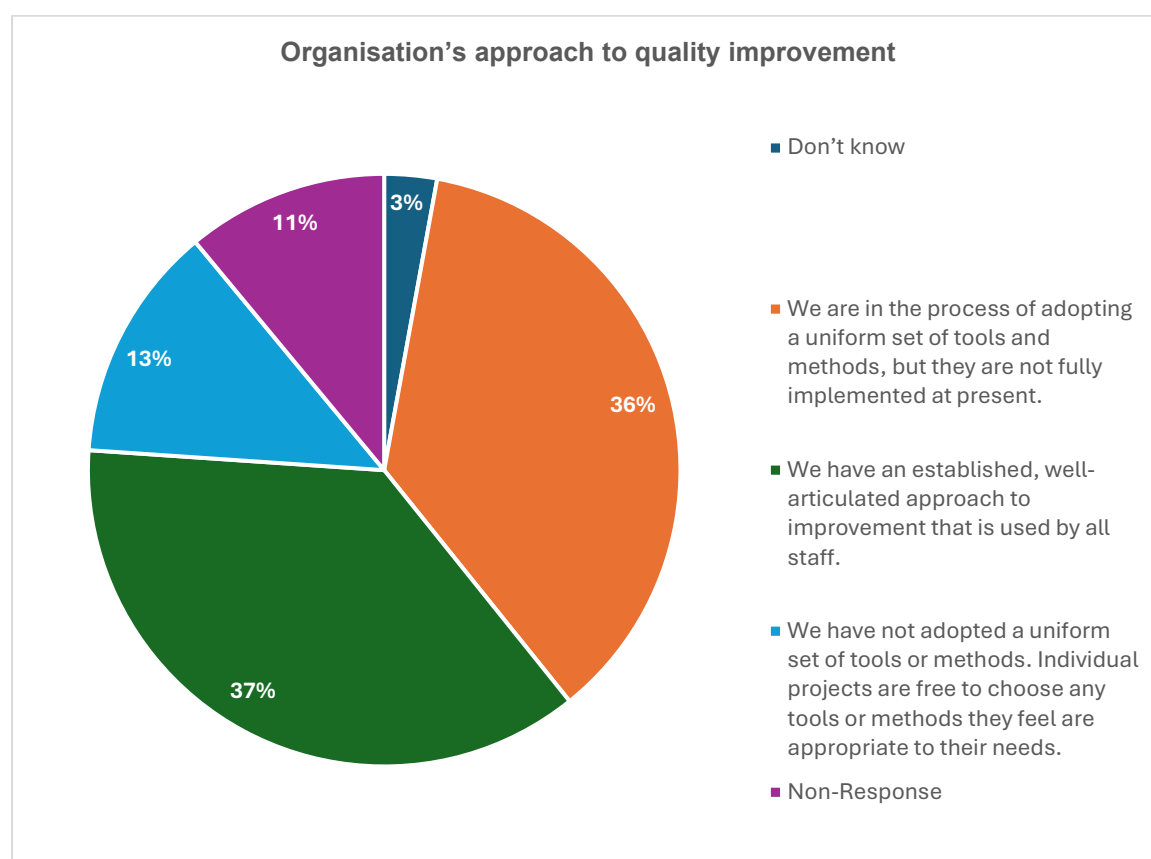


Figure 28: Organisations approach to quality improvement

Describing the organisation's approach to quality improvement, 37% of the respondents stated that they had an established, well-articulated approach to quality improvement that was used by all staff and only 3% indicated they did not know the organisation's approach to quality improvement.

How widely are your organisation's quality improvement methods used across your organisation?

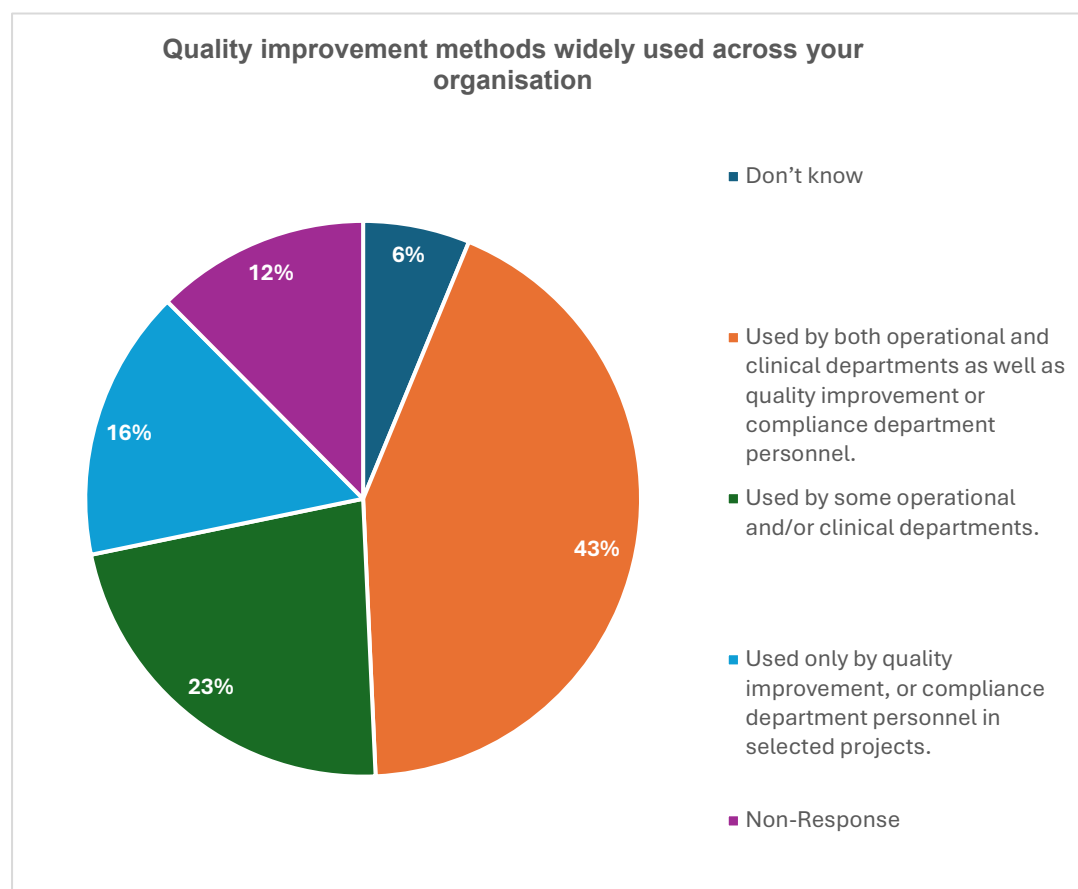


Figure 29: Quality improvement methods widely used across the organisation

Forty-three percent of the respondents indicated that quality improvement methods are widely used across the organisation by both operational and clinical departments as well as quality improvements or compliance department personnel. 6% of the respondents indicated they did not know how widely the organisation's quality improvements methods were used across the organisation.

Does your organisation involve patients in its efforts to redesign and improve processes of care?

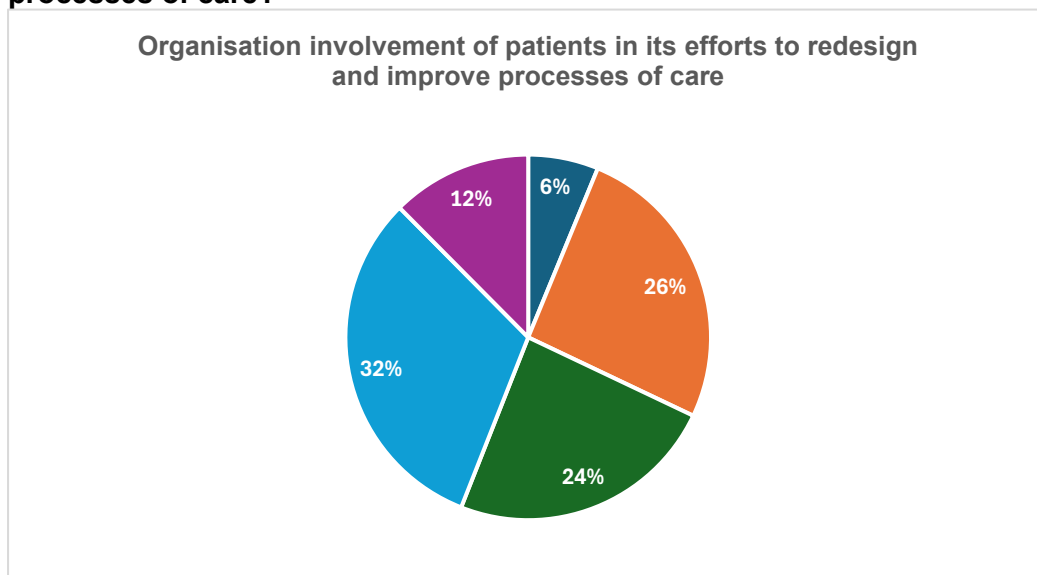


Figure 30: Organisation's involvement of patients in efforts to redesign and improve processes of care

When asked whether their organisation involved patients in its efforts to redesign and improve processes of care, 32% said yes, sporadically; whilst 6% said they did not know if their organisation involved patients in its efforts to redesign and improve processes of care.

Is demonstrated proficiency in process improvement required for success in your organisation's programmes for advancement, including pay increases and promotions of managers, doctors, and staff?

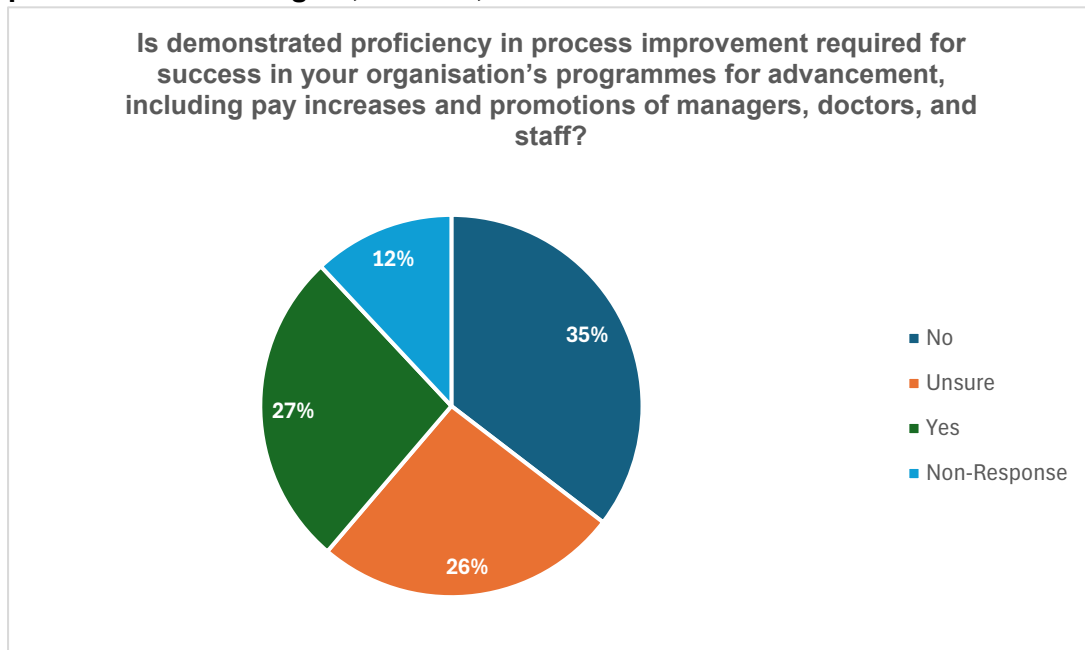


Figure 31: Process improvement required (pay increases and promotions of managers, doctors and staff)

When asked if demonstrated proficiency in process improvement is required for success in their organisation's programmes for advancement, including pay increases and promotions, of managers, doctors, and staff, 35% of the respondents said no, 27% said yes and 26% were unsure.

Do you experience barriers to communication and collaboration with the following categories of staff in your workplace? This can include but is not limited to issues such as intimidating behaviour, failure to be included in care planning or discharge planning of patients, failure to respond timeously to requests for assistance or failure to adhere to referral procedures [EMS].

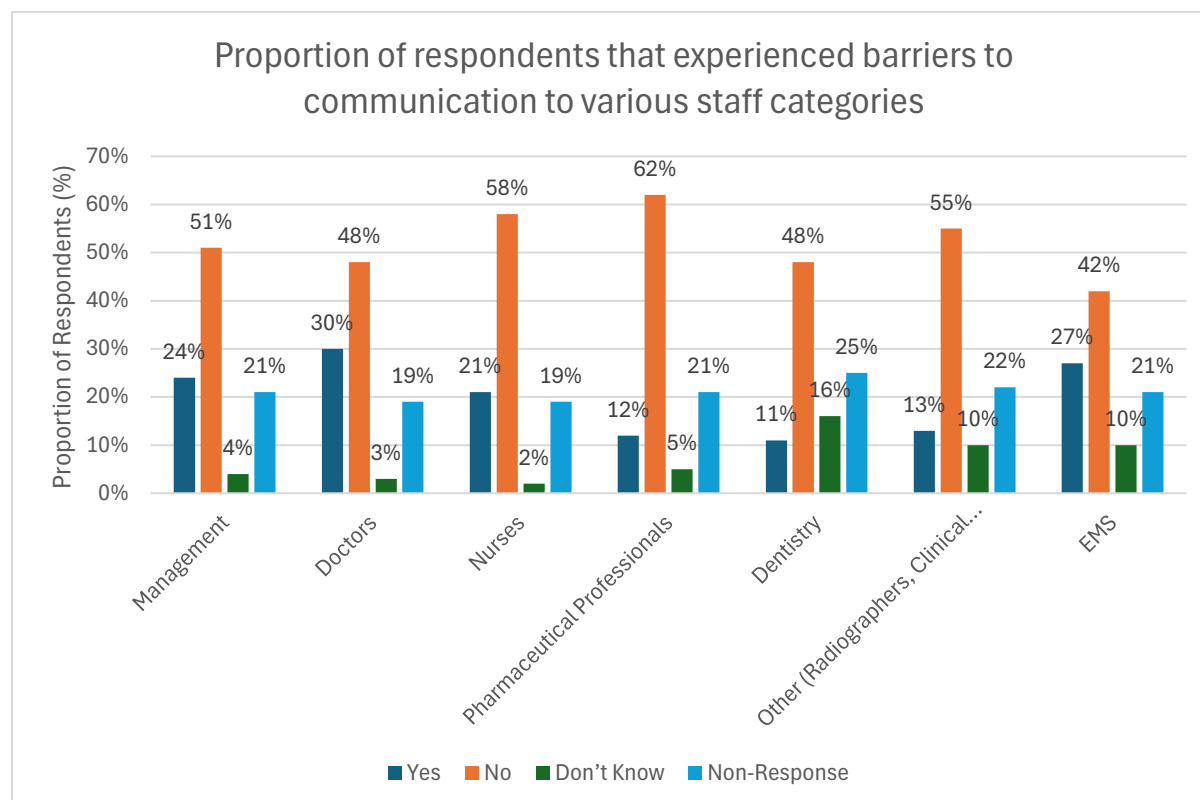


Figure 32: Barriers experienced to communication and collaboration with the different categories of staff in the workplace

When asked about barriers to communication in various staff categories, the majority (30%) of the respondents indicated doctors, suggesting that this category is least accessible, followed by EMS (27%) and management (24%).

The overall findings in this section reveal that most healthcare organisations primarily focus on externally mandated quality and safety measures rather than developing comprehensive, internally driven metrics. 64% of the respondents stated that their organisations only track quality measures required by outside entities, suggesting a compliance-driven rather than a proactive improvement approach. Furthermore, 38% of the respondents reported that while quality data is shared with management, it is not widely disseminated or displayed internally, limiting staff awareness and engagement. This lack of transparency could hinder frontline healthcare workers from

using data to drive continuous quality improvement (Hughes, 2008). Incentive structures for quality improvement also vary, with 35% of the respondents stating that performance-based rewards, such as bonus payments, are linked to quality measures in key performance areas. However, only 2% indicated that such incentives apply to doctors, highlighting a gap in clinician engagement in quality initiatives. These findings suggest a need for organisations to adopt a more integrated approach to quality measurement and reporting; one that goes beyond regulatory compliance to foster a culture of data-driven improvement, transparency, and frontline accountability (Fukami, 2024).

5.8 SECTION C: PRE-AND POST-TRAINING KNOWLEDGE ASSESSMENT

The study's research question, 'What are the healthcare quality and safety competency gaps amongst clinicians and quality managers, and the outcome of the intervention using levels 1 and 2 of the Kirkpatrick model?' is revisited to explore identified gaps and the effectiveness of the intervention. O. The five-stage model of adult skill acquisition, namely novice, beginner, competent, proficient, and expert, was employed for its practical applicability and ease of construction.

The evaluation focused on key themes, including quality-related concepts, the role of structures in ensuring quality of care, performance measurement, data collection for measurement, performance evaluation, improvement techniques, patient safety and risk management, patient and staff experience, and principles of high-reliability organisations. These themes formed the foundation for structured questions assessing skill acquisition levels.

The analysis methodology involved presenting the percentages of participants falling within each stage of skill acquisition, followed by a detailed discussion of the findings. This approach ensures a comprehensive understanding of the competency gaps and provides a robust basis for evaluating the intervention outcomes based on the Kirkpatrick model's levels 1 and 2.

5.8.1 Introduction to Healthcare Quality Management: Seven dimensions of quality

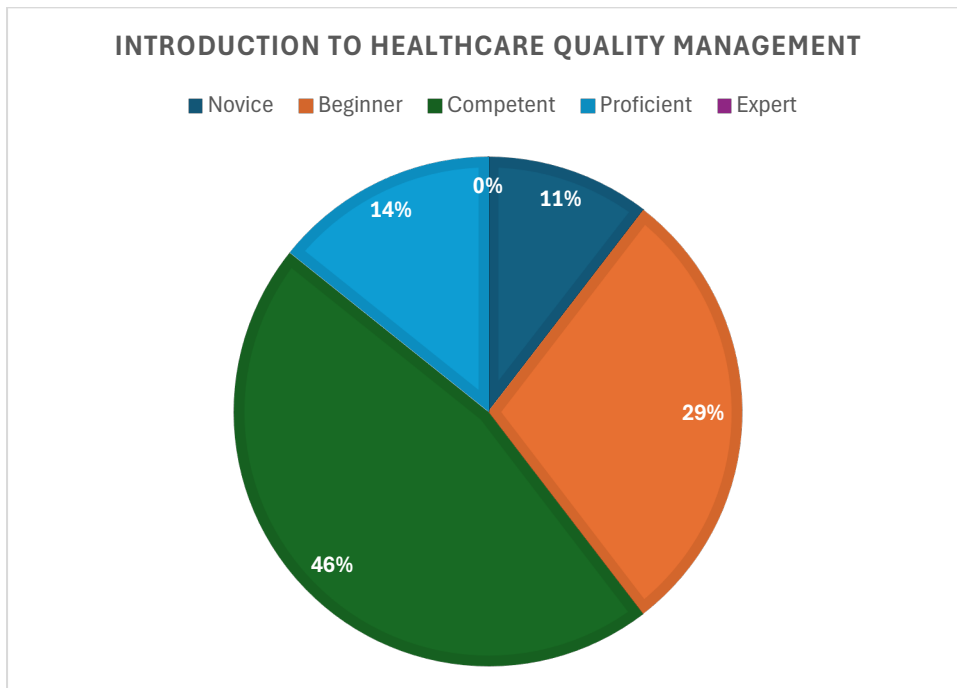


Figure 33: Introduction to Healthcare Quality Management: Seven Dimensions of Quality (Pre-Training)

In Figure 33 above 40% of respondents rated themselves as novices or beginners and 60% rated themselves as competent, proficient, and expert.

The seven dimensions of quality identified are the following:

- Efficacy, the ability of healthcare services to produce the desired health outcomes;
- Effectiveness which is the degree to which healthcare services achieve the desired outcomes;
- Efficiency is the optimal use of resources to achieve healthcare outcomes;
- Equity is linked to fairness and justice in the provision of services and elimination of disparities;
- Safety: care should be safe at all times as well as in patient's homes;
- Patient: the system of care should revolve around the patient, and staff satisfaction should also be considered to enhance quality services.
- Legitimacy: all dimensions should conform to social needs of the environment. (Donabedian, 2002; Hughes, 2008; Institute of Medicine (US) Committee on Quality of Health Care in America, 2001; Pillay, 2023).

5.8.2 Introduction to Healthcare Quality: Understanding of quality and related concepts

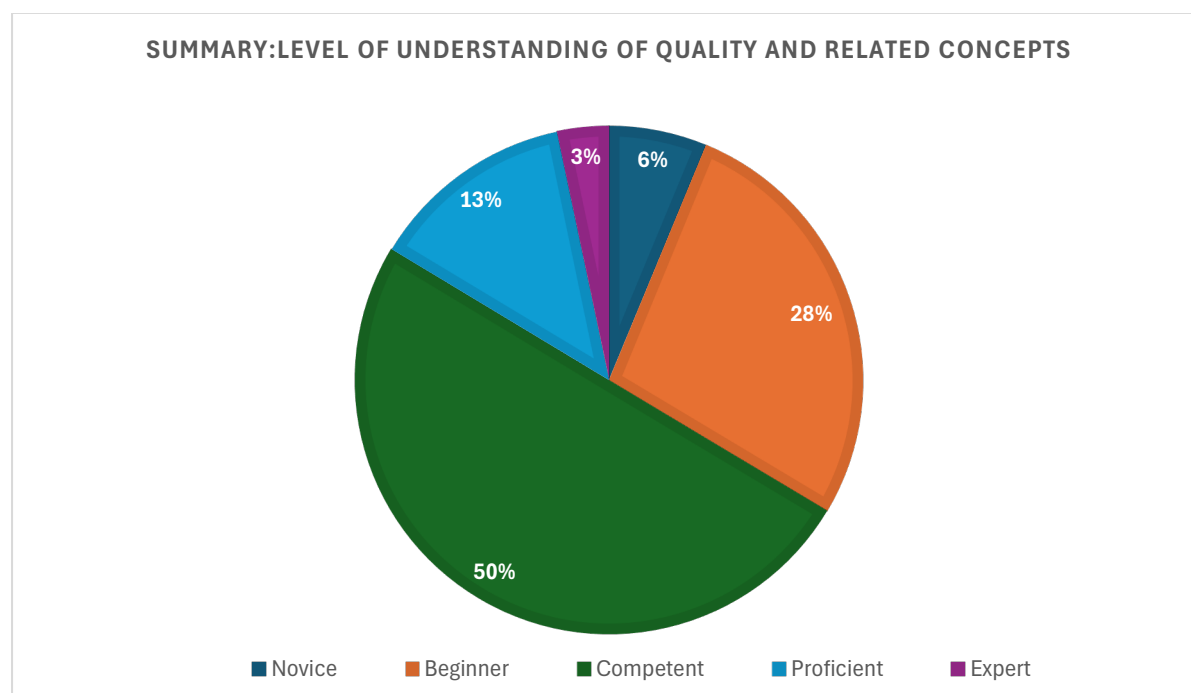


Figure 34: Introduction to Healthcare Quality: Understanding of Quality and Related Concepts (Pre-Training)

Figure 34 illustrates the participants' understanding of key quality concepts, including definitions and principles that underpin healthcare quality improvement. The definitions assessed included Deming's perspective on quality as 'doing the right thing, right, the first time. Doing it better the next time' (ODI Consulting, 2025) and the NDOH National Core Standards (2011) definition: 'getting the best possible results within available resources' (National Department of Health, 2011). The participants were also assessed on their understanding of quality assurance, defined by Coyne and Killen (1987) as a process for evaluating patient care through the development and adherence to standards of care; quality control, which involves comparing actual performance with goals and acting upon deviations; and quality management systems, which focus on mobilising people to achieve quality objectives (Coyne and Killien, 1987).

Among the respondents, 50% reported having sufficient knowledge to perform as expected, with 13% identifying as advanced and 3% considering themselves experts or thought leaders. However, a significant 34% rated themselves as novices or beginners, indicating limited or minimal understanding of these concepts. This gap can

be attributed to the historical exclusion of quality management principles from traditional training curricula for nurses and medical doctors.

The distribution of knowledge levels highlights that a critical challenge, namely an organisation's capacity for improvement, is intrinsically linked to the collective understanding of quality principles among its staff. Addressing these gaps through targeted education and training is essential to enhance the competency and effectiveness of healthcare quality improvement initiatives.

5.8.3 Level of Understanding of Roles of Various Stakeholders within the Health System

Figure 35 below shows 35% of the respondents rated their level of understanding of the various stakeholders' roles within the health system as that of novices and beginners, 44% rated themselves as competent, 15% as proficient and 5% as expert.

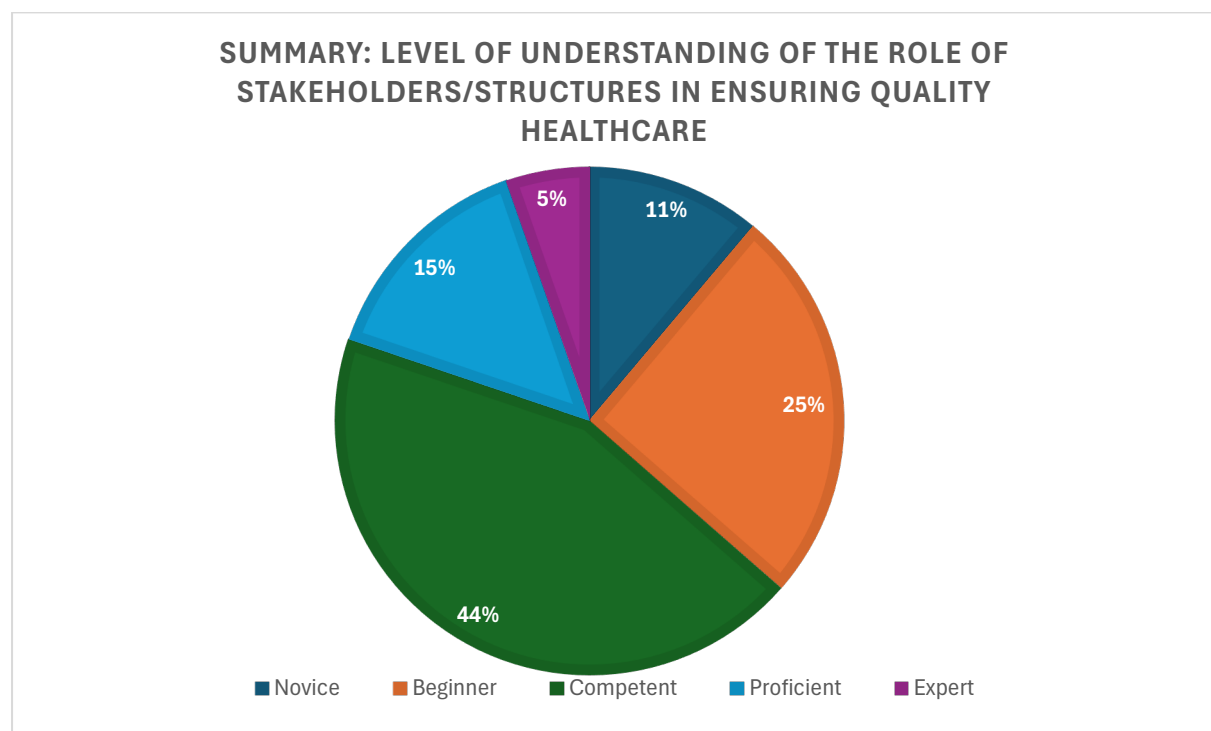


Figure 35: Roles of Various Stakeholders within the Health System (Pre-Training)

The various stakeholders play a critical role in ensuring the quality of care and it is essential that clinicians and managers understand their roles to ensure that their

participation in quality improvement is focused on the ability to maximise the existing resources in improving quality and patient safety. Delivering quality is in the best interest of all the stakeholders and understanding the role of different stakeholders in the health system will enhance the provision of quality health care. Most training is focused on the care of patients with specific conditions and less attention is given to educating health professionals on wider issues such as care dependent on a multisectoral approach, including the contribution of colleagues from other disciplines and collaborative teamwork.

5.8.4 Performance Measurement

Figure 36 shows that 49% of the respondents rated themselves as novices and beginners in understanding performance management, 39% as competent, 10% as proficient, and 2% as expert.

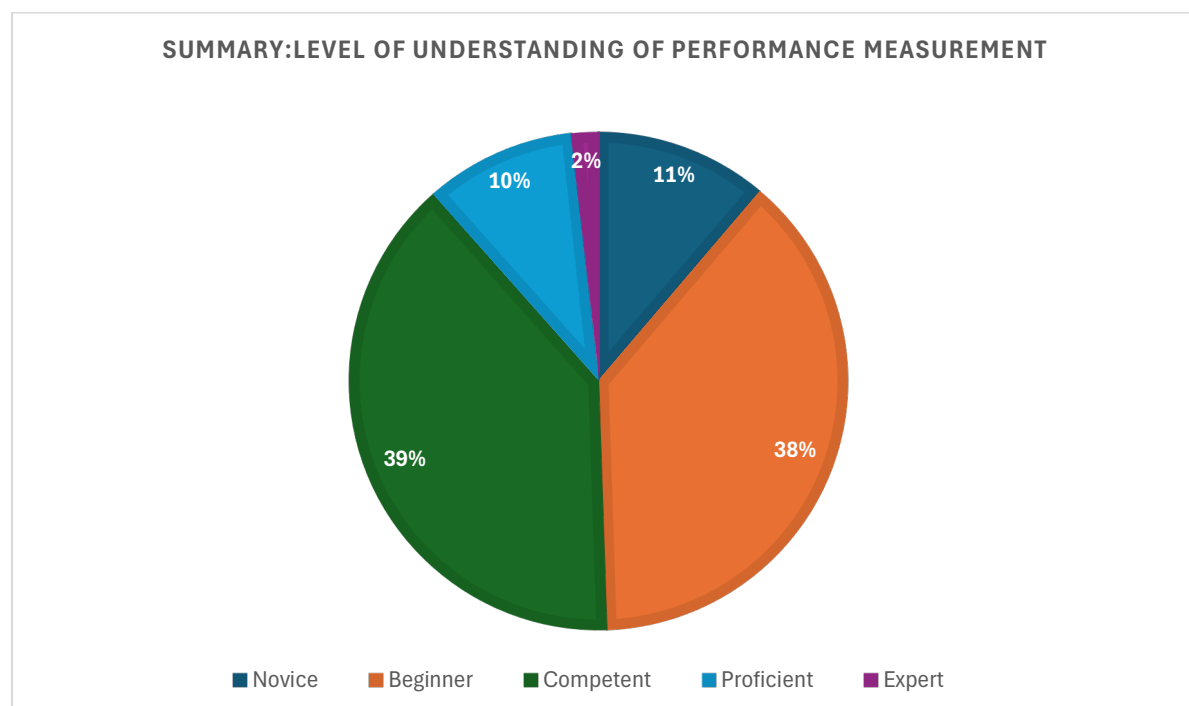


Figure 36: Performance measurement (Pre-Training)

Measuring performance is a fundamental activity in quality management, enabling individuals and organisations to understand, manage, and improve healthcare

services (Pillay, 2023). However, there are considerable variations in how quality is perceived, both among healthcare professionals and patients. Effective performance measurement requires selecting indicators aligned with organisational goals and conducting comprehensive assessments to address gaps identified during evaluation processes. Health establishments must develop metrics that enhance the quality of care, reduce medical errors, and mitigate risks to patients.

Findings from the study indicate that half of the respondents lacked sufficient knowledge or only had a basic grasp of performance measurement concepts. This highlights the need for targeted training to equip clinicians and quality managers with the skills to measure and manage healthcare performance effectively. As Peter Drucker states, 'What gets measured, gets managed' and in the context of healthcare, understanding system performance, including health outcomes, is critical for driving improvement (Klaus, 2015).

In South Africa, health establishments are assessed against the prescribed norms and standards regulations (National Department of Health, 2018), with the OHSC tasked as the regulator to ensure safe and quality healthcare are delivered consistently. Performance measurement thus serves as a cornerstone of continuous quality improvement, offering organisations the opportunity to identify gaps and implement necessary changes to enhance service delivery. To achieve this, fostering a culture of learning and sharing knowledge through structured training initiatives is essential for sustained improvement.

5.8.5 Obtaining Measurement Data

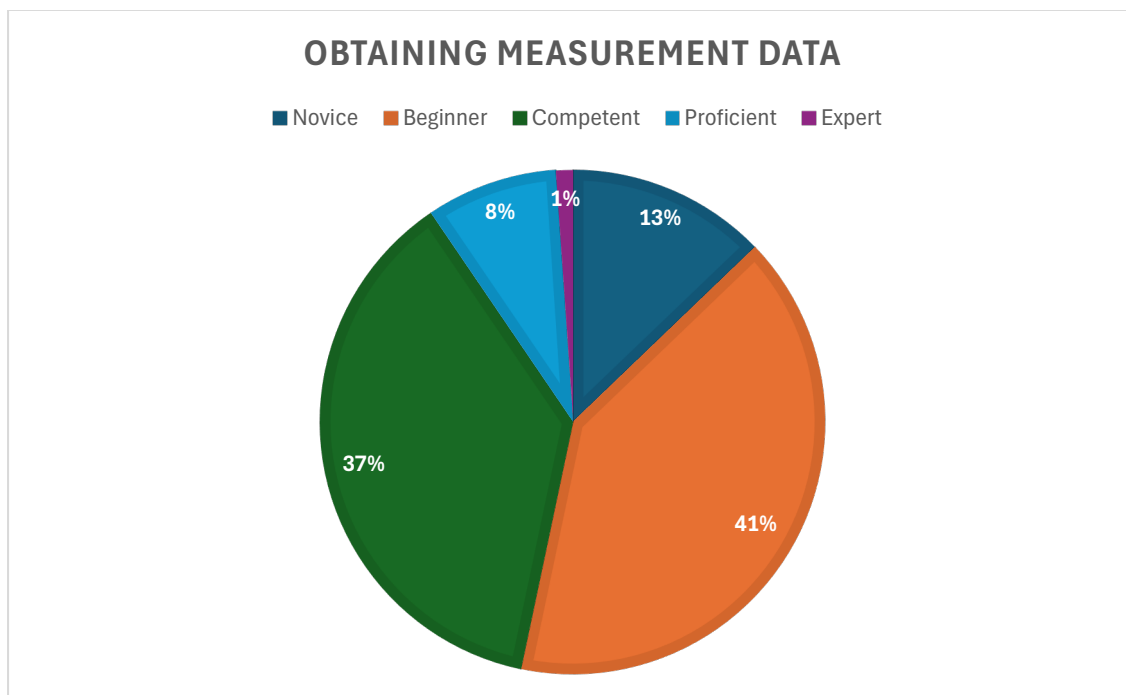


Figure 37: Data Collection and Management (Pre-Training)

Figure 37 shows that 54% of the respondents' skill acquisition was at novice and beginner level, 37% as competent, 8% as proficient, and only 1%T as expert.

Data is simply defined as a collection of facts from which conclusions may be drawn. More than half of the respondents rated themselves as novices and beginners respectively in this aspect. Data is the mirror through which each facility sees its performance. Data provides information for decision-makers on how the health system is performing and therefore is an essential driver in the provision of healthcare quality and patient safety. In data collection, it is important to ensure that the correct instruments are used for the intended data to be collected. Another critical step to be considered for the data to be used for improvement purposes is to ensure that the instruments used are reliable and validated. The competency gaps in data collection and management can contribute to poor quality, which has negative implications. Clinicians and quality managers collect information to understand what is happening inside the health system and use this knowledge to make decisions. Data collection is important for understanding the errors that occur in the health system, and to prevent them from recurring in the future. Data management is critical in quality improvement and patient safety to monitor and evaluate health outcomes and patient experience of

care. Data management should include processes of where the data is kept and accessed for monitoring and evaluation.

5.8.6 Performance Evaluation

Figure 38 below shows that a majority of 54% of the respondents rated themselves as novices or beginners, 36% as competent 7% as proficient, and 3% as expert.

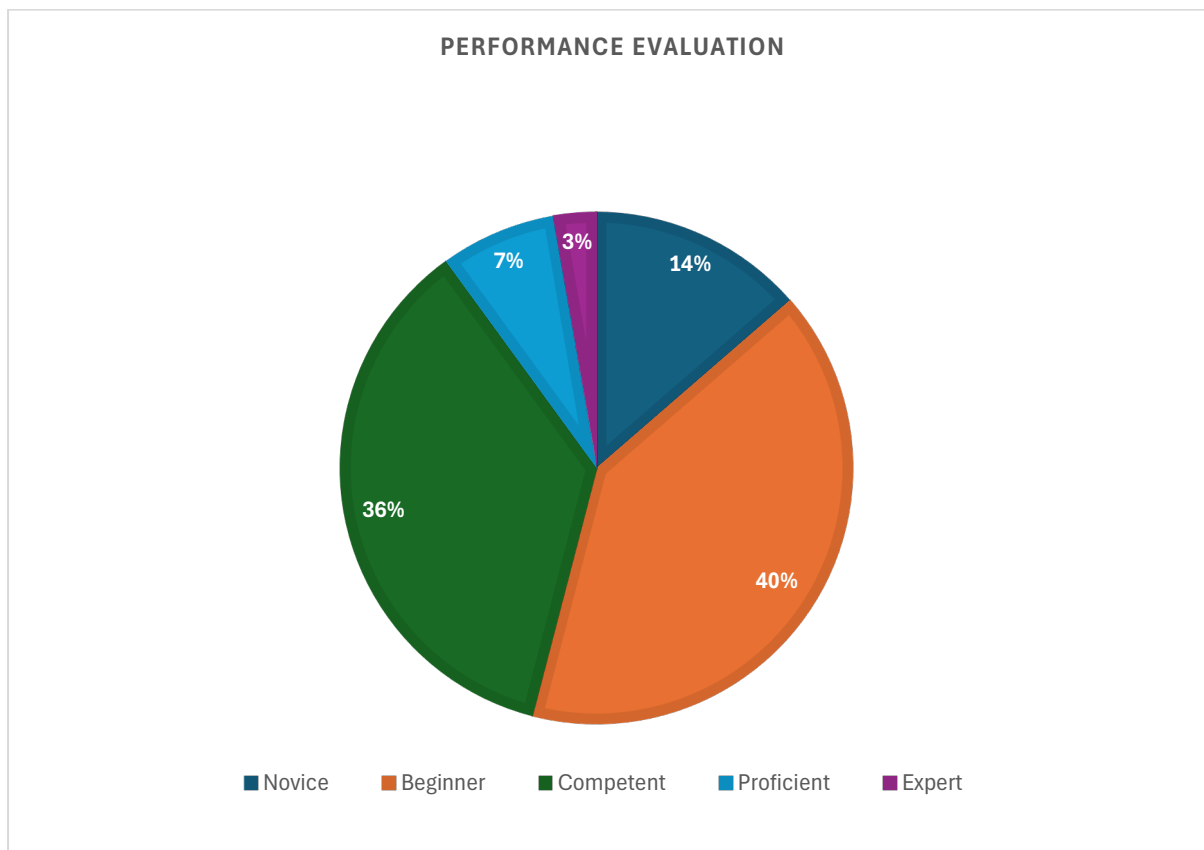


Figure 38: Understanding Performance Evaluation (Pre-Training)

A majority of the respondents (54%) indicated that they had little or no knowledge of the subject or grasp of the concept of performance evaluation.

Monitoring and evaluation allow organisations to assess whether initiatives achieve their goals of improving quality or more notably institute contingencies where there are shortcomings. In order to adequately achieve quality, all employees should have confidence in understanding the value of evaluation and implementing necessary changes within their work environment. Evaluating the performance of a facility or

health establishment allows managers to assess facilities. For example, one needs to identify which facilities need more resources in terms of staff, infrastructure, and medications, which ones are underperforming and may need assistance, and which facilities need assistance in collecting, reporting, and interpreting data. These competencies are critical within health services to reduce errors and enhance quality.

5.8.7 Improving Performance

Figure 39 shows that an overwhelming 68% of the respondents rated themselves as novices or beginners, 25% as competent, 5% as proficient and 2% as expert.

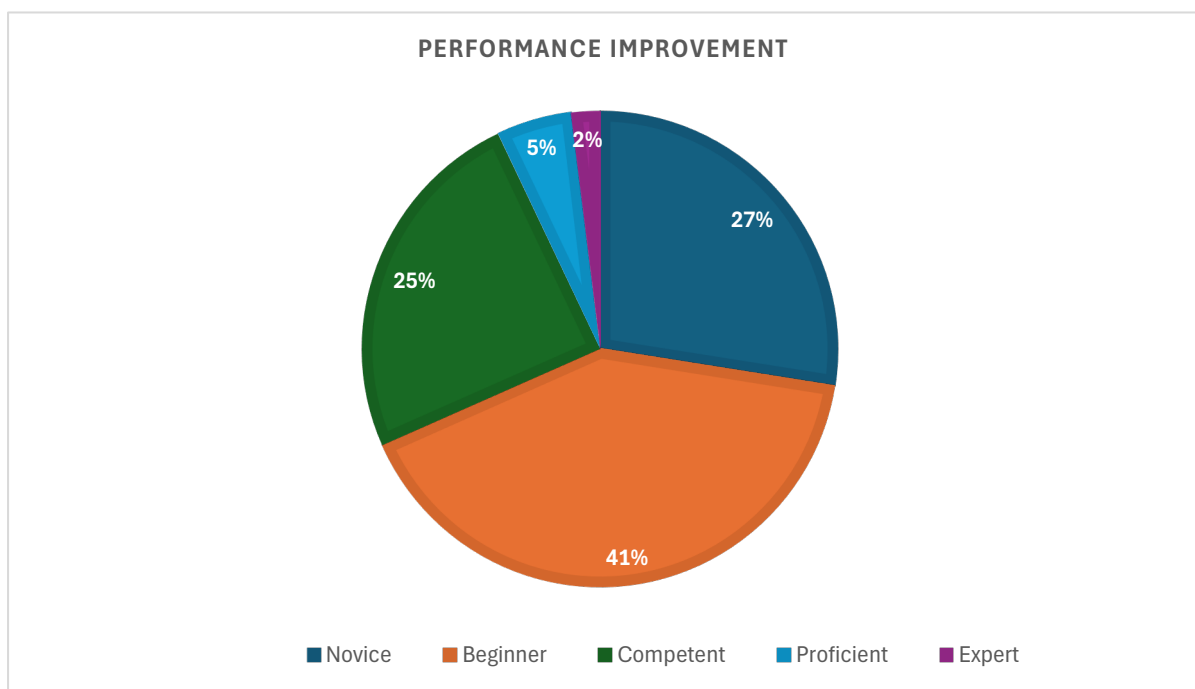


Figure 39: Improving Performance (Pre-Training)

The results indicate that 68% of the respondents rated themselves as novices or beginners in improving performance, which highlights a significant competency gap in this critical area of healthcare quality management. It suggests that the majority of healthcare professionals and quality managers lack the foundational skills or practical knowledge required to identify, implement, and sustain performance improvement initiatives effectively.

Such a high percentage of novice and beginner ratings underscores the need for targeted interventions, such as structured training programmes and capacity-building initiatives, to address these deficiencies. The low proportion of respondents identifying as proficient (5%) or expert (2%) further emphasises the limited expertise available within organisations to lead and mentor others in performance improvement efforts.

Given the importance of improving performance for achieving better health outcomes, reducing errors, and enhancing patient satisfaction, these findings reveal an urgent need to prioritise competency development in this area. Strengthening skills in performance improvement can empower healthcare teams to systematically evaluate current practices, identify gaps, and implement solutions that drive measurable improvements in healthcare delivery. Performance improvement is an important process in healthcare quality and patient safety, and this should be a primary goal of organisations and health institutions. Medical errors in healthcare will remain a challenge if the competency gap amongst clinicians and quality managers is not addressed in this aspect. Performance improvement work should be a continuous process to ensure high-quality health care.

5.8.8 Improvement Tools and Techniques

Figure 40 shows that 57% of the respondents rated themselves as novices or beginners in this aspect, and only 34% rated themselves as competent, 6% as proficient, and 3% as expert.

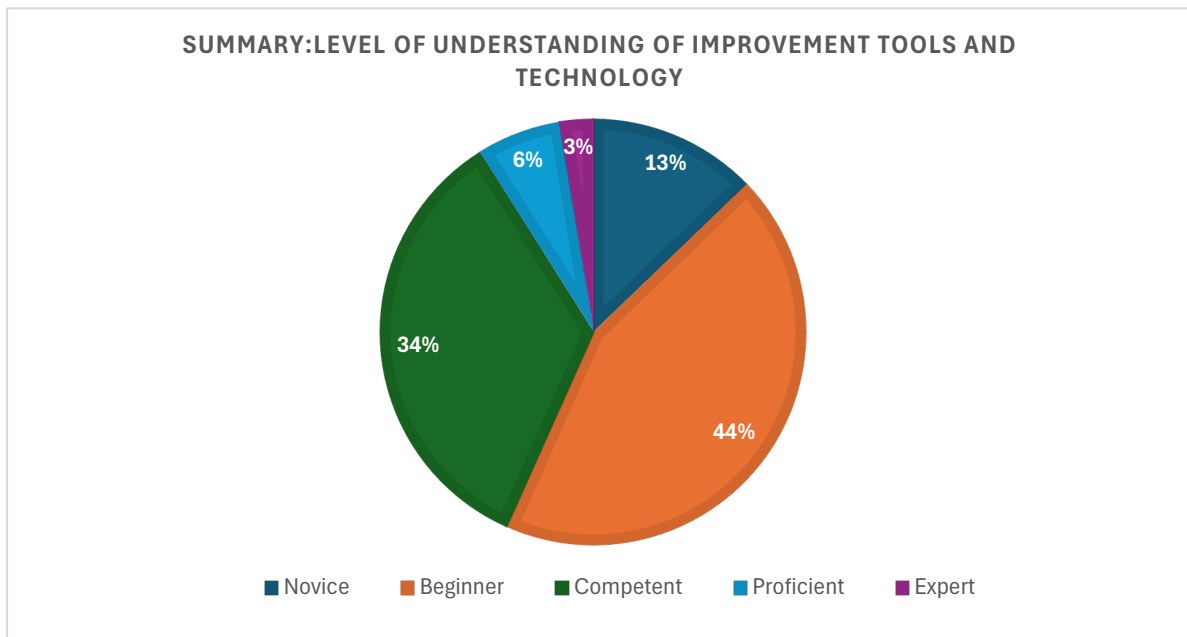


Figure 40: Improvement Tools and Techniques (Pre-Training)

Figure 41 below shows that 57% of the respondents rated themselves as novices or beginners in this aspect, and only 34% rated themselves as competent, 6% as proficient, and 3% as expert.

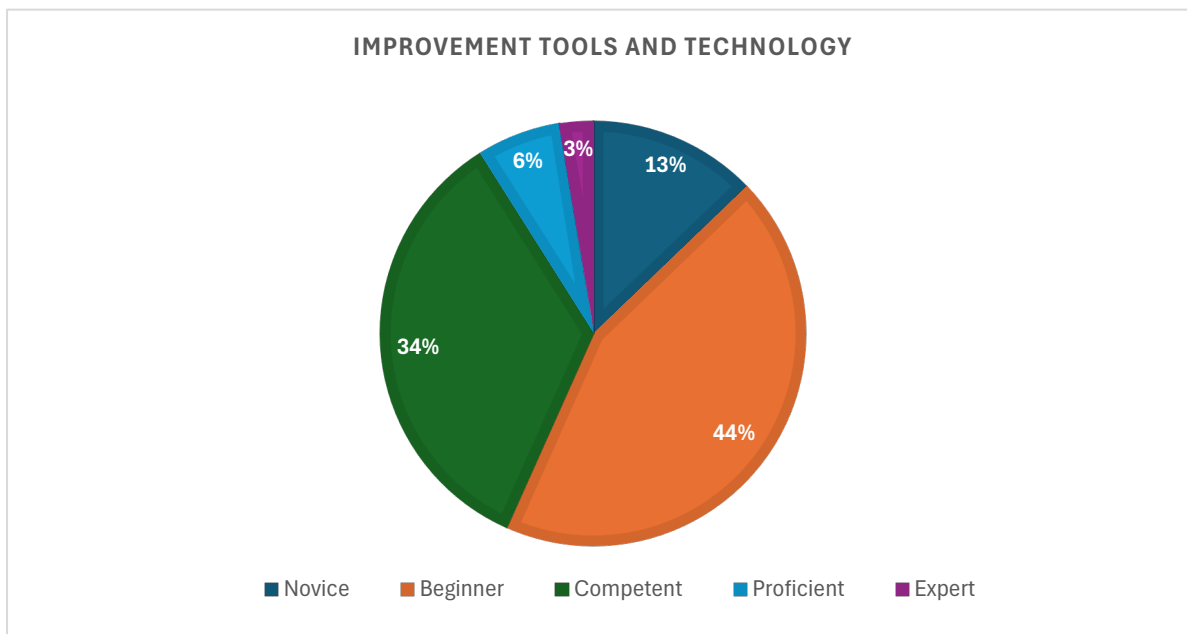


Figure 41: Level of understanding of improvement Tools and Technology (Pre-Training)

The improvement tools are statistical analysis forms and decision-making instruments used in quality improvement projects. They are key aspects of reporting data for analysis purposes. For example, a run chart is used for understanding and analysing data to understand changes over time and enable the visualisation of gaps in clinical care. A general lack in this particular competency has negative implications for measuring performance over time. Improvement tools can aid clinicians, quality managers and healthcare providers in health establishments to identify areas for improvement, analyse problems and develop effective solutions. This is summarised in Table 8 below.

Table 8: Improvement Tools

Summary of improvement tools	Purpose
Process mapping Identifying and assessing waste, identifying bottlenecks and identifying unnecessary steps to improve efficiency	Analysing the system and identifying gaps
Root Cause Analyses: these include fishbone (also known as cause and effect or 'The Five Whys')	Analysing the possible causes
PDSA/PDCA	An improvement cycle to try out, test, and implement improvements
5 Five-S	Five-S is a management tool, used as a basic, fundamental and systematic approach to productivity, quality and safety improvement in all types of organisations. It is a philosophy and a way of organising and managing the workspace and workflow with the intention of improving the efficiency of work by eliminating waste, improving flow and reducing redundant processes

Summary of improvement tools	Purpose
Lean Six Sigma	Lean Six Sigma is one of the most reliable total quality management techniques for enhancing organisational performance over time by reducing medical errors and ensuring patient safety

Adapted from Quality Improvement Guide (NDOH, 2013)

5.8.9 How to use quantitative and qualitative tools to generate ideas and understand the root cause of a problem

Figure 42 shows an overwhelming 70% of respondents' skill acquisition level as novice and beginner, 24% as competent, 4% as proficient and 2% as expert.

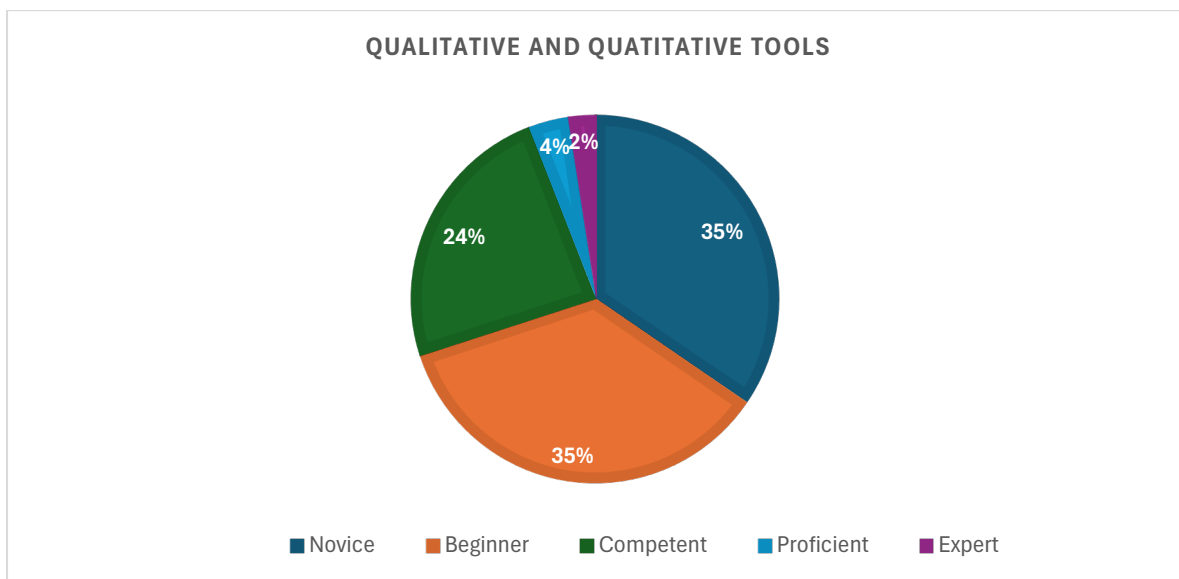


Figure 42: Understanding Qualitative and Quantitative Tools (Pre-Training)

The findings, with 70% of respondents rating their skill acquisition level as novice or beginner in using quantitative and qualitative tools to generate ideas and understand root causes, reveal a critical gap in analytical competencies essential for quality improvement. This indicates that the majority of the respondents lack the necessary skills to effectively utilise data-driven and systematic approaches to identify and address underlying issues in healthcare processes. The low percentages of

respondents identifying as proficient (4%) or expert (2%) further highlight the limited capacity within organisations to leverage these tools for problem-solving and innovation. Quantitative tools, such as statistical analysis and trend evaluation, and qualitative tools, like root cause analysis and stakeholder interviews, are pivotal for diagnosing problems, prioritising interventions, and designing evidence-based solutions.

Addressing this skill deficit is vital to ensuring that healthcare professionals and quality managers can use these methodologies to improve healthcare delivery and patient outcomes. Investing in training programmes and fostering a culture of continuous learning can enhance the ability to identify root causes accurately, generate innovative ideas, and implement sustainable improvements. These skills are fundamental for driving successful quality improvement initiatives and creating a more resilient healthcare system.

5.8.10 Patient Safety and Risk Management

Figure 43: 42% percent of respondents assessed themselves as having no knowledge or little knowledge, including a basic grasp of the concept; equally 42% reported themselves as competent in this area, while only 13% as proficient and 3% as experts.

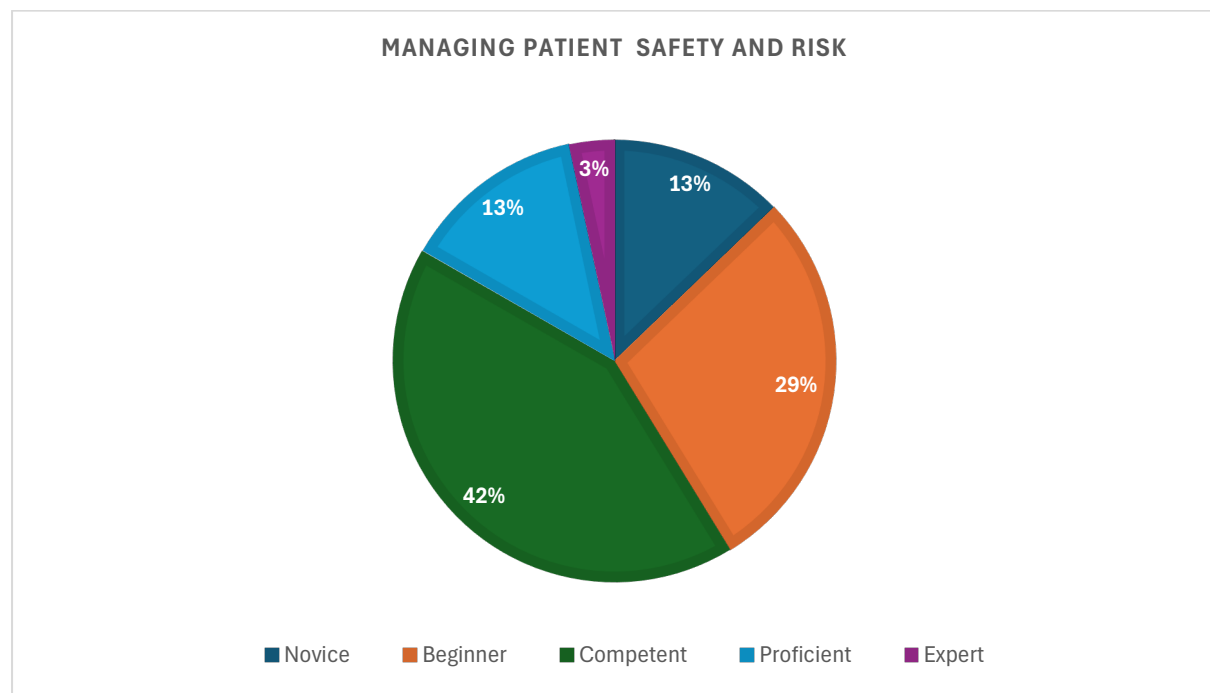


Figure 43: Patient Safety and Risk Management (Pre-Training)

Assessing knowledge about patient safety focused on clinicians' competencies in identifying errors, including human factors that are critical in creating a safe environment for patients accessing health services. Patient safety also coincides with reporting of medical errors and identification of root causes to close the gaps that contribute to decreased quality and patient harm and their monitoring. Quality managers play an important role in ensuring that the staff who are reporting errors are not punished but instead provided with the necessary tools and resources to improve patient safety. Management should create an environment where errors can be reported and encourage a just culture for continuous quality improvement. For example, the OHSC as a health regulator is required as mandated by the NHA (2003) to report any serious breaches of norms and standards to the Minister without any delay and this includes indicators in an early warning system (EWS). The OHSC EWS report for 2023 showed that a total of 65 incidents of retained objects following invasive procedures were reported from seven of the nine provinces. Of these 65 incidents 49 were reported from the private sector whilst 16 were reported from the public sector and these are incidents related to clinical quality. In the same report, the OHSC stated that they were still experiencing a challenge as most of the health establishments were still not reporting on the EWS indicators (Office of Health Standards Compliance, 2023c). Risk management is about defining and analysing risks including the identification of appropriate action to reduce or minimise risks. Hence knowledge of this aspect is critical to prevent or reduce harm.

5.8.11 Managing the patient safety and staff experience

Figure 44 shows that 48% of the respondents assessed themselves as novices or beginners, meaning that they did not have knowledge or only had a basic grasp of these concepts, whilst 39% of the respondents considered themselves competent, 9% proficient and 4% expert.

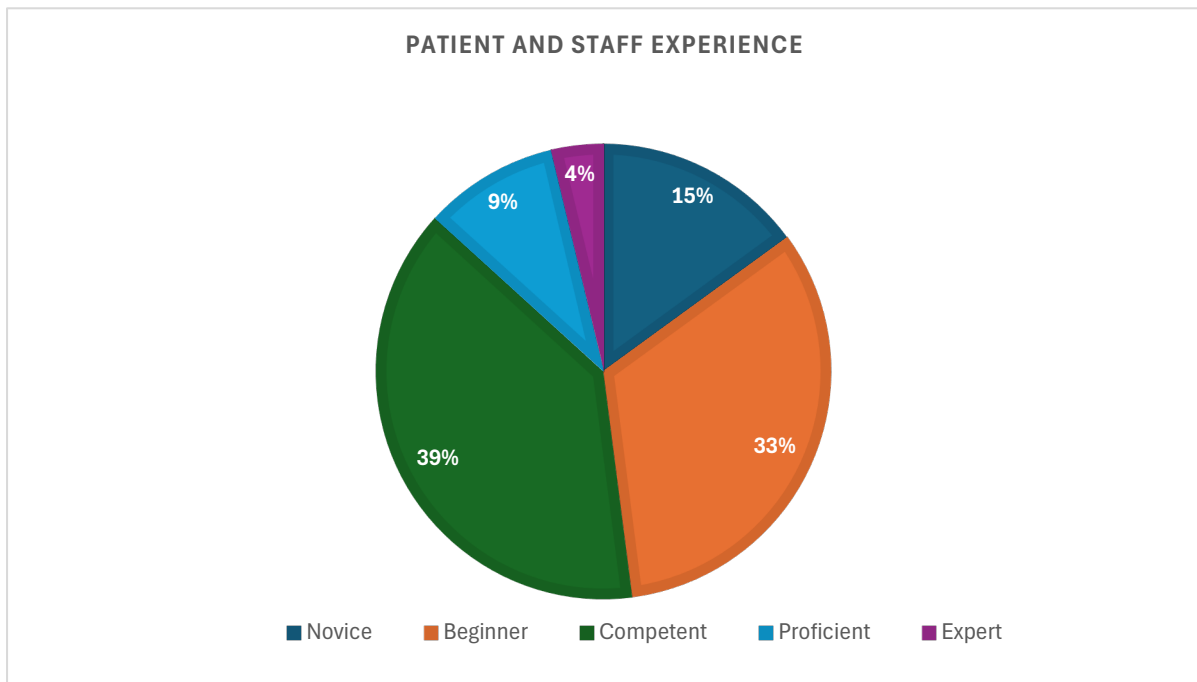


Figure 44: Patient and Staff Experience (Pre-Training)

Patient experience of care is critical in measuring health outcomes. Developing an instrument and collecting data using the correct sample size is essential to be able to make inferences. Patient experience is a key element in quality and patient safety. In addition, staff who have low morale or are burnt out are not going to be able to provide a safe environment for patients. Appropriate knowledge of quality management systems is key in performance measurement and assessment and subsequently in implementing the necessary interventions to close the gaps and monitor the interventions.

5.8.12 High-reliability organisations

An overwhelming 86% of the respondents considered themselves novices and or beginners, 11% rated their skills acquisition level as competent, 2% as proficient, and 1% as expert.

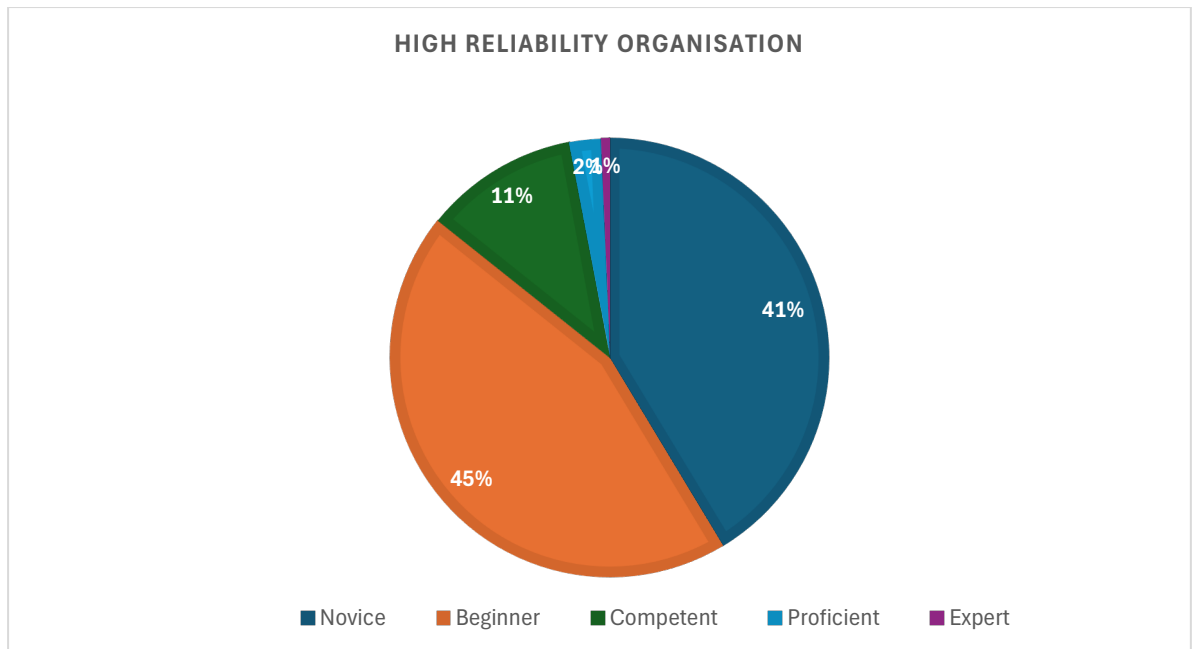


Figure 45 High Reliability Organisation (Pre-Training)

For this section, the findings that reported novice or beginner status are not surprising, as the concept of high reliability is new in the health sector. Achieving reliability in healthcare must start with understanding what reliability is, how to measure it, and then how to improve it in an organisation. Reliability in outcomes and safety are necessary in healthcare due to the many risks associated with it. Thus, it will be important for healthcare managers to turn their organisations into learning organisations to create safe and reliable environment.

Following the pre-assessment survey, a training intervention to address one of the objectives of the study was implemented, which was to bridge the competency gaps amongst clinicians and quality managers by training them using Levels 1 and 2 of the Kirkpatrick models of evaluation. The training was a pilot with a plan to enhance it based on the feedback from the participants before it could be rolled out in other provinces. The duration of the pilot training programme was six months, and it was delivered using a hybrid model. This involved a virtual component that used a video-on-demand approach, weekly synchronous online sessions and monthly in-person sessions, which were used to address any questions related to online sessions and for group work activities. The effectiveness and perceived usefulness of the training by participants, as reflected in their improved post-training knowledge assessments, are discussed in detail in Section 6.3.

5.9 POST-TRAINING SURVEY ANALYSIS

Post-training, the participants were asked to complete a survey questionnaire, which was accessed via a link as it was self-administered. The post-assessment survey focused on Section C which measured self-assessment of current knowledge and understanding of key quality management principles post-training (Annexure D). An email was sent to all the participants who completed the pre-assessment questionnaire, including the online modules and face-to-face contact sessions. Fifty-three responses were received and during the cleaning of the data, it was noted that some questionnaires were duplicates as the respondents used multiple email addresses for returning completed questionnaires. After excluding the duplicates, the data from 37 respondents was analysed using Microsoft Excel and R Version 4.0. to determine whether the training had been effective. The questions were related to competency and were similar to part C of the pre-training assessment questionnaire. The post-survey results are presented as pie charts below and aggregated as averages; each respondent could choose multiple responses based on the questions asked.

Five Likert scale questions for the acquisition of knowledge and skill were also used during the post-training assessment survey. They are presented and described below to refresh the memory of the reader.

Table 9: The five-stage model of adult skill acquisition (*Dreyfus, 2004*)

Stages	Description
Novice	Little or no knowledge of the subject
Beginner	Basic grasp of the concept
Competent	Having the required knowledge to do the job to the level expected of a comparable professional / employee
Proficient	Well advanced in the concept and able to train others to a competent level

Stages	Description
Expert	A thought leader in the concept, influencing what is taught to those in levels 1-4 of understanding

5.9.1 Introduction to Healthcare Quality Management

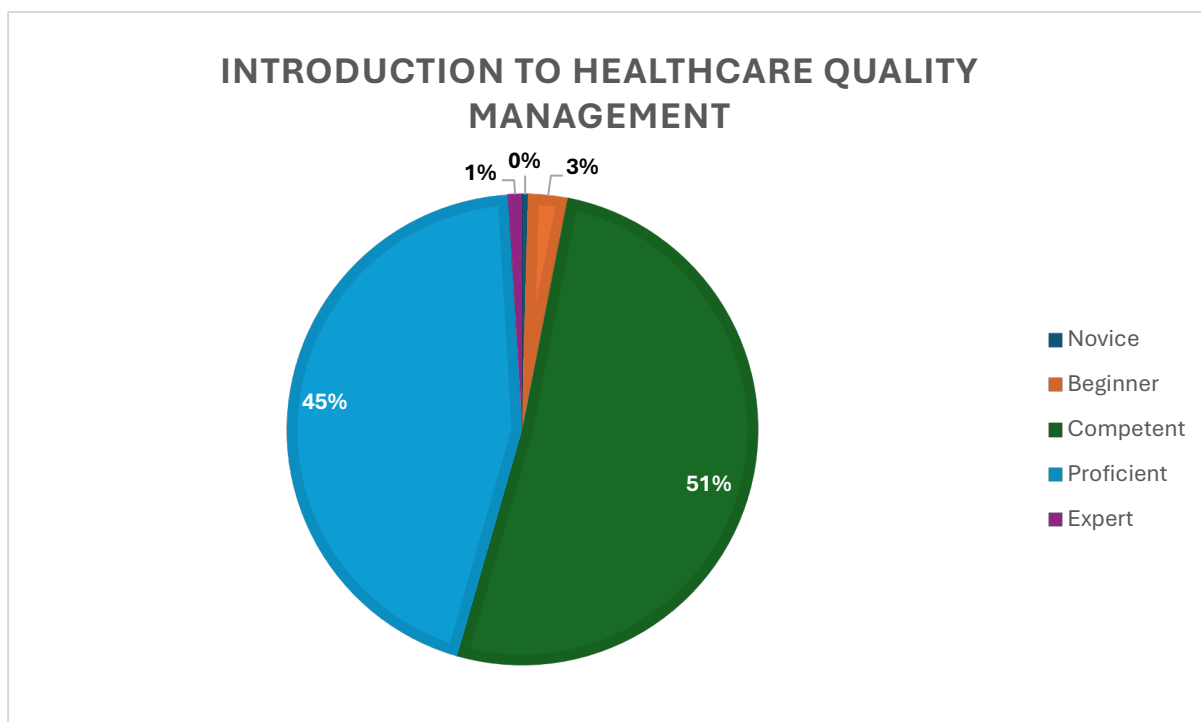


Figure 46: Respondents' Self-Rating Post-Training

Figure 46 shows that 51% of the respondents rated themselves as competent, 45% as proficient, 3% as beginners, 1% as experts and none rated themselves as novices.

The post-training survey results indicate a notable shift in the participants' understanding of quality concepts and healthcare quality management, demonstrating the effectiveness of the training intervention. Under the heading Quality and Related Concepts, the pre-training data showed that 34% of the respondents self-identified as novices or beginners. However, post-training, 66% of the respondents assessed themselves as competent, proficient, or expert. This shift suggests that the training successfully addressed the foundational gaps in understanding quality principles, significantly enhancing participants' confidence and ability to apply these concepts.

The improvement highlights the role of targeted education in building a stronger foundation for implementing quality improvement initiatives.

Under the heading Introduction to Healthcare Quality Management, the post-training data reveals an overwhelmingly positive outcome, with 51% rating themselves as competent, 45% as proficient, 3% as beginners, and 1% as experts. The absence of novice ratings post-training underscores the success of the training in equipping participants with baseline knowledge. Additionally, the high percentages of competent and proficient ratings suggest that most participants now felt adequately skilled to engage with and lead quality management activities in their organisations.

These results are significant because they reflect a measurable improvement in the participants' knowledge and skill levels, which is critical for addressing competency gaps in healthcare quality and safety. The findings also underscore the importance of continued investment in structured training programmes to sustain and build on these gains, ultimately driving improvements in healthcare delivery and patient outcomes.

5.9.2 Performance Measurement

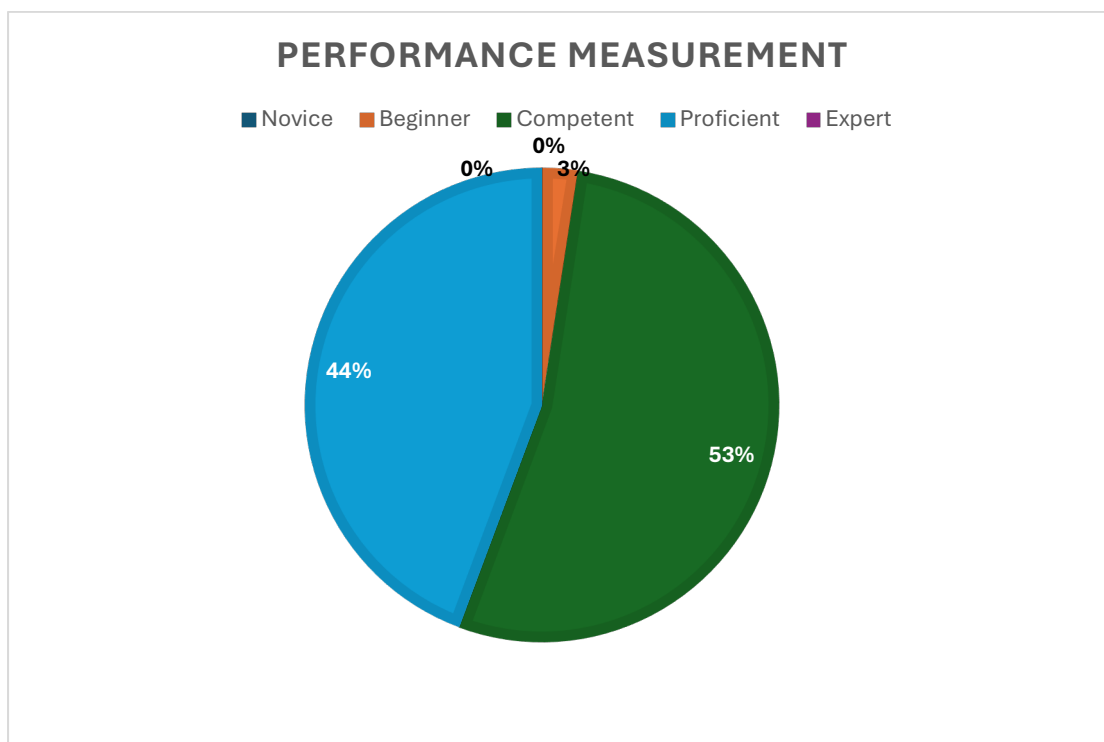


Figure 47: Performance Measurement (Post-Training)

Fifty-three percent (53%) of the respondents rated themselves as competent, 44% as proficient, 3% as beginners, and none as novice or experts.

According to the data, the training intervention had a significant impact on closing knowledge gaps in this area of healthcare quality management, as evidenced by the participants' improved understanding of performance measurement. Prior to training, 49% of the respondents rated themselves as novices or beginners in their understanding of performance measurement, indicating significant gaps in their foundational knowledge and confidence. The fact that only 39% of respondents felt competent and that only 2% or 10% of respondents rated themselves as proficient or expert highlighted the lack of higher-level expertise. With 44% of respondents describing themselves as proficient and 53% as competent, the results demonstrate a discernible change following training. The fact that there were no novice ratings and that the proportion of beginners dropped to just 3% shows that the training was effective in advancing participants from basic to intermediate and advanced levels of understanding.

The significance of these results lies in the critical role that performance measurement plays in quality management. A better understanding of performance measurement equips healthcare professionals to monitor, evaluate, and enhance the quality of care delivered. The training did not only improve the participants' confidence and knowledge, but also prepared them to use performance data effectively to identify gaps, measure outcomes, and drive continuous quality improvement. This progress underscores the value of structured targeted training in empowering healthcare professionals to improve systems and achieve better health outcomes.

5.9.3 Obtaining Measurement Data

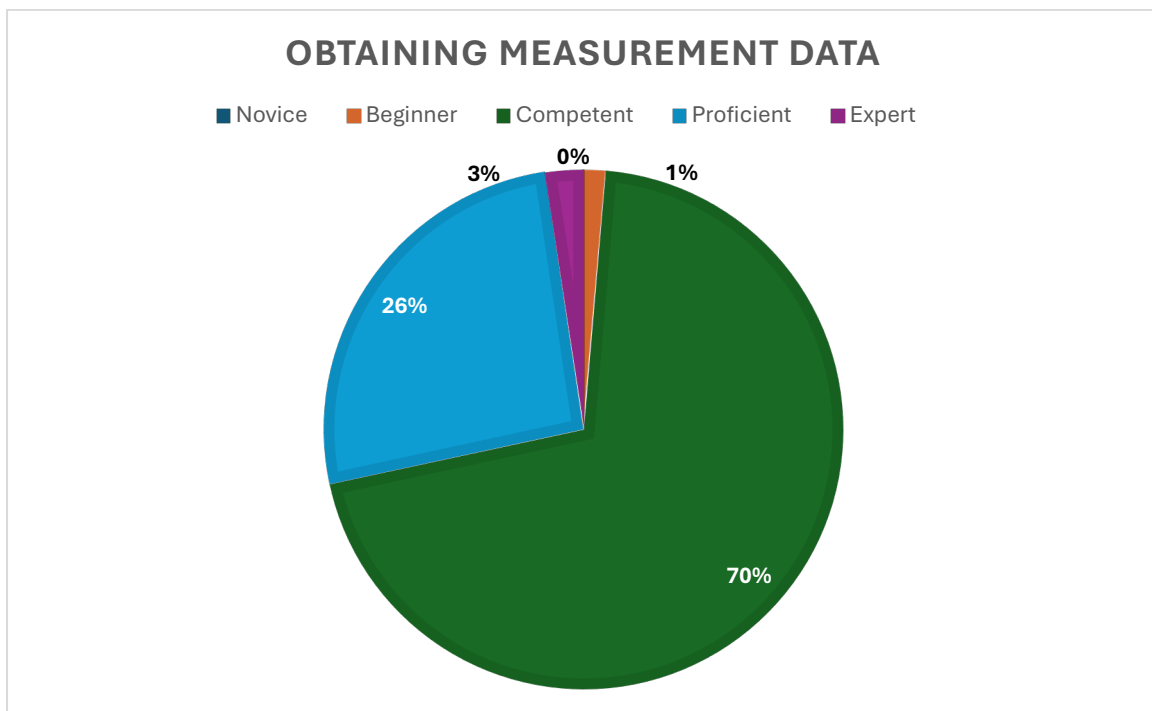


Figure 48: Obtaining Measurement Data (Post-Training)

An overwhelming 70% of the respondents rated themselves as competent, 26% as proficient, 3% as experts, none as novice, and 1% as beginners.

5.9.4 Evaluating Performance

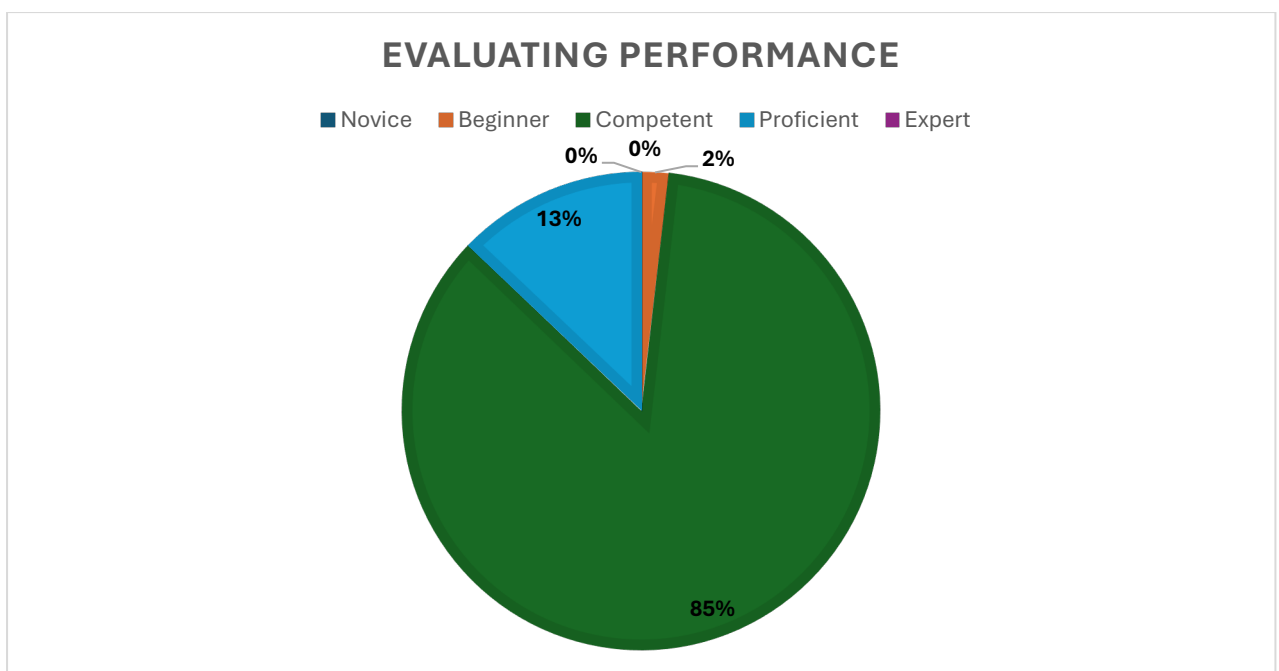


Figure 49: Evaluating Performance (Post-Training)

85% of the participants overwhelmingly rated themselves as competent, 13% as proficient, none as experts or novice and 2% as beginners.

Initially, 54% of the respondents rated themselves as novices or beginners in their understanding of performance evaluation, reflecting substantial foundational gaps and limited capability in applying this concept. Only 36% considered themselves competent, while higher-level expertise was minimal, and 7% rated themselves as proficient and 3% as expert.

Post-training, the results show a dramatic shift, with 85% of the respondents rating themselves as proficient and 13% as competent. Notably, there were no ratings for novice or expert, and the percentage of beginners dropped significantly to just 2%. This transformation highlights the success of the training in enhancing the participants' confidence and skills, elevating a majority to a proficient level of understanding.

The significance of these findings lies in the essential role which performance evaluation plays in continuous quality improvement. By equipping healthcare professionals with a deeper understanding of how to evaluate performance, the training ensures they can effectively assess processes and outcomes, identify areas for improvement, and implement evidence-based interventions. This improvement in competency is crucial for fostering a culture of accountability and driving better health outcomes in healthcare organisations.

5.9.5 Improving Performance

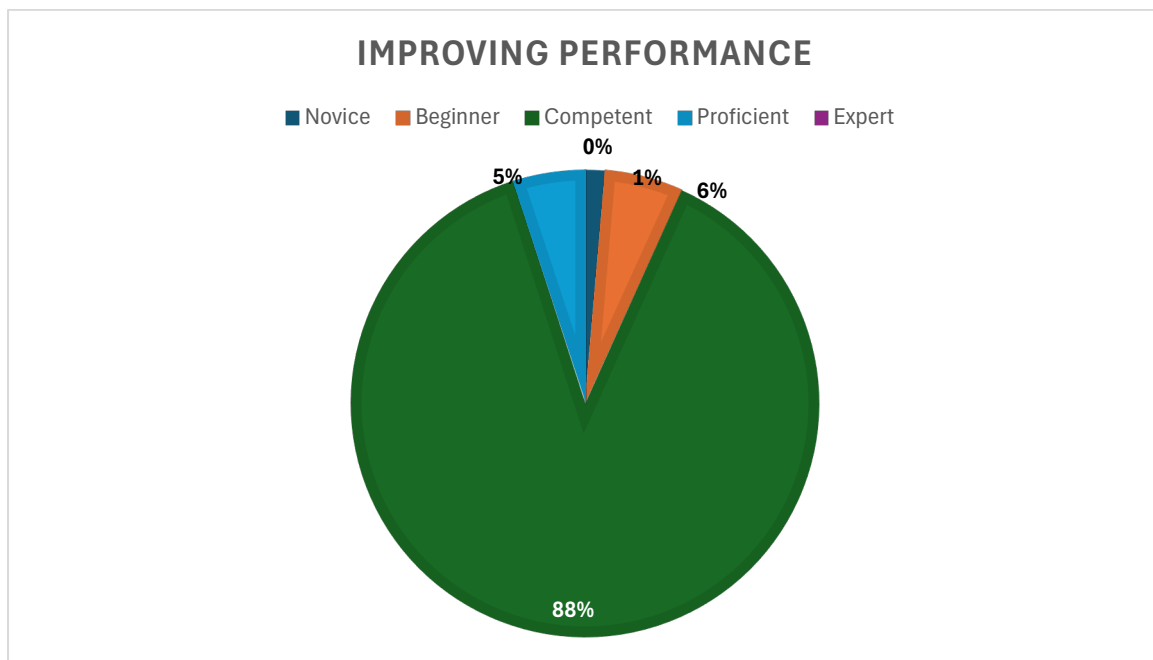


Figure 50: Improving Performance (Post-Training)

An overwhelming 88% of the participants rated themselves as competent, 5% as proficient, none as expert, 1% as novice, and 6% as beginners.

The results reveal a significant enhancement in participants' understanding of improving performance, demonstrating the impact of the training intervention in developing this essential competency in quality management. Before training, 68% of the respondents identified as novices or beginners, indicating limited capability to actively participate in performance improvement activities. Competency levels were relatively low, with only 25% rating themselves as competent and a small minority as proficient (5%) or expert (2%). These findings point to a pronounced need for focused development in this area.

After training, there was clear evidence of progress, with 88% of the respondents rating themselves as competent and 5% as proficient. The proportion of novices decreased dramatically to just 1%, and beginners fell to 6%, highlighting the role of the training in enhancing understanding across the cohort. While no respondents reached the expert level, the marked growth in competency reflects the success of the intervention.

This shift is particularly noteworthy given the critical role of performance improvement in achieving organisational goals and enhancing patient care. By equipping healthcare professionals with the skills to analyse and address performance challenges effectively, the training supports the establishment of a culture of continuous improvement, contributing to better health outcomes, more efficient resource use, and overall organisational growth.

5.9.6 Improvement Tools and Techniques

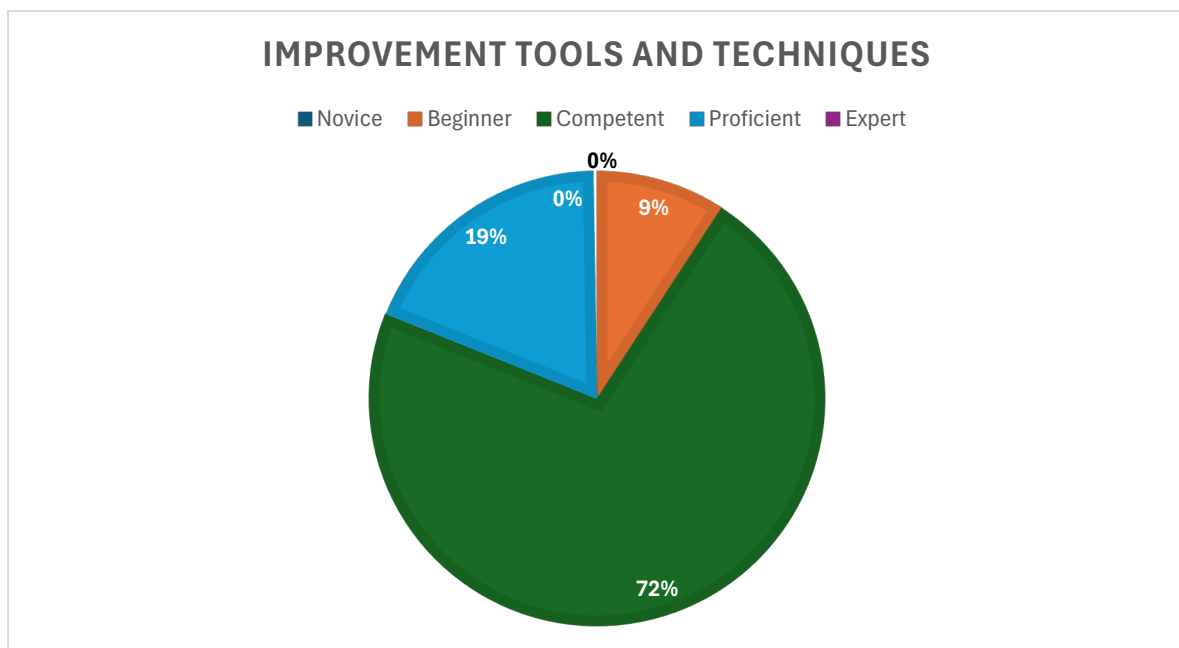


Figure 51: Improvement Tools and Techniques (Post-Training)

An increased number, 72% of the respondents, rated themselves as competent, 19% as proficient, none as experts or novice, and 9% as beginners. The post-training survey results indicate a substantial improvement in the respondents' understanding of improvement tools and techniques, which directly reflects the effectiveness of the training intervention. Prior to the training, a significant majority (57%) of the respondents rated themselves as novices or beginners, with only a small percentage (6%) considering themselves proficient or expert. This suggests a considerable gap in knowledge and practical application of improvement tools a critical area for quality improvement in healthcare settings.

Following the training, 72% of respondents rated themselves as competent in the use of improvement tools and techniques, marking a significant shift in competency levels.

This improvement demonstrates that the training successfully enhanced participants' understanding and ability to apply quality improvement methodologies. Additionally, 19% of respondents rated themselves as proficient, and none identified as novices or experts, indicating a more uniform distribution of skill levels across the group. The absence of novices or experts post-training suggests that while many participants gained sufficient competency, there remains room for advanced mastery and application.

These results highlight the positive impact of the training intervention in bridging knowledge gaps, equipping clinicians and quality managers with the necessary tools and techniques to drive quality improvement initiatives effectively. The increase in competency levels aligns with the broader goal of enhancing healthcare quality by ensuring that all staff are well-versed in using improvement tools to optimise processes, reduce errors, and improve patient outcomes.

5.9.7 Managing Patient Safety and Risk

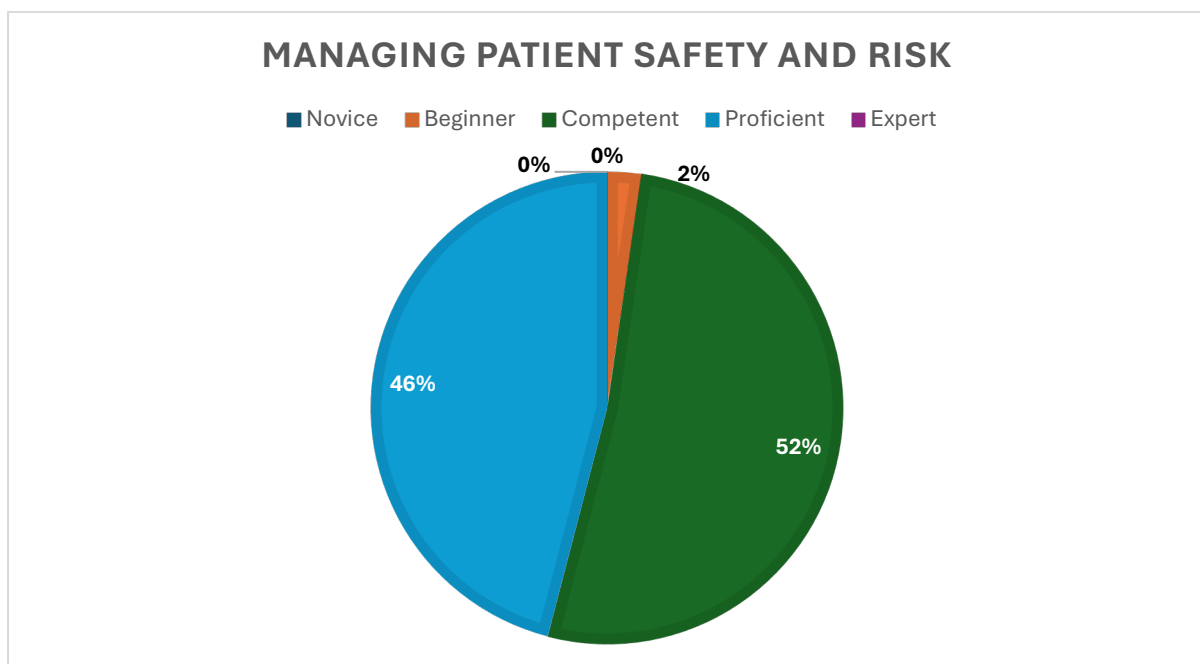


Figure 52: Managing Patient Safety and Risk (Post-Training)

Fifty-two percent of the respondents assessed themselves as competent, whilst 46% as proficient, none as experts nor novices and 2% as beginners.

5.9.8 Managing Patient and Staff Experience

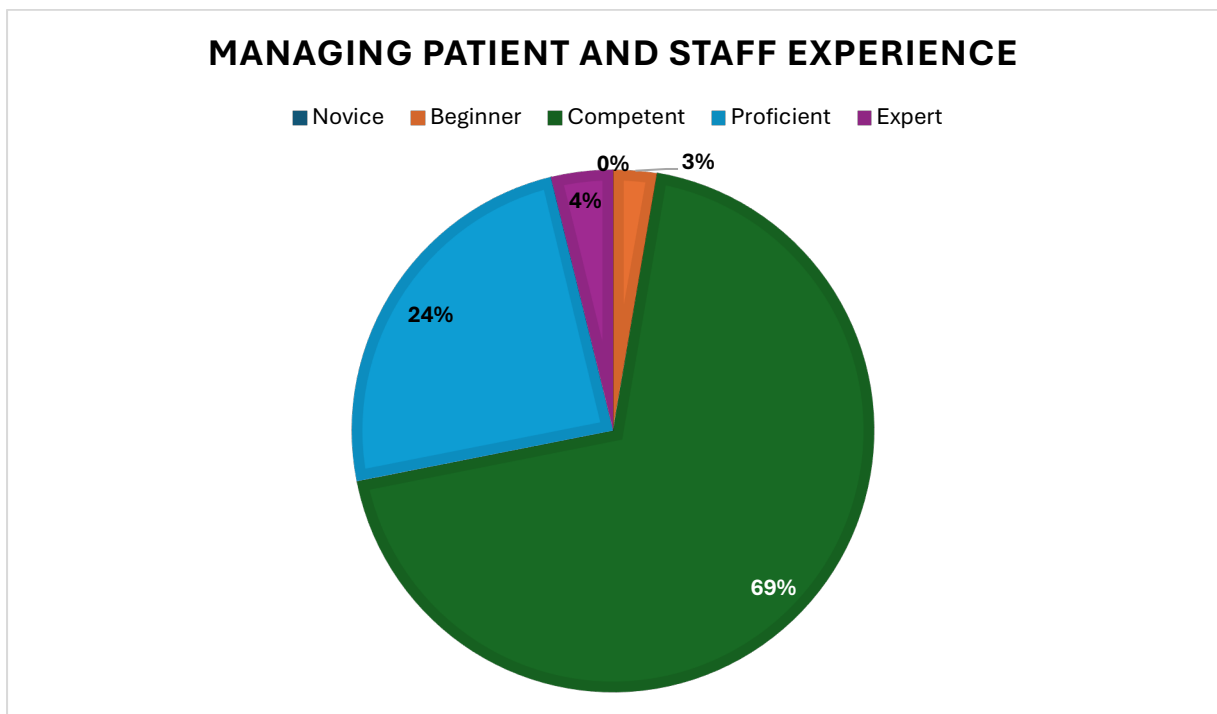


Figure 53: Managing Patient and Staff Experience (Post-Training)

Sixty-nine percent of the responded identified themselves as competent, 24% as proficient, 4% as experts none as novice, and 3% as beginners.

5.9.9 High-Reliability Organisation

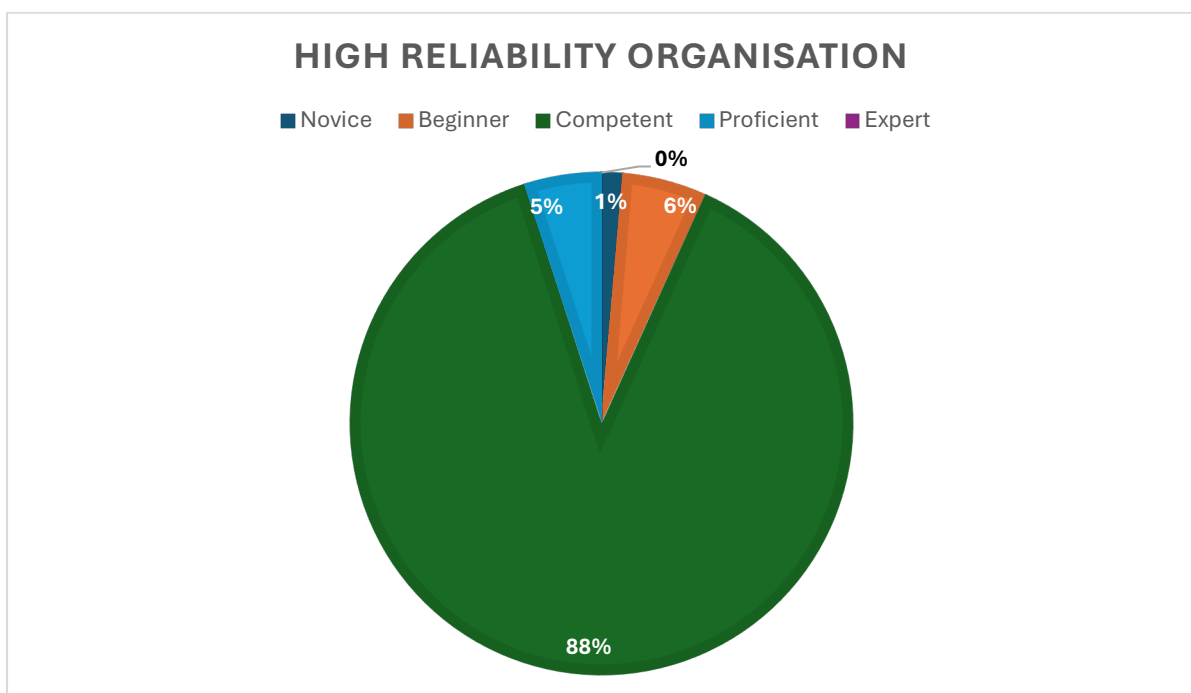


Figure 54: High-Reliability Organisations (Post-Training)

An overwhelming 88% of the respondents considered themselves competent, 6% as proficient, 1% as expert, none as novices and 6% as beginners.

5.10 POST-ASSESSMENT SURVEY FINDINGS

The specific research question of the study was ‘What are the healthcare quality and safety competency gaps amongst clinicians and quality managers, and the outcome of the training intervention using Levels 1 and 2 of the Kirkpatrick evaluation model?’ A one-sided T-test was performed to compare the level of understanding of key quality management principles pre- and post-training.

Below are the findings of the pre-assessment training which were self-reported by the participants before the training and the post-assessment findings following the training intervention. The test is based on the 5% significance level. If the p-value is less than the significance level, the null hypothesis is rejected in favour of the alternative hypothesis.

Table 10: Pre- and Post-Training Proportion

Pre-Training Proportion (Novice+Beginner)	Key Quality Management Principles	Post-Training Proportion (Novice+Beginner)	p-value	Reject/No Enough Evidence to Reject H0
-40%	1.Introduction to Healthcare Quality Management	3%	< 2.2e-16	Reject the Null Hypothesis
-49%	2.Performance Measurement	2%	< 2.2e-16	Reject the Null Hypothesis
-54%	3.Obtaining Measurement Data	1%	< 2.2e-16	Reject the Null Hypothesis
-56%	4.Evaluating Performance	2%	< 2.2e-16	Reject the Null Hypothesis
-70%	5.Improving Performance	7%	< 2.2e-16	Reject the Null Hypothesis
-69%	6.Improvement Tools and Techniques	9%	< 2.2e-16	Reject the Null Hypothesis
-43%	7.Managing Patient Safety and Risk	2%	< 2.2e-16	Reject the Null Hypothesis
-50%	8.Managing the Patient and Staff Experience	3%	< 2.2e-16	Reject the Null Hypothesis
-86%	9.High Reliability Organisations	59%	< 2.2e-16	Reject the Null Hypothesis

The p-values for all nine hypotheses are less than 0.05, therefore the null hypothesis is rejected in favour of the alternative hypothesis. I conclude that the training significantly improved the level of understanding of key quality management principles.

5.11 SUMMARY OF THIS CHAPTER

This chapter highlighted critical competency gaps among clinicians and quality managers in healthcare quality and patient safety, emphasising the inherent risks posed to patient care. The pre-assessment findings not only revealed deficiencies in understanding key quality concepts and practices but also underscored the implications for poor-quality care and heightened medical errors. These gaps, if left unaddressed, compromise the safety, efficiency, and effectiveness of healthcare delivery systems.

The intervention, which included training based on the Kirkpatrick model, showed that participants' knowledge and abilities improved in a number of areas, such as performance assessment, evaluation, and improvement. The results show how important it is to make quality improvement skills a part of all levels of professional training. Quality managers, physicians, and other healthcare professionals need to do more than just give orders. To stay up to date with changing practices, they need to keep studying throughout their careers. This involves regular evaluations before and after to find gaps and keep track of how skills are being learned.

The results show that to improve the quality of treatment and keep patients safe, healthcare professionals need to focus on acquiring and keeping their skills. It is important to have training programs that fill in specific gaps and encourage people from different fields to work together. Also, leaders need to make creating supportive cultures that encourage ongoing growth and accountability a top priority.

Ultimately, ensuring the competence of individual clinicians, quality managers, and other healthcare providers is not just a strategic priority – it is a moral imperative. By equipping the healthcare workforce with the necessary tools and knowledge, organisations can create resilient systems capable of delivering high-quality, safe, and patient-centred care.

CHAPTER SIX

QUALITATIVE FINDINGS AND DISCUSSIONS

6.1 INTRODUCTION

The previous chapter looked at the statistical analysis of the study which ran on participants confidence about their knowledge of healthcare quality and patient safety pre-and post-training intervention. The results were very useful in targeting what occurred and effectiveness of the training programme. Participants demonstrated significant improvements in their understanding of key principles of quality management. The analysis also identified gaps in some aspects of competence and areas in which some participants required a degree of reinforcement, and importantly, it measured the impact of knowledge. Unfortunately, quantitative data is usually not sufficient to describe quality situations such as the experience, perception and reflections of the participants about the training and ultimately the application.

This chapter provides qualitative analysis of the data collected from participant perspectives, offering a more in detail understanding of their perceptions of their experience, the influence of the training on their practice, and the challenges they faced during programme. As this study used a mixed methods approach, this chapter includes narratives, reflections, and responses to open-ended questions, which provide more insight into learning outcomes of the programme beyond statistical significance focused on throughout the premise of the study.

The research objectives for the qualitative data collection and analysis were:

- Assess the knowledge base of clinicians and quality managers in healthcare quality and patient safety by using a pre-assessment training questionnaire.
- Facilitate closing the competency gap returned by clinicians and quality managers by training them using level 1 and 2 of the Kirkpatrick's evaluation fellowship framework.

- Assess participants' post-training knowledge of healthcare quality and patient safety.

The qualitative component of the effectiveness of the training using Levels 1 and 2 of the Kirkpatrick evaluation models was implemented. The research questions guiding this component of the study were the following:

- What is the level of knowledge regarding healthcare quality and patient safety within health establishments among quality managers and clinicians?
- What is the level of knowledge with respect to healthcare quality and patient safety competency within health establishments among quality managers and clinicians post-training?
- Will Levels 1 and 2 of Kirkpatrick model of evaluation bridge the competency gaps amongst clinicians and quality managers?

6.2. METHODOLOGY FOR QUALITATIVE ANALYSIS

To capture the participants' reflections and self-reported experiences, an open-ended feedback survey was conducted, allowing participants to express their thoughts on various aspects of the training. An email was sent to participants who had successfully completed the programme, inviting them to share their insights. At the time of analysis, 16 responses were received within the designated timeframe and were subsequently analysed using qualitative thematic analysis techniques. The responses were processed through a Word Cloud visualisation to identify frequently occurring themes and keywords. Additional responses were received after the cut-off date for the analysis and, therefore, not included in the final dataset.

While the primary data collection method for qualitative insights was open-ended survey responses, qualitative elements were also derived from quantitative data, particularly from participants' self-assessments. For example, the numerical self-ratings of knowledge and competency were contextualised through participants' explanatory comments, revealing how they interpreted their skill levels, learning progress, and confidence shifts. This integration of qualitative reflections with quantitative findings provided a more holistic view of the training impact.

6.3 TRAINING CONTENT AND THEMES

The training intervention was designed to address the competency gaps identified among clinicians and quality managers in healthcare quality and patient safety. The training modules were thoughtfully designed to create a logical pathway to learning, enabling participants to acquire theoretical knowledge and practical skills in health care settings. The training programme adopted a blended-learning model, which combined both virtual and contact sessions to enhance engagement and access.

6.3.1 High-Reliability Organisations

One of the main training modules centred on high-reliability organisations (HROs), that is adopted from industries that focus on quality and safety, such as aviation and nuclear power. The group was introduced to the principles of HROs and the five key characteristics being:

- A preoccupation with failure – encouraging a vigilance for risks and errors before they happen.
- Reluctance to simplify – a recognition of the complexities of healthcare and the propensity to speculate oversimplified solutions that ignore critical variables.
- Sensitivity to operations – maintaining an awareness of situations at every level of the organisation to notice things that arise out of the norm and will need attention.
- Commitment to resilience – building the capacity to adapt and bounce back from unexpected challenges.
- Deference to expertise – assuring that decision-making authority is delegated to those with the most relevant expertise instead of being assigned based on a strict hierarchy.

The group deliberated on how they could each bring and integrate these principles back into their healthcare establishments to promote patient safety and reduce medical errors. Case studies were used to highlight real-world examples of HRO's with

health care settings which allowed the participants to engage with connections related to their own workplaces.

The participants generally were pleased with the training, and some felt that the training was intentionally designed and relevant to their professional roles. One respondent noted,

‘The course provided a comprehensive overview of the principles of high reliability in healthcare and its application to patient safety. It was clear, well-structured, and highly relevant to current healthcare challenges.’

This emphasises the need to utilise and build on HRO principles in training programmes, as these principles provide a bedrock approach for enhancing safety culture and reducing the potential for medical errors. The clarity and organisation of the material was also noted as a strength to provide the participants an opportunity to understand and apply these principles in their unique healthcare environments.

There was consistency between participants to emphasise the relevance of the training modules to contemporary healthcare issues. As one participant stated,

‘The course content was well-structured, comprehensive, and highly relevant to the challenges faced in modern healthcare systems.’

This illustrates the need to design structured training programmes tailored to reduce competency gaps, and there was an appropriate balance between knowledge transfer and the use of knowledge in practice. This was especially true in a limited resource-setting, where participants demonstrated the need to improve leadership and management capabilities. Targeting usable strategies for navigating healthcare barriers meant the training was able to connect theory and practice, and resulted in participants gaining useful strategies to inform practice change in complex environments.

In designing the training, the delivery approach was carefully considered. The researcher wanted the programme to be accessible and engaging, and so chose to deliver a blended programme with an intuitive online learning platform and contact sessions that included interactive activities. One participant said,

‘The online platform was intuitive and user-friendly, allowing for seamless navigation through the modules, supplemented by interactive contact sessions that enriched the learning experience.’

The findings highlight the need to incorporate accessible digital platforms into healthcare training programmes as a way to support more self-directed learning approaches and to ensure accessibility to a diverse cohort. The addition of live interactive sessions also provided opportunities for synchronous engagement, discussion, and application, thereby demonstrating the concepts related to practice.

The results of this study suggest that future healthcare training programmes should incorporate blended learning because digital accessibility and interactive engagement are vital components in professional development training.

6.3.2 Improvement Tools and Techniques

The training also introduced participants to tools and techniques of quality improvement which are important to systematically address performance gaps and implement evidence-informed improvements. The key improvement methodologies covered during the training included:

The training incorporated practical exercises for participants to use the tools to practice in real or hypothetical situations to assist with their understanding and application of the tools in their work setting.

The participants liked the course for its blend of theoretical and practical knowledge. One participant remarked,

‘The material covered in this course was not only informative but also practical. The emphasis on systems thinking and continuous improvement in patient safety is crucial for any healthcare professional.’

This underscores the key role of systems thinking in quality training in health care, and that systems thinking gives the health care professional a broader more strategic approach to patient safety. Systems thinking identifies relationships that can provide early warning signals to resolve issues, and sustain improvements (Thelen et al.,

2023). Furthermore, continuous improvement is consistent with quality management principles which already emphasise the need for continuous improvement of healthcare processes to improve patient outcomes. The PDSA cycle from Deming is a fundamental quality management tool that promotes iterative learning and adaption to ensure that improvements related to healthcare quality are maintained for all time (Deming, 2000; Langley et al., 2009).

Structured improvement tool and techniques are necessary catalysts for improving healthcare quality in a sustainable way. Lean, Six Sigma, and the Model for Improvement are all evidence based frameworks that offer structured approaches to eliminate waste, reduce errors, and improve patient outcomes (Institute for Healthcare Improvement, 2003). The principles of Lean focus on eliminating waste through optimising workflows to improve efficiency in service while maintaining high quality healthcare delivery (Hung et al., 2021). Six sigma is a data driven methodology that seeks to reduce variation and improve process reliability to taper the potential for medical error and subsequent adverse events; rigorous use of data accountability in health care has been shown to improve outcomes (Antony et al., 2018).

These frameworks and approaches align with the broader principles of continuous quality improvement that focus on the view of continuous quality improvement as constantly monitoring and adopting our actions to progress with improving patient safety and clinical outcomes. These various improvement initiatives have had extensive success in many varied healthcare settings, demonstrating broad applicability to not just objectives but creating a learning community in health care based on evidence-based practice and continual learning.

6.3.3 Managing Patient Safety and Risk

An additional important module of training covered patient safety and risk management strategies to mitigate harm and foster a safety culture in our healthcare organisations. The session covered the following topics:

- **Recognising and reporting adverse events** – An emphasis on taking non-punitive approach to incident reporting to promote transparency and learning.

- **Designing and implementing patient safety protocols** – To standardise common clinical practices, therefore reducing variability and enhancing safety.
- **Encouraging patient engagement** – Empowering patients and caregivers to be engaged in shared decision making and medication safety; and
- **Staff safety and how it relates to patient safety** – Understanding how staff safety and staffing models can impact patient care.

The participants discussed their local practices with regards to patient safety and shared challenges to implement processes for safety. The training explored how to promote a culture of safety in individual organisations.

The training covered many topics of importance, including HROs and patient safety improvement strategies. One participant stated,

‘This course greatly enhanced my understanding of high reliability organisations [HROs] in healthcare. I now feel better equipped to contribute to patient safety initiatives in my own workplace.’

This comment highlights the success of the course in building competency in HRO principles that are important to prevent errors and provide consistent, high-quality patient care.

Similarly, another participant also reported,

‘The course provided valuable tools and strategies to improve patient safety. I now have a deeper understanding of how to reduce errors and prevent adverse events in healthcare settings.’

This also demonstrates the relevance of the training because it was not just theory; this training was also highly necessary and practical. Participants received actions that could improve systems to achieve better patient safety outcomes. Given these responses, the comfort with these concepts demonstrates that structured training on HRO’s and safety protocols enable health care professionals to improve quality in their organisations and practice.

The training evaluation indicated the evaluate closely aligned with the research aims and objectives embedded in this study. The training intervention enabled the assessment of clinicians and quality managers’ knowledge of provider/consumer

quality in health care, and patient safety (Objective 1 and 3). The aspects of HROs, quality improvement tools, and patient safety strategies directly contributed toward advanced improvement of the competency gaps identified among participants' ability to apply new learning in their role (Objective 2).

The research questions were regarding the differences in the level of knowledge of clinicians and quality managers prior to and following the training and whether the Kirkpatrick model (Levels 1 and 2) would successfully address competency gaps. The considerations provided by participants on their structured learning experiences, their demonstrable knowledge in the real-world context, and the relevance to their workplaces suggest that the training provided increased awareness of healthcare quality principles. The participants' positive considerations support that the two levels of the Kirkpatrick model provided reliable assessment of the participants' immediate engagement and perceived learning (the knowledge acquired) (Kirkpatrick & Kirkpatrick, 2006).

The concept of HROs has been well covered in the healthcare literature that speaks to the structured systems that minimize errors related to the delivery of medical and patient safety. HROs have been described by Weick and Sutcliffe (2011) to demonstrate a preoccupation with failure and reluctance to simplify and manage the complexity of healthcare systems with a fair share of mindfulness (Weick and Sutcliffe, 2011). Both principles were apparent in the training content and the participants' feedback about the importance of maintaining situational awareness and structure of safety procedures.

Moreover, the incorporation of quality improvement methodologies (PDSA, RCA), and the alignment of a concept mapping approach with established best practices in patient safety education, are consistent with the literature. Evidence suggests that quality improvement methods through a continuous quality improvement strategy, and utilising PDSA cycles, are essential to develop a learning and resilient culture in the healthcare environment.

6.4 CONTEXTUALISATION OF THE TRAINING MANUAL

One of the major achievements in developing the training intervention for establishing a valid clinical QMS in South Africa was the creation and contextualisation of the training manual used in the training. The training manual was used as a foundational guide for platform facilitators and participants alike. The researcher was instrumental in adapting the training manual, so that it represented the South African health system in which it would be delivered. Significant adaptations were made in respect of local policies and systems, resource limitations, and challenges experienced by clinicians and quality managers.

The training manual was practical and interactive and included:

- **Presenting real examples from the South African healthcare system**, and making the content relevant for participants.
- **Case studies and best practice examples** from local and international health systems to provide comparisons.
- **Guided exercises and self-reflection tools** to promote active participation.
- **Checklists and templates** which participants could take back to their facilities for application of a quality approach in their operations.

By ensuring the training manual was relevant to the training participants, the training intervention aimed to address competency gaps and equip clinicians and quality managers with the skills necessary for improving health quality at their institutions.

An important element of this training was the emphasis on interactive elements to promote participant engagement and learning. Case studies and group discussions were especially popular as these encouraged participants to consider theoretical concepts in practical healthcare contexts. One participant said,

‘The case studies and group discussions were an excellent way to apply theoretical knowledge to real-world situations. It kept the learning engaging and interactive.’

This comment highlights how active learning processes are shown to be effective in retention and application of knowledge, providing further evidence to support the type of collaborative learning experience provided in healthcare quality training.

The training was structured to include a broad spectrum of key principles of healthcare quality and safety, encouraging participants to gain both theoretical and practical perspectives. As one participant related,

‘The course covered essential principles such as patient safety protocols, quality improvement strategies, risk management, and evidence-based approaches to healthcare delivery.’

This feedback supports the relevance of the training material, especially in building participant’s ability to apply structured approaches to contribute to patient care and subsequently reduce risks. The overview of evidence-based approaches clarified the need to ensure healthcare quality interventions are based on research-based models. The nature of quality improvement means that with a thorough, structured training programme that helps clinicians and quality managers address competency gaps, this leads to an improved approach to improving the structure and culture for change.

Some participants did indicate that more practical exercises might extend the learning. One participant said,

‘I would have liked to see more hands-on activities or simulations that could help in further reinforcing the concepts learned.’

This realisation highlights the necessity of moving experiential learning into the picture via simulated learning; role-play; or potential field practice to practically demonstrate the link from theory to practice. The previous course did well to include discussion-based learning, but also has space for improvement by also including more experiential and interactive learning strategies particularly with the concepts of patient safety links; quality improvement tools; and decision making in risky environments (low skills).

Through multiple interactive sessions; case-based discussions; and applied learning; participants were supported in analysing their own practice and generating an action plan to improve their practice. Training material had a contextualisation feature, thus sealing entry into the South African health context. The training was evaluated at a

later date, using Kirkpatrick Level 2 to evaluate participant's learning (immediate outcomes).

6.5 PARTICIPANTS' SELF-PERCEPTIONS

The study examined how participants understood their own knowledge and skills, before and after the training intervention. Self-assessment is an important method for assessing not only the gaps in competencies, but also confidence to effectively apply quality management principles as a part of practice. Although self-assessment is not an objective measure of skill acquisition, it yields qualitative evidence regarding how healthcare professionals view their growth, discover their improvement areas, and make clear their difficulties with converting knowledge into practice.

6.5.1 Pre-Training Self-Perceptions: Identifying Competency Gaps

Quality management and patient safety education often occurs in organizations where healthcare professionals have varying levels of prior knowledge and skills on the topic. Research shows that a majority of clinicians and quality managers have had limited formal training in structured quality improvement methodologies (Hall et al., 2020), which creates gaps in knowledge and ways of working, especially in environments where quality management is not part of the core curriculum for clinical education and there is more informal knowledge acquisition gained through experiences (Mlambo et al., 2021; Singer et al., 2015).

Research in our field suggests that solid gaps in competency may be identified through the methodology of self-assessment, although there is regular challenge in individuals' ability to accurately assess their own knowledge (Atrash et al., 2023). In healthcare professions, professionals can often underestimate or overestimate the an assessment of their competencies making it essential to present structured assessments that identify relevant baseline knowledge prior to training interventions (Burgess et al., 2020).

Many clinicians think of quality management and patient safety as secondary to their clinical responsibilities, which reinforces the need to develop training that brings quality management and patient safety training into their normal, typical work context (Vincent and Amalberti, 2016). This is hard for clinicians to do if they do not have a basic knowledge of concepts such as quality assurance, patient safety frameworks, and performance measures, considering that many healthcare professionals struggle to fully engage with quality improvement activities.

Prior to the training, many of the clinicians and quality managers identified themselves as novice or beginner level in at least some aspects of quality management. Many of the course participants had very little prior experience with structured approaches to quality improvement, and many expressed uncertainties about fundamental concepts like quality assurance, quality control, and patient safety frameworks.

Several participants noted that healthcare quality and patient safety were not central to their daily responsibilities, leading to a lack of structured training in these areas. Others indicated that their understanding was based on informal learning, workplace experiences, or mentorship, rather than formalised training programmes. The lack of standardised quality management education resulted in inconsistent levels of competency across healthcare establishments.

Some of the participants reflected on the complicated nature of performance measurement and evaluation, with an understanding that they were passive to the process of continuous quality improvement, relying on institutional policies and external audits. There was a shared perspective that data collection and interpretation were primarily an administrative role and had little to do with clinical decision-making and patient care. Despite these impediments, one thing that was very clear was the willingness to learn and improve their competencies, with participants knowing that quality management plays an important role in enhancing patient care.

6.5.2 Post-Training Self-Perceptions: A Shift in Confidence and Understanding

An evident change in self-perception occurred following the training, with the majority of participants rating themselves as competent or proficient in the core areas of quality management. A number of participants indicated that they felt a higher degree of

confidence in using quality improvement techniques and participating with their colleagues in patient safety initiatives within their organisations.

Self-reported confidence and competency is a measurable outcome for the training intervention. Several participants referred to the course improving their knowledge and ability to act upon quality management and patient safety practices in their job. One participant mentioned,

‘This course has significantly enhanced my ability to lead with confidence in a demanding healthcare environment. I highly recommend it to healthcare professionals seeking to improve patient safety and quality of care within their institutions.’

This statement highlights the empowerment effect of the training, suggesting that the participants not only gained theoretical knowledge but also developed leadership skills essential for driving change in their healthcare settings.

Another participant described the experience as transformative, stating,

‘The six-month training course on Healthcare Quality and Patient Safety is relevant to my work and has been a transformative experience, enhancing my knowledge, skills, and attitudes on quality in the healthcare setting. I would recommend the course to anyone who wishes to improve healthcare quality.’

This response illustrates how the training enhanced professional capabilities beyond knowledge acquisition, fostering a shift in mindset and approach to healthcare quality improvement. Furthermore, the comprehensive nature of the course was emphasised by another respondent who highlighted the structured approach to understanding healthcare quality measurement and performance improvement:

‘The programme was very interesting and empowering. It provided us with the skills needed to improve healthcare quality, from understanding the elements that contribute to a high-reliability healthcare system to the monitoring and evaluation aspects. It helped us understand the measures used to assess and track performance, the type of data needed, and the tools and instruments used to evaluate and improve performance.’

Taking all these reflections into consideration provides a greater "real life" perspective that highlighted immediate practical implications of the course, especially related to monitoring and evaluation (M&E), performance measurement, and continuous improvement.

There was strong agreement from all participants about the structured and thoughtful way the course was developed and conducted in a way that provided clarity to the concepts of the course, especially when incorporating practical activities and case studies. In particular, several participants noted they felt more informed about their own responsibilities with regard to quality improvement and safety, stressing considerably the point that patient safety is not only one for people with quality improvement responsibility or compliance accountability.

Although for many participants the acknowledgement of their ongoing implementation challenges reflected a lot of stated learning. Although their theoretical understanding may have improved their capability to apply this in their workplace environment, would require organisational support, resource allocation to support activities in their workplaces, and ultimately a shared vision and culture within their institutions. Also, for many, being able to acknowledge their increased knowledge did not remove the system impediments directly related to demands on workload, lack of time to carry out quality activities, or formal governance decision making structures.

Therefore, training interventions can improve the theoretical understanding of quality and safety but converting that theoretical understanding into practice will likely prove very challenging in healthcare organisations. Evidence has shown that successful implementation at scale cannot occur without consideration of both individual capability at the coal face as well the enabling environments in which they work (Braithwaite et al., 2017). Without institutional support, even well-trained healthcare professionals may struggle to apply quality improvement principles effectively.

One of the principal challenges is workload pressures limiting the time available for clinicians to focus on quality improvement. Research suggests that due to time pressures and workforce shortages, healthcare providers often devote little time to quality activities, preferring direct patient care (Bhati et al., 2023; Hughes et al., 2016). Consequently, improvement efforts become regarded as an extra burden around the normal clinical work (Ginsburg et al., 2024). Another major challenge is a lack of

resources; sometimes there are significant existing barriers such as poor staffing, funding shortfalls for quality improvement activities, poor access to instruments and tools, and poor access to data (Dixon-Woods et al., 2012; Maphumulo and Bhengu, 2019). Without adequate resources, even those with the best of intentions may find it impossible to maintain a quality improvement focus in their health care institutions.

In healthcare organisations, hierarchical decision-making structures exacerbate the challenges of implementing learning from training. Studies indicate that higher level managers' focus on top-down management structures in healthcare organisations inhibit frontline clinicians' capacity to act (Greenhalgh et al., 2017). When healthcare leaders do not fully embrace their role in supporting quality improvement in their workforce, even the best-designed training interventions are unlikely to get traction and ultimately, the changes will not be sustained (Institute of Medicine (US) Committee on the Work Environment for Nurses and Patient Safety and Page, 2004).

The results regarding participants' self-perceptions from before and after the training matched the study purpose and objectives. The study purpose was to determine clinicians' and quality managers' knowledge of healthcare quality and safety (Objective 1) and how effective training with the Kirkpatrick Model Levels 1 and 2 was in filling competency gaps (Objective 2 and 3). Part one regarding participants' baseline self-perception level before training revealed that a number of participants had not received much structured quality management education, as identified through literature reviews and educational experience, suggesting a need for targeted training. The self-reported reflections at the end of the online training indicated that participants perceived an increase in confidence and level of expertise, supporting that the training was effective with improving competency levels.

The research questions examined: 1) what the baseline was for clinicians' and quality managers' level of knowledge of healthcare quality and safety, and 2) how well the training improved the competency of the clinicians and quality managers. The reported increase in confidence and understanding seems to indicate success with Level 1 (reaction) and Level 2 (learning) of Kirkpatrick's Model. The participants' reflections supported that the training elevated their theoretical underpinnings, and also gave them applicable tools to support their implementation of quality improvement activities within their healthcare organisation.

Self-assessment is a widely used approach in healthcare education to evaluate learners' confidence in applying newly acquired skills. Bauer et al. (2024) indicate that individuals usually underestimate their own knowledge of difficult subjects before formalised learning, however, targeted training programmes can increase both self-efficacy and actual levels of competence (Bauer et al., 2024). The current study has demonstrated a similar pattern: initially, participants viewed themselves as having a novice status but reported increased confidence in their application of quality improvement methodologies, following the intervention.

In addition, within knowledge transfer research, the Kirkpatrick model of training evaluation discusses the significance and value of level four in assessing perceived outcomes of learning in professional development programmes. Praslova (2010), indicates that Levels 1 and 2 of the model, which are participant reactions and knowledge acquisition, are important immediately following training programmes (Praslova, 2010). The participants' feedback in this study aligns with this framework, as they reported increased confidence and a clearer understanding of quality management principles, reinforcing the effectiveness of the training intervention.

6.5.3 Barriers to Training Implementation

Apart from self-reporting of knowledge and competency, the research investigated barriers to participation and training completion, particularly staff mobility and changes in professional roles.

One of the greatest challenges was staff turnover and relocations which affected some degree of follow-through from the training. There were several occasions across the research project where participants changed roles and the training program was interrupted or not completed. Several participants were met with staff relocations to different provinces and facilitators experienced discussions and debriefs with participants who were reassigned, to administrative or non-clinician roles and found it difficult to prioritise quality training within their new roles.

Furthermore, institutional support for participants to attend training varied between organisations of which some participants remarked that although they wished to take

part in the training, they faced increasing workloads with little additional staff, which limited full participation. For example, in some health care facilities, they had competing priorities where clinical work came before any quality improvement work.

One of the recurring issues was internet connectivity during online sessions, which impacted the participants' ability to engage with virtual learning materials. A participant noted,

'Internet connectivity was a challenge during an online session. There was limited time for practice and simulation during contact sessions. It is recommended that the provision of such training and support be sustained. More time for practice and simulation during the contact session should be allocated. Technical support should be provided to address technical issues experienced during online sessions.'

This feedback highlights that technical support is needed, and a blended learning approach needs to be implemented for participants who may face connectivity issues. Further, time allocated for hands-on practice was an issue for the participants, as they felt that there was too much being packed into the training and not enough time for effective skill-building. Another participant had the same feedback regarding time constraints and managing the workload,

'The course time was too short. With more contact sessions, it could be increased to at least 12 months. The study workload was not easily manageable alongside my work responsibilities.'

This response highlights a significant challenge in balancing professional duties with training participation, suggesting that a longer training duration or more flexible scheduling could improve engagement and retention of concepts.

Beyond logistical barriers, some participants experienced difficulties in accessing information from healthcare units, which hindered their ability to apply training concepts effectively. One participant described the challenge as follows,

'I wished we were given at least two days per month to consult units where information was needed from those units. The other challenge was that some units were not assisting in providing information requested, including managers when we requested their profile.'

A common theme in the feedback was that the training content was too comprehensive for the allocated timeframe, preventing thorough coverage of key topics and revision when necessary. One participant noted,

‘The time frames allocated for the training – the duration of the training was too short. The training content was too comprehensive, and it required more time to cover all the topics and even do the revisions, when necessary, but the time was limited. There was not enough time for marking our activities. We did individual and group activities, but we never had time to receive feedback on how we performed. We were not sure if we answered the questions correctly or not.’

This response points to the need for structured feedback mechanisms to reinforce learning. Participants struggled at times to figure out if they were progressing, and correcting misunderstandings, without feedback and debriefing.

Another significant issue was working through the challenge of identifying how to take learning from theory to changing the institution in practice. Some participants noted that while they personally benefited from the training, their ability to make changes in their organisations was obstructed by bureaucratic and hierarchical organisational structures. There was consensus that sustainable quality improvement requires buy-in from organisational leaders rather than individuals.

Although the qualitative data derived from participants’ self-conceptions did provide detail in relation to perceived improvement, competency gaps and barriers to implementation of healthcare quality and patient quality training, in general, the training intervention enhanced participants’ theoretical knowledge and self-efficacy just not yet able to fully overcome structural and systemic implementation barriers to put that knowledge into practice. Ongoing education, mentorship and organisational support are needed to enable all quality improvement efforts in health services reach their intended outcomes of tangible and sustainable changes in our health service delivery.

Future training initiatives should be mindful of these barriers by providing practical implementation plans, soliciting leadership buy-in, and considering options for ongoing professional development. Furthermore, future research could investigate how self-perceptions relate to objective processes of capability and on-the-job performance to

better understand the influence of training interventions on health care quality improvement.

6.6 IMPLICATIONS FOR PRACTICE

The qualitative impact of training not only pertains to individual knowledge, but also to how workplace practices and the organisation's culture are influenced by the training. This study predominantly captured self-reported improvements in competency during the training; therefore, it was only through the participants' reflections that nuances became evident and that there were shifts in attitudes, awareness and participation in healthcare quality and patient safety. Although the nature of these changes could not be quantitatively assessed, these reflections serve as useful contextual information to situate the impact of the training intervention in the real world.

A primary focus of the training was to confirm that participants could engage with the important theoretical knowledge in ways that translated to on the ground practice. Based on the feedback provided, this aspect seemed to be taken up successfully - one participant mentioned,

‘This course greatly enhanced my understanding of high reliability organisations [HROs] in healthcare. I now feel better equipped to contribute to patient safety initiatives in my own workplace.’

This sentiment reflects the growing awareness and readiness among healthcare professionals to engage in structured patient safety interventions.

Another participant emphasised the practical tools gained, stating,

‘The course provided valuable tools and strategies to improve patient safety. I now have a deeper understanding of how to reduce errors and prevent adverse events in healthcare settings.’

This points to training raising awareness but also providing participants with practical tools not only for awareness raising, but to truly implement changes to safety culture in their organisations. Integrating HRO principles, and patient safety balancing measures into regular practice, is perhaps the most vital step towards enhancing

quality improvement processes to sustain long-term healthcare quality and highlights the ongoing value of continuing professional education and professional competency development in health service settings.

The training programme demonstrated that it was more than an educational intervention, it enhanced actual leadership and management skills of the trainees, particularly given that they were working in demanding healthcare settings. One participant relayed,

‘I can confidently say that this programme has been instrumental in enhancing my leadership and management skills in a busy regional hospital setting.’

This emphasises the role of organised competency-based training to develop the leadership skill set to improve systems in health care; including the criticality of leadership development in resource-poor environments where organisational management is essential.

The course was also acknowledged for its practical relevance to real life challenges. The same participant noted,

‘The course content was well-structured, comprehensive, and highly relevant to the challenges faced in modern healthcare systems, particularly in a resource-limited environment.’

This feedback confirms that customised training interventions must be designed with regard to the specific constraints and realities of the healthcare workforce. The experiences related to this study suggest that leadership and management training should be a continuing priority in healthcare quality improvement programs, especially in the contexts (highly volatile) in which allocation of resources and the best course of action for decision making is critical to patient care outcomes.

The barriers to training implementation identified in this study provide crucial insights into the feasibility and sustainability of healthcare quality and patient safety training programmes. These objectives, particularly the assessment of competency gaps (Objective 1) and the effectiveness of training in bridging these gaps (Objectives 2 and 3) are effectively applied here. While the training intervention improved participants’ theoretical understanding, structural and systemic challenges limited full engagement and knowledge application in practice.

The research questions sought to determine the level of knowledge regarding healthcare quality and patient safety among clinicians and quality managers and whether training interventions effectively addressed competency gaps. The reported challenges, namely staff turnover, workload constraints, internet connectivity issues, and institutional support, highlight external factors that influence training outcomes. While self-reported competency improved post-training, these systemic barriers indicate that effective knowledge translation requires more than individual training; it necessitates broader institutional commitment and resource allocation.

Challenges related to training implementation are well-documented in healthcare education literature. According to Salas et al. (2012), workplace learning is influenced by organisational support, leadership engagement, and resource availability (Salas et al., 2012). The findings of this study align with this perspective, as participants identified institutional barriers such as limited time for practice, inadequate managerial support, and competing clinical responsibilities as obstacles to applying their training in practice.

6.6.1 Increased Awareness and Professional Responsibility

One of the most notable qualitative impacts reported was increased awareness of quality management principles and increased duty of care from the participants. Many clinicians and quality managers noted increased awareness of how quality improvement in daily healthcare delivery is a function of their role and not merely linked to compliance or a health service oversight role.

Prior to the training, some participants saw quality management as a reactive activity largely driven by regulatory inspections or external audit. Reflecting post training, that the participants now view quality improvement as a proactive, continuous process which requires involvement from all levels of healthcare delivery. The participants demonstrated increased value for data informed decision making, structured performance measurement and evidence-based interventions with patient safety no longer seen as a managerial issue, but rather a multi-disciplinary common goal.

Training interventions are assessed on whether information was learned, but reconceptualisation as applied in a clinical or managerial context are the gold standard

approaches of learning. One senior medical manager explained the importance of the programme to daily hospital functionality as follows,

‘The knowledge gained has been invaluable in my daily responsibilities. It has strengthened my ability to implement quality improvement initiatives, optimise patient care pathways, and foster a culture of safety within the hospital.’

This response reaffirms the practical relevance of the training notably when it comes to quality improvement and management as well as patient safety management. Emphasis on data-driven decision-making and evaluation of performance further demonstrates that the program has successfully prepared healthcare professionals in an analytical way so these professionals can assess health care outcomes.

The participants’ experience provides support for utilising evidence-based training in leadership roles, equipping healthcare managers with the tools necessary to make systemic change. In conclusion, this examination highlights the need for training and continuous professional development in quality management and patient safety, as well as the need for ongoing support to sustain improvements in the delivery of health care.

6.6.2 Changes in Workplace Practices

While quantitative measures were not applied to measure workplace behaviour changes, there was qualitative feedback to support a change in how participants encountered quality-related activities within their institutions. Some participants indicated an increased willingness to engage in performance measurement activities and incident reporting, and to consider patient safety initiatives.

There was feedback from some quality managers about the concept of training valuably providing them with better ways to convey quality principles with their teams, and to facilitate more productive conversations about improvement approaches. In some cases, the clinicians indicated that they were becoming more attuned to inefficiencies in processes, and areas for applying quality improvement tools. For others, there was a recognition that they had an increased confidence to engage in discussions about patient safety risks, and advocate for improved clinical governance structure in their organisations.

Conversely, there were also indications by some participants of barriers to implementing the insights gained from the training in practice. These included workplace opposition to change, structural/hierarchical processes of decision-making, and time availability due to competing clinical pressures. A persistent theme was that of trying to marry new ideas with existing local policies, especially where the leadership buy-in to quality improvement was limited. However, it is important to note that all of this again points to the requirement of organisational support and systems-level actions, in order to effectuate training to action.

6.6.3 Impact on Organisational Culture

In addition to continuing the development of individual competencies, the training intervention contributed to changing organisational attitudes towards healthcare quality and patient safety. Some of the participants indicated that their organisations had exclusively focused on compliance-based quality assurance for the most part and resisted a continuous learning and improvement culture.

Following the training, participants were more likely to initiate discussions regarding quality improvement and performance review processes would include error reporting, feedback from patients, and team-based improvement reviews. Other health facilities also showed some early signs of considering a more structured quality improvement approach, while some participants commented that there might be some hope their organisations would make a move toward data-driven, patient-centred quality improvement initiatives.

Many of the participants referred to their personal gains from the training and, while there might be hope for sustained change, it is ultimately dependent on the organisation's leadership being willing to support and/or embed quality improvement in the clinical practice framework, promote continuous education, and allocate other resources for ongoing professional development.

6.6.4 Challenges in Practical Application

While the training had a positive effect, the study also highlighted some barriers to embedding the principles of quality management into routine healthcare practice. One

of the participants' key limitations was the distance between knowledge of theoretical concepts and application. Although the training improved knowledge of concepts, including the need for adapting and utilising concepts in their own healthcare settings, participants noted there was still a need for context-specific adaptations and organisational support.

Another common theme was the need for ongoing support and follow up training. Some participants indicated that they were more confident after the training, and their level of self-efficacy as a result of the training increased; however, participants thought one training alone would not encourage long lasting changes in behaviours. This finding also reflects the existing literature that continuous education, peer learning, and leader involvement is key in order to maintain improvements in quality healthcare.

The qualitative perspectives of the participants show that the training intervention had a genuine impact on awareness, professional attitudes, and the uptake of quality improvement approaches. While improvements in individual competency were seen individually, institutional change is still a complex authentic task that requires commitment, as well as demonstrated leadership and an institutional commitment to capacity building over time. A significant outcome of quality improvement training is around attitudinal change with health workers thinking about quality improvement not as a compliance activity, rather considering it as integral to patient care (Johnson and Sollecito, 2018). This is a clear and important shift in creating a positive focus on safety, as developments in quality improvement engagement correlate positively with medical error reduction and improved clinical outcomes (Pronovost et al., 2016).

While improvements in individual competency were seen, organisational change is still a complex task that requires leadership, in addition to a strong institutional structure to enable ongoing improvements. If staff are to remain engaged in QI initiatives, then it is imperative that the leadership levels of staff demonstrate their support. Research indicates that in order to embed a safety culture, it has to be driven by the leadership levels of staff not the frontline workers, regardless if they are engaged in improvement activities or not, that these managers influence the response or buy-in of frontline workers (Weiner et al., 2020). Organisationally based research also shows that without leadership support or buy-in, even the well planned training program may not result in sustained organisational improvement (Fredberg and Pregmark, 2022).

Efforts on the part of institutions to build on capacity over the long term are warranted to reaffirm learning and build upon the impact of training interventions. Evidence has shown that QI training is most effective in organisations with proper support formation, that includes; mentorship programmes, peer learning, and follow-up interventions in a structured way to make sure the theoretical learning is used in practice (Greenhalgh et al., 2017). Additionally, fostering a learning-oriented culture where professionals feel supported in applying QI principles can help mitigate resistance to change and aid sustained engagement with patient safety initiatives.

Future quality improvement initiatives should focus on bridging the gap between knowledge acquisition and practical application, ensuring that healthcare professionals not only learn about quality management principles but also receive the necessary support and resources to implement them effectively in their work environments. Additionally, further research should explore how workplace culture influences the sustainability of quality improvement efforts, particularly in resource-constrained healthcare settings.

The above qualitative findings highlight a significant shift in participants' awareness and engagement with healthcare quality and patient safety. The first objective, namely assessing knowledge and competency levels, was addressed through pre- and post-training reflections, revealing a transition from a compliance-driven understanding of quality management to a proactive, integrated approach. This directly informs the first research question regarding baseline knowledge levels within healthcare establishments.

Furthermore, the second objective, namely bridging competency gaps through training, was supported by the participants' reported improvements in confidence, communication, and application of quality improvement methodologies. This aligns with the second research question, which sought to measure knowledge retention and application post-training. However, challenges in practical implementation suggest that while training interventions can enhance competency, workplace resistance, hierarchical structures, and time constraints remain barriers to sustainable change. These insights contribute to the third research question, which examines the effectiveness of training interventions in addressing competency gaps using the Kirkpatrick model.

Research suggests that quality training in health care can improve professional responsibility and the culture of an organisation if leadership buy-in and organisational structure is present. According to Veazie, Peterson and Bourne (2019), a high reliability health care organisation will be most successful if quality improvement is part of the daily practice rather than an additional compliance requirement (Veazie et al., 2019). This aligns with the participants' reflections after the training which suggested a more integrated approach to thinking about patient safety and performance measurement.

Kotter's model of organisational change provides a framework for thinking about leadership commitment to sustaining improvements (Kotter, 2008). The data suggests that individual professionals increased their own proactivity in quality improvement but systemic issues such as resistance to change and hierarchal decision-making were impediments to translating training experiences to practice. This created a need for more continual leadership engagement and formal strategies for implementation.

6.6.5 Relevance and Quality of Content

Participants pointed out the course provided an excellent structured and comprehensive overview of the principles of high reliability within healthcare and how they apply to patient safety. Participants also noted that the course content was concise, organized, and relevant to their experiences working in the current state of healthcare. One participant stated,

'This course's content was not only educational but also useful. Any healthcare worker must place a strong emphasis on systems thinking and continuous patient safety improvement.'

Overall, while the participants found the course content insightful and useful, some of them acknowledged the challenging workload. For example, one participant observed,

'The coursework and assignments require a significant amount of effort, time, and dedication. The programme is demanding, requiring deep engagement with the material, critical thinking, and practical application. However, the investment is undoubtedly worthwhile, as the insights and skills gained have a lasting

impact on both personal professional growth and institutional healthcare improvements.'

This supports the rigor of the programme on a cognitive and practical level and demonstrates to participants it is a serious learning experience for health care practitioners.

6.6.6. Assessment of the Instructor/Facilitator

The role of the facilitator in delivering content effectively and creating an engaging learning environment was consistently highlighted as a strength of the programme. The facilitator's function as a deliverer of content and builder of a narrative story is a component that was consistently recognized as a strength of the programme. Participants appreciated their knowledge and energy in delivering the teaching content and the ability to deconstruct complex ideas with practical examples. One of the participants shared,

'The instructor was really interesting and well-informed. The facilitator made difficult ideas easier to understand by giving examples from everyday life.'

Participants also appreciated the interactive way in which the facilitator conducted each session, allowing for engagement, discussion, and critical thinking. One participant stated,

'I liked how the facilitator promoted debate and critical thinking. The information was easier to understand and more relatable because of their concise explanations.'

These reflections, show that effective teaching helped the learners' mind to acquire knowledge and engage further with the material.

6.6.7 Overall Learning Experience

When reflecting on their overall learning experiences, most of the participants made extremely positive comments about the course and its impact on their learning and professional development. Many participants directly encouraged other healthcare

professionals to participate, emphasising the relevance and importance to their role as health care professionals and to the health setting. One participant mentioned that,

‘Overall, this was a fantastic learning experience. It broadened my perspective on patient safety and high reliability, and I feel more confident in applying the concepts in my practice.’

A second participant stated that,

‘I would highly recommend this course to other healthcare professionals. It was informative, practical, and directly applicable to improving patient care.’

The interactive sessions, both online and in the face-to-face environment, were mentioned in a number of the reflective responses, and they were seen as important facets of the learning process. The responses received reinforced the belief the training programme achieved its aim of developing healthcare professional capability and competency in areas of patient safety and quality management. The course used a combination of theory and practical means to provide the participants with skills and confidence to lead quality improvement initiatives in their institutions.

6.6.8 Participants’ Recommendations for Future Research

Although this course was successful, participants provided useful feedback on how to maximise positive impact and accessibility. Their feedback indicated opportunities for expanding content themes, enhancing resource availability, increasing training access, and creating mentorship opportunities. Participants suggested including more diversity in the examples used throughout the course to better represent different healthcare contexts. One participant suggested,

‘It would be helpful to include more examples from different healthcare settings (e.g., it included hospital-based examples excluding clinics/primary health care) to demonstrate how high reliability can be achieved across various domains.’

This feedback highlighted the need for training to be more relevant for different healthcare settings, so that both opinions of primary healthcare workers and hospital providers may see how they can apply quality improvement information and principles in their specific context of work. Another suggestion was providing access to

supplementary learning resources for participants, who would like to learn more about the topics discussed during the course. One participant made a recommendation of,

‘Adding more resources for further reading and study would be beneficial for participants who want to dive deeper into specific topics covered in the course.’

Additional reading lists, case studies, or online modules would help participants with their continued learning, beyond the obligatory training. It was also emphasised how important expanding the programs reach further to train more health care workers would expand benefit. A respondent suggested,

‘Train other healthcare workers to be well-equipped’.

This indicates a need to expand the initiative beyond quality managers and clinicians to also include other healthcare professionals involved with patient safety and quality improvement.

In addition to expanding training recipients, the participants suggested a structured framework for mentorship and coaching that would support the effects of the training beyond the immediate course. One participant mentioned,

‘Develop a mentoring and coaching framework of this progressive initiative/course for Quality Improvement.’

This is consistent with best practice in capacity-building programs. Additionally, mentorship provides long-term support, reinforcement of learning, and a means to embed quality improvement practices within an organisation. The participants provided a valuable array of suggestions that could improve the training program's reach, impact, and sustainability. One notable recommendation was the inclusion of examples from all types of healthcare settings in training, so any healthcare professional from a hospital, or a community-based healthcare provider can relate to the training. This concurs with findings from McGowan et al. (2023), that emphasised the need to contextualise and situate quality improvement training to a range of clinical settings for wider applicability (McGowan et al., 2023).

In addition to examples from a range of healthcare settings, a notable recommendation was to provide additional resources to support continued learning. The support for this

comes from research by Giguère et al. (2020) who show that providing additional educational resources supports knowledge retention and facilitates self-directed professional development in healthcare quality training (Giguère et al., 2020).

The participants also communicated the desire for wider training coverage, where other professionals in health care (e.g., other than quality managers or clinicians) could also be included in the training programme. In fact, Weaver et al. (2022), found that multidisciplinary approaches to patient safety training and initiatives creates a culture of shared responsibility which can advance opportunities for quality improvement (Weaver et al, 2022).

Moreover, the emphasis on a formal mentoring and coaching process aligns with best practice models of professional development. The research conducted by Haroon et al. (2021), stated that mentorship was an important component in sustaining quality improvement because it "sustains programs by providing ongoing support, reinforcing learning, and developing leadership in patient safety" (Haroon et al., 2023). All of these participant recommendations demonstrate their desire for a more inclusive, scalable, and sustained approach to healthcare quality training. These insights should be integrated in any future training programmes to improve effectiveness, create opportunities for ongoing learning, and develop more systematized applications of quality improvement in diverse healthcare contexts.

6.7 WORD CLOUD ANALYSIS: INTERPRETING PARTICIPANT FEEDBACK

The analysis of participant feedback was enhanced in efficiency by developing a word cloud. Python software was used as a qualitative data visualisation tool to create word clouds. A word cloud is a representation of text in which words or phrases are depicted in varying sizes or weights, depending on their frequency of occurrence. In this case, participant responses were put through a word cloud, that enabled key themes to emerge from the responses visually. The various sizes of the words in the word cloud represent the degree to which words were frequently used in participant feedback.

The word cloud shows important themes from Participant #1's feedback shown in Figure 55 and for all other participants shown in Figure 56 below on the healthcare quality and patient safety training. The participant's feedback had many key concepts that often appeared several times. There are key themes that stand out, such as: **'training'**, **'principles'**, **'healthcare'**, **'quality'**, **'patient'**, **'safety'**, **'improvement'** which can all clearly depict the focus of the course identified as improving knowledge and competence in quality management and patient safety. The participants saw the training as meaningful, enriching and of value, emphasising the fullness of the training compared with what they normally may receive in a more perfunctory or information-based training.

The words **'interactive'**, **'engaging'** and **'support'** suggest the course was delivered in a positive way that learners appreciated as being dynamic and participatory. The words **'protocols'**, **'strategies'**, **'leadership'**, and **'implementation'** showed the course was theoretical and practical, and provided tools for application in the real world of healthcare practice. The learners reflected on what else the training broadened their thinking about, meaning there were mentions of **'monitoring'**, **'measures'**, and **'risk'**, as suggestions for further development of what training meant for healthcare quality improvement. Finally, the words **'business'**, **'university'**, and **'expanded'** suggest potential implications for more training or applications in their workplace. Overall, the word cloud captures a strong positive reception of the training, the practical value of the knowledge gained, and areas for continued growth and application in healthcare settings.



Figure 56: All Participants

The word cloud above represents the most common concepts in the synthesised input from all participants about the training course. The degree to which each word appeared most frequently is reflected in its prominence in the visualisation. While many of the words are visible due to their relevant frequency, what stands out most is the words '**contact**', '**session**', '**patient**', '**safety**', '**course**', '**healthcare**', and '**quality**'. The prominence of those terms indicates the strong focus of the training course which involved the teaching of health care quality improvement and patient safety. Words such as '**content**' and '**provided**', indicate that the participants seem to be satisfied with the content and its relevance to practice.

Additionally, the words '**online**', '**learning**', and '**knowledge**', indicate that the programme successfully promoted knowledge acquisition whether delivered through a virtual or in-person delivery mode. The presence of the word's '**challenge**', '**time**', and '**opportunity**', of course, indicate that there was perceived value in the course but barriers still exist that include time limitations and the apprehension of what would tend to impact the application of the knowledge from the course. The words '**skills**', '**practice**', '**facilitator**', and '**programme**' highlight that the course had a practical emphasis that also raises the importance of active and experiential learning, with facilitation of the course and practical application in one's own environment. For example, the words '**support**', '**improve**', and '**understanding**' also suggest that the

course successfully developed the participants' confidence in the management of quality, and patient safety interventions.

Overall, the word cloud indicates that the training was impactful, offering valuable learning opportunities, but also highlighting areas where improvements, such as more time allocation, with some participants suggesting a year for the training and practical application, could enhance the overall experience.

6.8 SUMMARY OF THIS CHAPTER

The research demonstrates the strong influence that structured training interventions can have on developing quality and patient safety competencies and capabilities in clinicians and clinical quality managers. Participants showed improvements in theoretical understanding and engagement with using quality improvement practices, but there continued to be multiple structural barriers such as workload, hierarchy and resource issues that inhibited the transfer of the knowledge to practice. Insights from a study by Walker et al. (2022) further reinforce the importance of institutional support, leadership engagement, and sustained mentorship to ensure long-term capacity-building and effective implementation of evidence-based approaches (Walker et al., 2022). These findings underscore the need for a holistic, multi-level strategy to embed quality improvement principles into everyday healthcare practice. Moving forward, strengthening leadership buy-in, integrating training within existing institutional frameworks, and fostering a culture of continuous learning, will be critical in ensuring that competency development leads to tangible, sustainable improvements in patient care and safety.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This chapter synthesises the key findings and insights from the study, drawing on the foundation laid in the preceding chapters. The study explored the pressing issues of healthcare quality and patient safety, focusing on the competency gaps among clinicians and quality managers. It utilised the Kirkpatrick model Levels 1 and 2 to evaluate the effectiveness of a hybrid training intervention and employed a mixed-methods approach to ensure comprehensive data collection and analysis. This conclusion serves to consolidate the evidence, highlight the implications of the findings and outline recommendations for practice and further research.

The literature review identified that managers and patient safety are closely related in regards to the quality-of-service provision and harm reduction. The review highlighted that managerial and clinician competencies are essential for the provision of safe, quality care, despite the challenges of achieving these outcomes, and especially given the lack of resources to achieve patient safety and quality objectives in the South African context. There are notable gaps in the existing training frameworks and evidence of needing structured intervention within organisations to solve these gaps.

The methodology chapter outlined the competency gaps and impact of intervention. The Kirkpatrick model was used to evaluate the data for this study and provide insight into not only the participant impact but also the learning of outcomes. The inclusion of pre- and post-test assessments and in addition the qualitative feedback provided a strong evaluation for the study. The findings and discussion chapter noted that there were significant pre-training competency gaps presented within multiple domains (e.g., quality concepts, performance measurement, improvement tools and patient safety) and these gaps had serious risks to care quality and increased medical error. The subsequent post-training assessments demonstrated marked improvement across all domains confirming the positive intervention effects. The study did point to

wider systemic barriers (such as poor leadership, lack of resources and overwhelming workloads) that impede quality improvement efforts.

This chapter synthesizes the information presented in the study around how the intervention has benefited the development of competencies and highlighted areas for continued improvement. Drawing on wider implications for health systems, this chapter provides recommendations for tangible actions to support healthcare quality improvement and patient safety and describes the importance of ongoing education and capacity building. Chapter 7 reflects on the summaries for each chapter and the general conclusions are presented based on each objective and the research questions. The discussions address how the study has or will contribute to the body of knowledge in bridging the competency gaps of clinicians and quality managers to enhance quality healthcare and reduce medical errors to promote patient safety. The conclusions and recommendations for this research study are based on the objectives of the study, a review of the current literature and the findings of the study. The summaries of previous chapters are presented below.

7.2 SUMMARY OF THE PREVIOUS CHAPTERS

7.2.1 Chapter One introduced the study by outlining the problem description, objectives, and rationale, providing a foundation for understanding the critical issues in healthcare quality and patient safety that prompted the research. The background section highlighted key challenges in the healthcare system, emphasising the urgency of addressing competency gaps among clinicians and quality managers. This exploration established the problem statement and illustrated the relevance of the study that identified the research questions. The chapter explored the conceptual and theoretical framework that supports the study, and the way it informed the research design and methodology. The chapter delineated the conceptual framework and literature review that gave the reader a sense of what we already know and where the research was informed to address the issues. In covering these elements, a clear and logical rationale was provided to advance the research to the next chapters.

7.2.2 Chapter Two examined a range of models, theories, and frameworks relevant to performance improvement, which served to inform our understanding of the study's concepts and support the rigour of data collection and data analysis. This chapter provided a summary of models that are relevant to the research topic and ultimately selected the most relevant, including the Kirkpatrick evaluation model for training. More specifically, the focus on levels 1 and 2 of the Kirkpatrick model as the levels of evaluation to assess the effectiveness of training in the study. The chapter also guided a structure for the literature review and alignment with the research aims. Some models evaluated included: learning collaborative model, Plan-Do-Study-Act model, Donabedian model, competency-based model, and Kirkpatrick model. These models were foundational in setting out the study methodology and methods.

7.2.3 Chapter Three was focused on healthcare quality and patient safety in South Africa, focusing on competency gaps among clinicians and quality managers. The chapter highlighted a legislative framework for understanding healthcare quality and patient safety to highlight some of the legal and policy issues surrounding the premise for the study. Although the study focused on gaps in competencies among clinicians and managers in the healthcare system, the complexities and interrelatedness among healthcare quality and patient safety were presented in a way to highlight the synergies needed for effective healthcare delivery.

The critical review of the literature was designed to interface and encompass the existing knowledge and evidence that allowed the study to address the objectives/rationale of the study. From the critical review of the literature, themes identified and explored included that of governance and leadership, the impact of competency gaps on patient safety, quality management systems, and improvement models for driving quality. The literature review highlighted gaps in knowledge and practice providing a basis for the study to frame a methodological approach that aligns the aims in this study. The literature review synthesized evidence from the literature to demonstrate the need for professional development, competency-based interventions, and evaluation to improve outcomes for patients in healthcare systems.

7.2.4 Chapter Four offered an overview of the research design, methodology, and theoretical approaches used to investigate the research problem, and a synthesis of quantitative and qualitative methods (as a mixed-methods approach to the study)

certainly provided a holistic representation of the issues and complexity regarding healthcare quality and patient safety, and the competency gaps specific to clinicians and quality managers. The chapter also detailed the quantitative and qualitative methods used, including the validation and reliability testing for the research tool, as data gathering tools collected quantitative data, and rich qualitative narratives as well. These methods were critical in determining the existing knowledge among quality managers and clinicians, respectively, regarding healthcare quality in their organisations.

The research study used a mixed-methods design specifically triangulating the data provided further credibility to the findings and a more holistic view of the competency gaps in the investigation. It used triangulation of the data to analyse qualitative and quantitative data - to measure the gaps - but also to explore the underlying reasons and context contributing to the competency gaps. This dual approach ensured that the research findings were robust, actionable, and aligned with the objective of identifying the baseline knowledge gaps necessary for designing effective training interventions to improve healthcare quality in South Africa.

7.2.5 Chapter Five provided an extensive analysis of the results and an interpretation of the findings. The quantitative survey data analysis used responses of 209 clinicians and quality managers from Gauteng, Mpumalanga and KwaZulu-Natal provinces and a few participants from national offices. The quantitative data used descriptive analysis to summarise the data using quantitative graphical tools in the form of figures, pie charts, and tables to display the findings. The pre-assessment survey findings identified the specific areas of clinicians' and quality managers' competencies that needed to be strengthened through training, to support the overarching aim of reducing preventable medical errors and adverse events in South African health institutions.

7.2.6 Chapter Six provided a qualitative analysis of the views of the participants, offering a nuanced understanding of participant experiences during the training programme. The chapter considered the participants' engagements with learning as they progressed through the training, influencing their own professional practice and the issues they faced in regard to the programme. The present study utilised a mixed

methods design which characterises this chapter as it explored the narratives, reflections, and open-ended feedback provided a deeper insight into the overall effectiveness of the programme beyond statistical significance. The word cloud visual representation and detailed discussion of the salient and common themes identified from the participants' feedback, were considered. Moreover, the word cloud analysis illustrated a concise yet palpable impression of how the training was received regarding learning, the aspects participants found most beneficial, and areas for improvement.

7.2.7 Chapter Seven the study's core objectives are evaluated in light of the findings presented in the preceding chapters, with a critical discussion on how the research addressed the identified competency gaps in healthcare quality and patient safety. Additionally, the implications of these findings for policy and practice are explored, setting the stage for future studies and the practical application of the results.

The primary aim of this study was to assess the healthcare quality and patient safety knowledge of clinicians and quality managers, identify existing competency gaps, and evaluate the effectiveness of a training intervention designed to bridge these gaps. Specifically, the study sought to:

- assess the knowledge of clinicians and quality managers regarding healthcare quality and patient safety using a pre-assessment training questionnaire.
- bridge identified competency gaps by implementing a structured training intervention based on Levels 1 and 2 of the Kirkpatrick model of evaluation.
- Evaluate participants' post-training knowledge to determine the impact of the intervention on healthcare quality and patient safety competencies.

The study was guided by the overarching research question: 'What are the healthcare quality and safety competency gaps among clinicians and quality managers, and what is the outcome of a training intervention using Levels 1 and 2 of the Kirkpatrick model?'

This question framed the study's exploration of existing knowledge deficits, the development and implementation of an evidence-based training programme, and the subsequent evaluation of its effectiveness in enhancing healthcare quality and patient safety competencies.

This chapter integrates the study's key findings within the broader context of healthcare quality improvement. The results demonstrate that while the training intervention significantly enhanced the participants' knowledge and self-confidence, systemic barriers such as institutional constraints, workload pressures, and organisational culture continue to challenge the practical application of quality improvement principles.

The researcher's study contributes to the growing body of research on healthcare quality training by emphasising the need for ongoing professional development, leadership engagement, and institutional commitment to sustain improvements in patient safety. The findings highlight the importance of structured training programmes, continuous mentorship, and the alignment of healthcare quality initiatives with broader organisational goals. The subsequent sections explore the implications of the study for policy and practice, discuss recommendations for future interventions, and outline areas for further research in healthcare quality and patient safety.

The section below examines each of the study's objectives and their corresponding outcomes. By revisiting the initial aims, this discussion highlights how the research findings have addressed the identified competency gaps, assessed the effectiveness of the training intervention and contributed to a deeper understanding of healthcare quality and patient safety.

7.3. CONNECTING THE AIM, OBJECTIVES AND THE RESEARCH QUESTIONS

7.3.1 Objective 1. The results of the pre-assessment training questionnaire reveal significant insights into the knowledge levels of clinicians and quality managers regarding establishments. This assessment directly addressed the study's objective of evaluating baseline competencies to identify areas requiring intervention. The results indicate a pervasive absence of knowledge and understanding of fundamental concepts and practices needed to effectively manage healthcare quality.

When examining the knowledge, attitudes, and practices of quality managers regarding fundamental quality concepts - quality assurance, quality control, and quality management systems - it was an alarming 34% of respondents who indicated that they considered themselves either to have a beginner-level of knowledge or no knowledge whatsoever. In addition, 36% of the participants had no understanding of the key structures that shape the roles within healthcare quality such as the NDOH, Provincial Departments of Health, and the OHSC. The lack of knowledge and understanding identified presents a concerning disconnect between the theories that underpin healthcare quality, and the application of the theories in practice.

The study also identified knowledge deficits around performance measurement and evaluation. Nearly half (49%) of the respondents considered themselves as either beginners or novice-level understanding of performance measurement which is a fundamental activity. Furthermore, participants indicated they only had basic - or no - knowledge on how they obtained and manage measurement data/evaluated performance outcomes (54%). This highlights there are significant barriers to implementing data-driven approaches to measuring and, ultimately managing healthcare services as a quality-related activity.

The outcome regarding performance improvement, which is a cornerstone of quality management, was equally concerning. Well over half (68%) of respondents reported they had basic or no knowledge in this area indicating they were not aware of the methods to address performance weaknesses and bring about change. Similar results were obtained for improvement tools and techniques with 57% reporting they did not have proficient enough understanding of the tools and techniques. When asking about using qualitative and quantitative tools to stimulate ideas and interrogate root causes of problems, 70% also reported limited or no knowledge. These survey results demonstrate systemic deficits both in understanding the concepts and practical understanding, which would inhibit quality improvement.

Patient safety and risk assessment, important components of quality in healthcare and an indication of reflexive practice, were also areas of concern. In this case, forty-two percent of the respondents reported basic or no knowledge, indicating underperformance in patient safety issues. These results, in the context of being able

to recognise and manage risks for patient safety were troubling enough. If we look at other human factors in the quality of healthcare process, such as rating oneself as novice or beginner in understanding the patient and staff experience (48%) this undermines a holistic human-centred approach; a significant gap in understanding that will affect one's ability to improve service delivery and create value.

The most concerning discovery relates to the idea of HROs. An astounding 86% of respondents rated themselves as having basic or no knowledge of what HRO principles are (HRO characteristics); as well as measures of reliability. This indicates a significant gap in understanding how healthcare establishments are able to provide consistent high-quality services while also reducing errors, even within difficult working conditions.

Overall, these findings provide a sobering picture of the knowledge deficiencies of clinicians and quality managers working in South African health establishments. The findings indicate that these deficiencies threaten not only the improvements in healthcare quality but also potentially threaten patient safety. There is now a great need for focused training interventions to build the understanding and skills necessary to close the gaps, and create an environment focussed on the continuous improvement of healthcare service and delivery.

7.3.2 Objective 2: To fulfil the objectives associated with the competency gaps recognised among clinicians and quality managers, this study utilised a training intervention that applied Levels 1 and 2 of the Kirkpatrick model of evaluation. The training intervention was developed to seek answers to the research question: What is the level of knowledge post-training with regard to healthcare quality and patient safety competency in health establishments for quality managers and clinicians? The training intervention was designed to enhance participants' knowledge and applicability of essential concepts related to healthcare quality and safety, therefore directly achieving the second study objective.

The training intervention was conducted via a blended learning approach that involved self-directed online learning and face-to-face contact sessions. Employing a blended learning approach maximised accessibility and engagement while accommodating a

range of learners. For example, course material was detailed and developed into modules so that essential topics related to healthcare quality and patient safety were covered at depth. The modules addressed fundamental and advanced learning and covered subjects such as introduction to healthcare quality and management, high-reliability organisations, and performance measurement. These features provided the groundwork for participants to learn about establishing and maintaining exceptional practice in healthcare delivery.

The training also focused on key areas of technique: collecting and managing measurement data, measuring and evaluating performance, improving performance. Each module stressed the role of data in making decisions to locate, make improvements to, and sustain changes within healthcare systems. Examples of where the training moved into practical skills, such as using improvement tools and techniques, equipped participants with a method for engaging with quality improvement issues.

The curriculum contained patient safety elements that addressed principles of patient safety and risk; this module aimed to develop a safety culture and allow opportunities for participants to develop competencies in identifying and taking action to control risks that may affect patient safety. Similarly, modules on controlling and managing health resources and ensuring competence for all individual roles highlighted the relationship between the effective management of resources, staff capacity and quality of health care, emphasising the importance of managing health resources strategically to support high quality care and to ensure sustainability.

Finally, managing the experience of patients and staff module highlighted the importance of quality in health care by acknowledging the experience of patients and those who provide their care. It was hoped that the interaction of patient and staff experiences would develop empathy, increase satisfaction and lessen barriers to care delivery.

Overall, the training intervention represented a thoughtful and robust effort to provide clinicians and quality managers with the understanding, skills, and attitudes needed for addressing healthcare quality and safety issues. The modules were designed not

only to align with the competency gaps identified in the pre-training assessment, but also to provide participants with practical tools and frameworks to implement improvements in their respective health establishments. This deliberate focus enabled training to be viewed as a key component in addressing identified gaps and achieving the overarching goals.

7.3.3 Objective 3: To evaluate the participants' post-training knowledge of healthcare quality and patient safety, the study posed the research question: Will Levels 1 and 2 of the Kirkpatrick model of evaluation bridge the competency gaps among clinicians and quality managers? This inquiry sought to determine the impact of the training intervention on knowledge gaps identified during the pre-training assessment.

While there were only 37 post-training responses out of the 209 respondents which returned a response to the pre-training assessment, it was clear the specific training intervention had a transformative impact. It was recognised that the decrease in the response rate was a limitation of this evaluation. However, the post-training responses and feedback still provided a form for evaluation of the effectiveness of the training. The results suggest that the intervention effectively filled the identified competency gaps reflected in a clear improvement in participants' understanding of healthcare quality and patient safety principles.

When analysing the post-training data, we identified statistically significant results for all nine hypotheses, with a p-value lower than the accepted 5% significance level. Thus, the training intervention had a positive and meaningful impact on participant knowledge. Participants showed a greater competency in quality management principles through performance measurement and an understanding of improvement tools and techniques. These results confirm the objective of the study was to positively influence clinician and quality manager understanding of basic and advanced concepts related to healthcare quality.

The results reveal the value of structured training, as an approach to addressing competency gaps in the healthcare context. The structured training intervention was focused and specifically designed to address targeted area of knowledge. The use of the Kirkpatrick model for evaluation provided a solid framework that allowed the measurement of the outcomes and ensured the training content was relevant to the

healthcare context. The marked increases in participants' post training competency levels more than indicated that the approach facilitated effective learning and application.

Taken as a whole, the study demonstrates that targeted training interventions underpinned by evidence-based evaluation models can lead to real increases in capacity for healthcare professionals to provide quality care. The outcomes could make a strong case for competency-based training which can be considered part of a broader strategy for addressing quality and safety in healthcare, while underscoring the importance of education and evaluation in achieving meaningful and sustained systems of improvement.

7.4 KEY INSIGHTS AND LESSONS FROM THE RESEARCH STUDY

I played an integral role in contextualising the training manual used by the instructor, which enhanced my comprehension of the training content and the principles underpinning healthcare quality management. This involvement allowed for a better understanding of the importance of quality management principles in improving health care outcomes in a positive way. Designing and contextualising the training materials crystallised the need for educators to essentially construct tailored educational references/resources to close competency gaps in the audience.

An important learning for me was the use of one method of statistical analysis, the T-Test, in determining the impact/effectiveness of the training intervention. This process of statistical analysis emphasised the importance of data-based decision making in quality improvement for health care, to develop the capability of leadership and management to be analytical in its examination of outcomes and performance. I appreciated the importance of ongoing education within management to ensure managers are privy to current best practice, encourage professionals to be lifelong learners to enable a learning culture and sharing of knowledge within the organisation.

Active involvement in these training sessions has provided me with important perspectives on real-life challenges that clinicians and quality managers face. The opportunity to see the competency gaps first-hand was noticeably beneficial,

especially for performance measurement, patient safety, and improvement tools and techniques. I realised that I needed to capture the nuanced information from the pre-assessments better to inform the training design and evaluation process.

Additionally, conducting this research highlighted the important relationship between theory and practice. It also illustrated how initiatives based on evidence-based practices and in this case the Kirkpatrick model, can be appropriately embed into training design to measure the implications of projects in developing competencies. Further, it underlined the importance of collaboration between researchers, trainers and participants to achieve a collaborative pedagogical space which captures the theoretical aspect of learning and the practice operationalisation of it, and maximizes collective learning.

In hindsight, the study reinforced the importance of perseverance and adaptability when conducting research of this nature. Challenges such as lower response rates in the post training assessments highlighted the requirement for more proactive thinking to incorporate new methods of engagement and data collection. Overall, the experience demonstrated the importance of research in identifying and addressing competency gaps, contributing to the overall objective of strengthening the quality of health care and safety for patients.

7.5 SYNTHESIS OF KEY FINDINGS / IMPLICATIONS FOR POLICY AND PRACTICE

This research explored the essential role structured training interventions have in addressing competency gaps in healthcare quality and patient safety. Using the research evidence, a resultant *Integrated Competency Development Framework for Healthcare Quality Training* was created, providing a structured approach to improving clinicians' and quality managers' knowledge, confidence and ability to apply quality improvement principles in practice. The framework incorporates a blended learning model and contextual barriers, outlines expected training outcomes, and provides a guide for planning and implementing health services quality field training programmes.

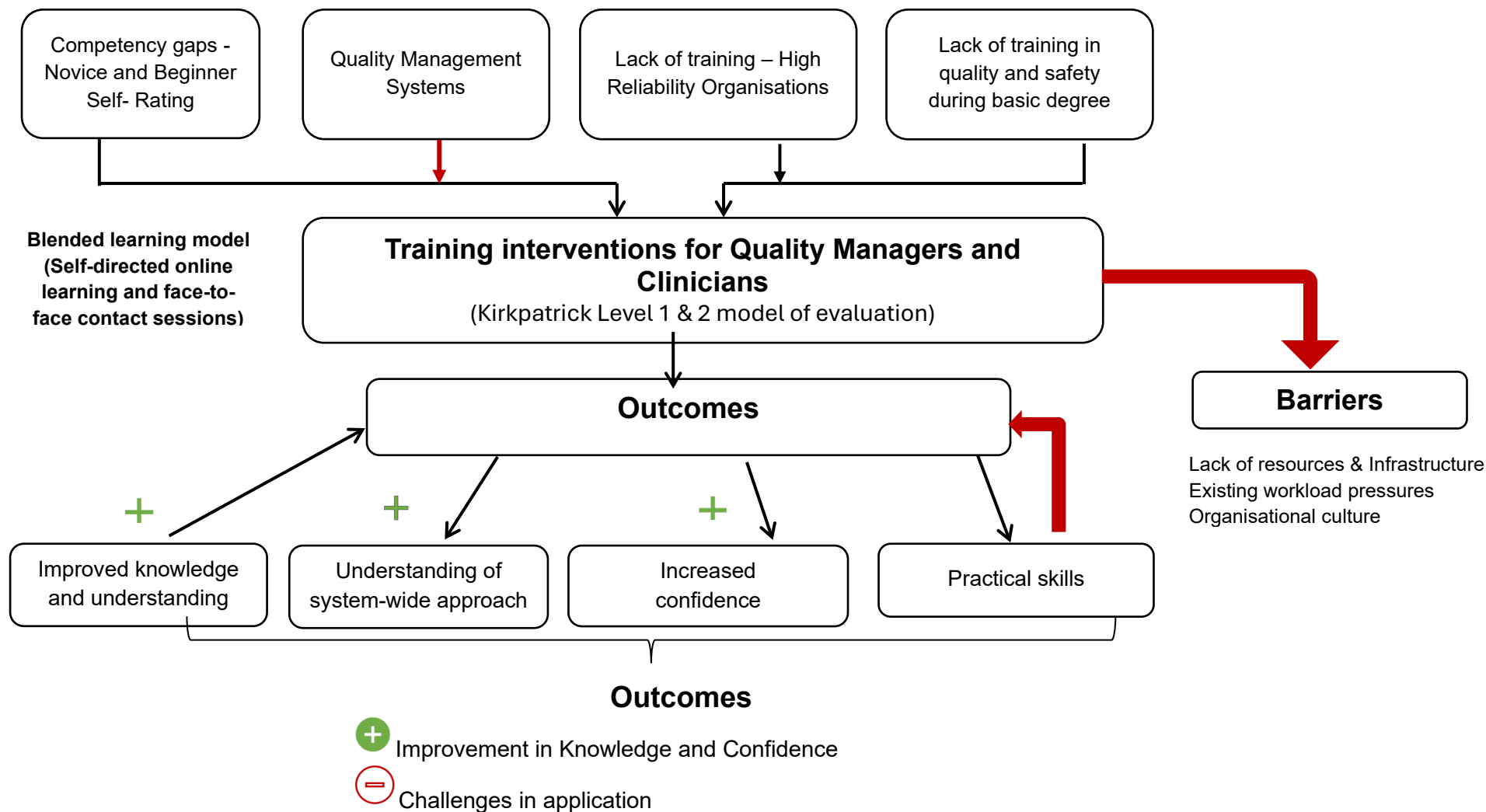


Figure 57: Integrated Competency Development Framework for Healthcare Quality Training

The Integrated Competency Development Framework for Healthcare Quality Training is structured around three key components: a blended learning model, contextual obstacles to implementing training outcomes. The training content and strategies used provide an effective and flexible self-directed online learning component combined with semi-structured interactive face-to-face contact sessions, which creates a strong collaborative interactive experience that can foster deeper understanding and confidence and support participants to apply the new knowledge and practice it. While there are many advantages to this training approach, it includes a variety of systemic obstacles for participants that prevent high-quality, effective application of the value of the training and knowledge development. The obstacles include limited resources, infrastructure, workload demands, and organisational culture all having a major impact on their capacity to translate what they want to do from the training into practice. Training has developed participants' knowledge and confidence about the topic, but there remain contextual constraints for them to implement real-world applications.

To maximise the performance from the framework, healthcare organisations need to consider how they will link leadership, policy, and resources to create an environment conducive to quality improvement. Case studies, video-taped practical experiences, and mentoring processes could be valuable so that participants can use real or simulated practised examples that can improve the development of retention of knowledge and an awareness of how to apply it and improve practice. Additionally, when training is evaluated, the process should be extended beyond the training and evaluating knowledge (Levels 1 and 2 of Kirkpatrick) to include evaluations of behaviour (Level 3) and ultimately patient outcomes (Level 4). A longitudinal approach to evaluation would add meaningful information on the sustainability of the training effects over time, and provide a data source for ongoing professional development, leadership, and environments/contexts for the healthcare system to build quality improvement and patient safety.

7.6 LIMITATIONS OF THE STUDY

One limitation of our study was the use of self-reporting by participants to explore the knowledge gaps. Self-reporting of their perception of competency level can be helpful

but are prone to bias and can inflate estimates of actual knowledge. The difference in use of measures of skill acquisition and actual use in practice by the healthcare system suggests that self-reports could possibly overestimate readiness to understand and apply the principles of quality management. An additional limitation was with staff movement during the timeframe of the study. Some participants left the province or moved on to different roles which prohibited them from completing the training course. The participant movement affected consistency of the training cohort of participants and made it difficult to continue the evaluation in a consistent manner.

The study also showed a significant drop in the amount of post-training respondents when comparing them to the original pre-training assessment cohort. This difference prevented the analysis of matching all individual pre- and post-training responses where the individual level details would have been more meaningful from an analysis of knowledge and competency improvements perspective. Using proportionate T-test methods allowed us to assess difference in the pre- and post-training data. While effective, this statistical approach could not account for variations among individual respondents, which may have provided deeper insights into the effectiveness of the training intervention.

Notwithstanding these limitations, the study effectively demonstrated the value of targeted training to close the competency gaps in healthcare quality and patient safety. Further, exploring the potential strategies to support participant retention throughout the study duration, through virtual follow-up or incentives for completion, should be itemised to reduce participant attrition, and impacts on data collection and analysis.

7.7 RECOMMENDATIONS FOR FURTHER RESEARCH

Given the findings of this study, several areas for future research have emerged that could further advance understanding of healthcare quality and patient safety competency among clinicians and quality managers. These recommendations focus on extending the scope, depth, and methodological approaches to ensure a more comprehensive evaluation of training effectiveness and its real-world impact.

7.7.1. Incorporating Levels 3 and 4 of the Kirkpatrick Model

This study primarily assessed training effectiveness using Levels 1 and 2 of the Kirkpatrick model, which focus on participant reaction and knowledge acquisition. Future research should extend this assessment to Levels 3 and 4, which measure behavioural changes and tangible results in the healthcare system.

- Level 3: Behaviour – This level evaluates whether training participants apply their newly acquired knowledge and skills in the workplace. A future study could incorporate observational assessments, interviews with supervisors, and self-reported behavioural changes to determine whether clinicians and quality managers are integrating quality improvement principles into their daily practice.
- Level 4: Results – This level examines the organisational impact of the training, including improvements in patient safety outcomes, quality of care, clinical efficiency, and system-wide adherence to quality management principles. A study at this level could involve analysing key performance indicators (KPIs) such as reduced medical errors, improved patient satisfaction scores, and enhanced compliance with national quality standards.

By expanding the research to these additional levels, future studies could provide a more holistic view of how training interventions influence long-term healthcare outcomes beyond immediate knowledge gains.

7.7.2. Conducting Longitudinal Studies to Assess Behavioural and Systemic Outcomes

A key limitation of the current study was its reliance on pre- and post-training assessments conducted over a short period. Future research should adopt a longitudinal approach, tracking participants over twelve months or years to assess how their competencies and behaviours evolve over time.

- A longitudinal study could explore whether the improvements observed in post-training assessments are sustained or if knowledge and skills decline without continuous reinforcement.
- It could also measure how workplace culture, leadership engagement, and policy changes influence the retention and application of training insights.
- Additionally, tracking patient outcomes over time would provide empirical evidence of the broader impact of healthcare quality training on clinical effectiveness and patient safety.

7.7.3: Exploring Barriers and Facilitators to Training Implementation

While this study highlighted competency gaps and improvements post-training, it did not fully explore the organisational and systemic barriers that might hinder training translation into practice. Future research should investigate:

- Workplace resistance to change and strategies to foster a culture of continuous learning.
- The role of leadership support in ensuring that training programmes are integrated into institutional policies.
- Resource constraints and workload pressures that limit clinicians' and quality managers' ability to apply quality improvement principles.

Qualitative research methods, such as in-depth interviews, focus group discussions, and case studies could provide rich insights into the practical challenges of embedding training outcomes into real-world healthcare settings.

7.7.4: Assessing Alternative Training Modalities and Their Effectiveness

This study employed a blended learning approach, combining virtual and in-person sessions. Future research could compare different training delivery methods, including:

- Fully virtual training programmes to assess accessibility and scalability.
- Simulation-based training to provide hands-on experience with quality improvement tools.
- Mentorship and peer-learning models to explore the impact of continuous professional development support.

Understanding which training modalities yield the most effective knowledge retention and behavioural changes would help tailor future interventions to maximise their impact.

7.7.5: Investigating the Interplay Between Training and Institutional Policies

A critical area for future research is the relationship between individual competency development and institutional quality management strategies. A study could examine:

- How healthcare facilities integrate quality improvement training into their formal policies and procedures.
- The extent to which trained clinicians and quality managers are empowered to influence institutional change.
- How regulatory frameworks and accreditation requirements impact the implementation of training outcomes.

By examining the structural and policy-level factors that affect training success, future research could identify strategies to enhance the alignment between competency development and system-wide quality improvements.

These recommendations for future research build upon the findings of this study by addressing key gaps in assessing the long-term effectiveness of healthcare quality and patient safety training. Expanding evaluations to include Levels 3 and 4 of the Kirkpatrick model will provide deeper insights into behavioural changes and system-wide outcomes, while longitudinal studies will help assess the sustainability of knowledge gains over time. Additionally, exploring barriers and facilitators to training

implementation, assessing alternative training modalities, and investigating the alignment between training and institutional policies will offer valuable strategies for strengthening competency development in healthcare settings. These research directions directly relate to the original study objectives and research question by advancing the understanding of how training interventions impact real-world healthcare practices, ultimately contributing to improved patient safety and quality of care. Addressing these areas, future research could build upon the foundation laid by this study, offering a more holistic understanding of how to achieve and sustain excellence in healthcare quality and patient safety.

7.8 PUBLIC HEALTH RELEVANCE

Bridging the competency gaps among clinicians and quality managers has significant public health relevance as global health leaders are continuing to advocate for the introduction of quality management systems at medical schools and nursing colleges to prepare clinicians for the workplace. In addition, they encourage countries to work towards implementing continuous professional development as part of improving competencies. In South Africa, the South African Nursing Council has established standards for nursing education and training, which include competency frameworks for nurses at various levels of practice. Thus, improved competencies can lead to enhanced patient safety, increased public trust, improved health system performance, enhanced accountability, support for health policy and planning, improved research and innovation and better preparedness for emerging health outbreaks.

7.9 RECOMMENDATIONS

This research study suggests the following recommendations for South African health sector. The recommendations are based on the key findings.

7.9.1 Recommendation One

To counter the problem of competency gaps amongst clinicians and quality managers including other healthcare providers relating to the quality of care, the DOH needs to

support the roll-out of structured healthcare quality and patient safety training programmes in both public and private sectors developed in response to the National Health Quality Improvement Plan (NHQIP).

7.9.2 Recommendation Two

The academic institutions which are responsible for the training of doctors and nurses need to include quality and patient safety training as part of their training curricula to prepare the clinicians for the workplace environment.

7.9.3 Recommendation Three

A future longitudinal research study is recommended to follow up on the participants in the healthcare quality training programme to assess the health outcomes and patient experiences of care in their respective health establishments and to assess the effectiveness of Levels 3 and 4 of the Kirkpatrick evaluation models.

7.9.4 Recommendations Four

It is recommended that more effort should be devoted to the clinicians and quality managers from the various provinces and managers in the National Department of Health, Office of Health Standards Compliance and Sefako Makgatho Health Sciences University who have completed healthcare quality and patient safety training to become part of the facilitation team in their respective provinces, to build a cohort of quality improvement experts in the country.

7.10 CONTRIBUTION TO THE BODY OF KNOWLEDGE

The study makes significant contributions to the existing body of knowledge on healthcare quality and patient safety, particularly in the South African context. The literature review illuminated the limited integration of structured competency development programmes for clinicians and quality managers in South Africa despite global trends that increasingly emphasise continuous professional development as a mechanism for improving healthcare delivery. Previous research has shown that competency frameworks – when implemented using tools such as portfolio-based assessments, peer reviews, and patient experience metrics – can effectively

strengthen clinical practice. However, such frameworks are often underutilised or inconsistently applied in resource-constrained settings.

To address this gap, this study developed an Integrated Competency Development Framework for Healthcare Quality Training, which is the central contribution of the research. This framework utilises both the quantitative and qualitative aspects of the study to provide a reproducible, context-sensitive model for training in quality improvement utilising a blended learning approach. The model is comprised of self-directed online modules and face-to-face contact sessions, using some of the principles of evaluation from the Kirkpatrick model (Level 1 and 2). Quantitative findings demonstrated improvement in participants' knowledge and confidence after training; suggesting that this approach has the potential to fill existing training gaps in competency in quality improvement training. This adds to the empirical evidence available on the scalability of blended learning as an effective modality for training in healthcare quality and safety.

Additionally, the framework contains feedback loops you see indicated with red arrows in the visual model. These loops provide emphasis on the complexity of the interplay between workplace application, knowledge-based acquisition, and system barriers to use. In addition, with respect to the feedback loops, you can envisage how systemic factors such as organisational culture, workload pressures, and infrastructure may inhibit, or reinforce the utilisation of newly learnt competencies in the workplace. For instance, participants improved their knowledge about quality and safety, along with their attitudes towards quality and safety, however the qualitative findings demonstrated how workplace realities often attenuate the application of the learnings from training. These feedback loops are critical as they reflect the iterative nature of learning and implementation in complex healthcare systems and suggest that training alone is insufficient without organisational support.

Importantly, this study's framework offers both theoretical and practical utility. Theoretically, it provides a model that can be adapted and tested in other LMICs,

contributing to the global discourse on health workforce development. Practically, it serves as a tool for policymakers, training institutions, and healthcare managers to design, implement, and evaluate healthcare quality improvement training programmes. By embedding real-world applicability, it supports long-term improvements in patient safety, clinical outcomes, and organisational learning. The framework encourages ongoing evaluation and refinement of training interventions, laying the groundwork for future studies that assess behaviour change (Kirkpatrick Level 3) and organisational results (Level 4).

In sum, this study bridges the knowledge-to-practice gap by offering a practical, evidence-based framework that strengthens the competencies of frontline healthcare professionals and supports broader quality improvement initiatives in South Africa's health system.

7.11 DISSEMINATION

I plan to publish the findings of this study in relation to the study objectives in peer-reviewed healthcare journals. Furthermore, an opportunity will be sought to present the findings at the Gauteng, Mpumalanga and Kwazulu-Natal provincial Departments of Health executive management committee members.

Continuous professional development towards clinical learning and management and leadership capacitation is key to ensuring high quality care and patient safety. Bridging the competency gap can happen via the identification of gaps in individual skills or organisational systems while setting quality goals.

7.12 CONCLUSION

This study set out to assess the knowledge of clinicians and quality managers regarding healthcare quality and patient safety, to identify competency gaps, and to evaluate the effectiveness of a targeted training intervention. Using Kirkpatrick model Levels 1 and 2, the research evaluated participants' baseline knowledge, the

influences of training on competency development, and identified perceived barriers to applying these principles in practice in the real world of the healthcare setting. The results indicated that while the training intervention proved to be successful in increasing participants' theoretical understanding and awareness of quality improvement practices, a meaningful intrapersonal translation of knowledge to practice still remains a challenge due to systemic barriers such as workload issues, an organisational culture of competition, and inadequate resources.

Key qualitative findings reinforced that meaningful and sustainable improvements in quality and safety in healthcare organisations is predicated on ongoing institutional support, leadership buy-in, and a culture of continuous learning. Participants provided constructive recommendations for future iterations of the training, which include a broader inclusion of diverse healthcare settings, access to additional learning resources, and mentorship models to assist with competency retention over the long term. These findings echoed the existing literature emphasising the value of structured, contextually appropriate and sustained approaches to capacity building in quality improvement in healthcare.

Looking ahead, future research should explore the long-term impact of training using Levels 3 and 4 of the Kirkpatrick model to assess behavioural changes and measurable improvements in patient outcomes. Additionally, longitudinal studies tracking the retention and application of training concepts over time, as well as research into the organisational and policy-level factors influencing quality improvement efforts, will be essential in shaping more effective and scalable training interventions.

This study supports the importance of structured training in addressing gaps in competency with respect to health-care quality and patient safety, while further establishing the need for a holistic approach that goes beyond the training alone and includes the support of the institution's commitment, supportive policies, and an enabling environment that allows for health care professionals to implement their knowledge through skills. By integrating these insights, healthcare systems can enhance patient safety outcomes and foster a culture of continuous quality improvement.

8. REFERENCES

- Adom, D., Hussein, E.K., Agyem, J.A., 2018. Theoretical and Conceptual Framework: Mandatory Ingredients of Quality Research. *Int. J. Sci. Res.* 7, 438–441.
- Akinwale, O.E., George, O.J., 2022. Personnel brain-drain syndrome and quality healthcare delivery among public healthcare workforce in Nigeria. *Arab Gulf J. Sci. Res.* 41, 18–39. <https://doi.org/10.1108/AGJSR-04-2022-0022>
- Ali, S., Tufail, M., Qazi, R., 2022. Training Evaluation Models: Comparative Analysis. *Res. J. Soc. Sci. Econ. Rev.* 3, 51–63. [https://doi.org/10.36902/rjsr-vol3-iss4-2022\(51-63\)](https://doi.org/10.36902/rjsr-vol3-iss4-2022(51-63))
- Alinnor, E.A., Ogaji, D.S., 2022. Physicians' knowledge, attitude and practice of clinical audit in a tertiary health facility in a developing country: a cross-sectional study. *Pan Afr. Med. J.* 43, 22. <https://doi.org/10.11604/pamj.2022.43.22.33800>
- Allen, L.M., Hay, M., Palermo, C., 2022. Evaluation in health professions education—Is measuring outcomes enough? *Med. Educ.* 56, 127–136. <https://doi.org/10.1111/medu.14654>
- Allen-Duck, A., Robinson, J.C., Stewart, M.W., 2017. Healthcare Quality: A Concept Analysis. *Nurs. Forum (Auckl.)* 52, 377–386. <https://doi.org/10.1111/nuf.12207>
- Alsalamah, A., Callinan, C., 2021. The Kirkpatrick model for training evaluation: bibliometric analysis after 60 years (1959–2020). *Ind. Commer. Train.* 54, 36–63. <https://doi.org/10.1108/ICT-12-2020-0115>
- Altman, D.E., Clancy, C., Blendon, R.J., 2004. Improving Patient Safety — Five Years after the IOM Report. *N. Engl. J. Med.* 351, 2041–2043. <https://doi.org/10.1056/NEJMp048243>
- Ameh, S., Gómez-Olivé, F.X., Kahn, K., Tollman, S.M., Klipstein-Grobusch, K., 2017. Relationships between structure, process and outcome to assess quality of integrated chronic disease management in a rural South African setting: applying a structural equation model. *BMC Health Serv. Res.* 17, 229. <https://doi.org/10.1186/s12913-017-2177-4>
- American Nurses Association, 2010. Nursing's Social Policy Statement: The Essence of the Profession. Nursesbooks.org.
- Antony, J., Palsuk, P., Gupta, S., Mishra, D., Barach, P., 2018. Six Sigma in healthcare: a systematic review of the literature. *Int. J. Qual. Reliab. Manag.* 35, 1075–1092. <https://doi.org/10.1108/IJQRM-02-2017-0027>
- Arensman, B., van Waegeningh, C., van Wessel, M., 2018. Twinning “Practices of Change” With “Theory of Change”: Room for Emergence in Advocacy Evaluation. *Am. J. Eval.* 39, 221–236. <https://doi.org/10.1177/1098214017727364>
- Ataguba, J.E., McIntyre, D., 2012. Paying for and receiving benefits from health services in South Africa: is the health system equitable? *Health Policy Plan.* 27 Suppl 1, i35–45. <https://doi.org/10.1093/heapol/czs005>
- Atrash, H., Katz-Leurer, M., Shahar, G., 2023. The effect of self-assessment on student competence in physiotherapy clinical training: a randomized controlled trial. *BMC Med. Educ.* 23, 780. <https://doi.org/10.1186/s12909-023-04737-9>
- Bauer, M., Traub, S., Kunina-Habenicht, O., 2024. The growth of knowledge and self-perceived competence during long-term internships: comparing preparatory versus accompanying seminars in teacher education programs. *Front. Educ.* 9. <https://doi.org/10.3389/feduc.2024.1194982>
- Beauchamp, T.L., Childress, J.F., 1983. *Principles of Biomedical Ethics*. Oxford University Press.
- Bednall, T.C., Sanders, K., Runhaar, P., 2014. Stimulating Informal Learning Activities Through Perceptions of Performance Appraisal Quality and Human Resource Management System Strength: A Two-Wave Study. *Acad. Manag. Learn. Educ.* 13, 45–61. <https://doi.org/10.5465/amle.2012.0162>

- Bell, J., Waters, S., 2018. *Doing Your Research Project: A Guide for First-Time Researchers*. McGraw-Hill Education (UK).
- Benatar, S., Sullivan, T., Brown, A., 2018. Why equity in health and in access to health care are elusive: Insights from Canada and South Africa. *Glob. Public Health* 13, 1533–1557. <https://doi.org/10.1080/17441692.2017.1407813>
- Bendowska, A., Baum, E., 2023a. The Significance of Cooperation in Interdisciplinary Health Care Teams as Perceived by Polish Medical Students. *Int. J. Environ. Res. Public. Health* 20, 954. <https://doi.org/10.3390/ijerph20020954>
- Bendowska, A., Baum, E., 2023b. The Significance of Cooperation in Interdisciplinary Health Care Teams as Perceived by Polish Medical Students. *Int. J. Environ. Res. Public. Health* 20, 954. <https://doi.org/10.3390/ijerph20020954>
- Berwick, D.M., 2021. Diagnostic Excellence Through the Lens of Patient-Centeredness. *JAMA* 326, 2127–2128. <https://doi.org/10.1001/jama.2021.19513>
- Bhati, D., Deogade, M.S., Kanyal, D., 2023. Improving Patient Outcomes Through Effective Hospital Administration: A Comprehensive Review. *Cureus*. <https://doi.org/10.7759/cureus.47731>
- Bhattacharjee, A., 2012. *Social Science Research: Principles, Methods, and Practices*. CreateSpace Independent Publishing Platform.
- Blaauw, D., Ditlopo, P., Rispel, L.C., 2014. Nursing education reform in South Africa – lessons from a policy analysis study. *Glob. Health Action* 7, 12. <https://doi.org/10.3402/gha.v7.26401>
- Blignaut, A.J., Coetzee, S.K., Kloppe, H.C., 2014. Nurse qualifications and perceptions of patient safety and quality of care in South Africa. *Nurs. Health Sci.* 16, 224–231. <https://doi.org/10.1111/nhs.12091>
- Bordage, G., Harris, I., 2011. Making a difference in curriculum reform and decision-making processes. *Med. Educ.* 45, 87–94. <https://doi.org/10.1111/j.1365-2923.2010.03727.x>
- Borghi, J., Abrams, S., Lowenberg, D., Simms, S., Chodacki, J., 2018. Support Your Data: A Research Data Management Guide for Researchers. *Res. Ideas Outcomes* 4, e26439. <https://doi.org/10.3897/rio.4.e26439>
- Bracher, P., Sithole, S., 2017. Court ruling opens door for periodic compensation of medical expenses. *Dly. News*.
- Braithwaite, J., Matsuyama, Y., Johnson, J., 2017. *Healthcare Reform, Quality and Safety: Perspectives, Participants, Partnerships and Prospects in 30 Countries*. CRC Press, London. <https://doi.org/10.1201/9781315586373>
- Brasaité, I., Kaunonen, M., Martinkénas, A., Mockienė, V., Suominen, T., 2016. Health care professionals' skills regarding patient safety. *Medicina (Mex.)* 52, 250–256. <https://doi.org/10.1016/j.medic.2016.05.004>
- Breed, M., Downing, C., Ally, H., 2020. Factors influencing motivation of nurse leaders in a private hospital group in Gauteng, South Africa: A quantitative study. *Curationis* 43, 1–9. <https://doi.org/10.4102/curationis.v43i1.2011>
- Brisibe, S., Ordinioha, B., Gbeneolol, P.K., 2014. Knowledge, attitude, and infection control practices of two tertiary hospitals in Port-Harcourt, Nigeria. *Niger. J. Clin. Pract.* 17, 691–695. <https://doi.org/10.4103/1119-3077.144379>
- Britto, M.T., Fuller, S.C., Kaplan, H.C., Kotagal, U., Lannon, C., Margolis, P.A., Muething, S.E., Schoettker, P.J., Seid, M., 2018. Using a network organisational architecture to support the development of Learning Healthcare Systems. *BMJ Qual. Saf.* 27, 937–946. <https://doi.org/10.1136/bmjqs-2017-007219>
- Bucci, R., Colamesta, V., Torre, G.L., 2014. Avedis Donabedian: The Giant. *Epidemiol. Biostat. Public Health* 11. <https://doi.org/10.2427/11031>
- Buchbinder, S.B., Shanks, N.H., Rogers, R., 2025. *Introduction to Health Care Management*. Jones & Bartlett Learning.

- Burgess, A., van Diggele, C., Roberts, C., Mellis, C., 2020. Feedback in the clinical setting. *BMC Med. Educ.* 20, 460. <https://doi.org/10.1186/s12909-020-02280-5>
- Cahapay, M., 2021. Kirkpatrick Model: Its Limitations as Used in Higher Education Evaluation. *Int. J. Assess. Tools Educ.* 8, 135–144. <https://doi.org/10.21449/ijate.856143>
- Campbell, S.G., Croskerry, P., Bond, W.F., 2007. Profiles in Patient Safety: A “Perfect Storm” in the Emergency Department. *Acad. Emerg. Med.* 14, 743–749. <https://doi.org/10.1197/j.aem.2007.04.011>
- Campione, J., Famolaro, T., 2018. Promising Practices for Improving Hospital Patient Safety Culture. *Jt. Comm. J. Qual. Patient Saf.* 44, 23–32. <https://doi.org/10.1016/j.jcjq.2017.09.001>
- Chiguvare, B., 2023. Woman seeks justice for hospital’s alleged negligence. Zoutnet.
- Choi, K.-S., 2017. Virtual Reality in Nursing: Nasogastric Tube Placement Training Simulator, in: *MEDINFO 2017: Precision Healthcare through Informatics*. IOS Press, pp. 1298–1298. <https://doi.org/10.3233/978-1-61499-830-3-1298>
- Choudhry, N.K., Fletcher, R.H., Soumerai, S.B., 2005. Clinical Experience and Quality of Health Care. *Ann. Intern. Med.* 143, 86–87. <https://doi.org/10.7326/0003-4819-143-1-200507050-00020>
- Connor, T., 2021. System of Profound Knowledge. 10x Curiosity. URL <https://medium.com/10x-curiosity/system-of-profound-knowledge-ce8cd368ca62> (accessed 4.30.25).
- Constitutional Court, 2017. MEC for Health and Social Development, Gauteng v DZ.
- Coyne, C., Killien, M., 1987. A system for unit-based monitors of quality of nursing care. *J. Nurs. Adm.* 17, 26–32.
- Creswell, J.W., 2012. *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Pearson.
- Creswell, J.W., 2008. *Research design: qualitative, quantitative, and mixed methods approaches*, 2. ed., [Nachdr.] ed. Sage Publ, Thousand Oaks, Calif.
- Creswell, J.W., Clark, V.L.P., 2011. *Designing and Conducting Mixed Methods Research*. SAGE.
- Creswell, J.W., Creswell, J.D., 2017. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications.
- Dadich, A., Doloswala, N., 2018. What can organisational theory offer knowledge translation in healthcare? A thematic and lexical analysis. *BMC Health Serv. Res.* 18, 351. <https://doi.org/10.1186/s12913-018-3121-y>
- de Kok, K., van der Scheer, W., Ketelaars, C., Leistikow, I., 2023. Organizational attributes that contribute to the learning & improvement capabilities of healthcare organizations: a scoping review. *BMC Health Serv. Res.* 23, 585. <https://doi.org/10.1186/s12913-023-09562-w>
- De Savigny, D., Adam, T., 2009. *Systems Thinking for Health Systems Strengthening*. World Health Organization.
- de Waal, A., Weaver, M., Day, T., van der Heijden, B., 2019. Silo-Busting: Overcoming the Greatest Threat to Organizational Performance. *Sustainability* 11, 6860. <https://doi.org/10.3390/su11236860>
- Dean, M., 2023. Pen stuck in pupil’s head: Mom slams Bishop Lavis Day Hospital for gross negligence. Dly. Voice.
- Deming, W.E., 2000. *The New Economics: For Industry, Government, Education*. MIT Press.
- Dillman, D.A., Smyth, J.D., Christian, L.M., 2014. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. John Wiley & Sons.
- Dixon-Woods, M., McNicol, S., Martin, G., 2012. Ten challenges in improving quality in healthcare: lessons from the Health Foundation’s programme evaluations and relevant literature. *BMJ Qual. Saf.* 21, 876–884. <https://doi.org/10.1136/bmjqs-2011-000760>
- Dodwad, S., 2013. Quality management in healthcare. *Indian J. Public Health* 57, 138. <https://doi.org/10.4103/0019-557X.119814>

- Donabedian, A., 2002. *An Introduction to Quality Assurance in Health Care*. Oxford University Press.
- Donabedian, A., 1966. Evaluating the Quality of Medical Care. *Milbank Mem. Fund Q.* 44, 166–206. <https://doi.org/10.2307/3348969>
- Dreyfus, S.E., 2004. The Five-Stage Model of Adult Skill Acquisition. *Bull. Sci. Technol. Soc.* 24, 177–181. <https://doi.org/10.1177/0270467604264992>
- Dube, B.M., Mtshali, N.G., 2024. Stakeholders' perspectives on competency-based education program in Africa: A qualitative study. *Health SA Gesondheid* 29, 9. <https://doi.org/10.4102/hsag.v29i0.2416>
- Dye, C.F., Garman, A.N., 2014. *Exceptional Leadership: 16 Critical Competencies for Healthcare Executives*, Second Edition. ACHE Learn.
- Earle-Foley, V., Myrick, F., Luhanga, F., Yonge, O., 2012. Preceptorship: Using an Ethical Lens to Reflect on the Unsafe Student. *J. Prof. Nurs.* 28, 27–33. <https://doi.org/10.1016/j.profnurs.2011.06.005>
- Fergusson, L.C., Brömdal, A., Gough, M., Mears, S., 2020. Competency, Capability and Professional Identity: 9.
- Flinn, J.T., Miller, A., Pyatka, N., Brewer, J., Schneider, T., Cao, C.G.L., 2016. The effect of stress on learning in surgical skill acquisition. *Med. Teach.* 38, 897–903. <https://doi.org/10.3109/0142159X.2015.1114597>
- Forsetlund, L., O'Brien, M.A., Forsén, L., Mwai, L., Reinar, L.M., Okwen, M.P., Horsley, T., Rose, C.J., 2021. Continuing education meetings and workshops: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev* 9. <https://doi.org/10.1002/14651858.CD003030.pub3>
- Frank, J.R., Mungroo, R., Ahmad, Y., Wang, M., De Rossi, S., Horsley, T., 2010. Toward a definition of competency-based education in medicine: a systematic review of published definitions. *Med. Teach.* 32, 631–637. <https://doi.org/10.3109/0142159X.2010.500898>
- Frankel, A., Harden, C., Federico, F., Lenoci-Edwards, J., 2017. *A Framework for Safe, Reliable, and Effective Care*. White Paper.
- Fraser, J., 2016. The morbidity and mortality meeting: time for a different approach? *Arch. Dis. Child.* 101, 4–8. <https://doi.org/10.1136/archdischild-2015-309536>
- Fredberg, T., Pregmark, J.E., 2022. Organizational transformation: Handling the double-edged sword of urgency. *Long Range Plann.* 55, 102091. <https://doi.org/10.1016/j.lrp.2021.102091>
- Gandhi, T.K., Kaplan, G.S., Leape, L., Berwick, D.M., Edgman-Levitan, S., Edmondson, A., Meyer, G.S., Michaels, D., Morath, J.M., Vincent, C., Wachter, R., 2018. Transforming concepts in patient safety: a progress report. *BMJ Qual. Saf.* 27, 1019–1026. <https://doi.org/10.1136/bmjqs-2017-007756>
- Geo-Ref.net, 2022. Country Map – Administrative Structure – Population Density of South Africa.
- George, T., 2021. *Mixed Methods Research | Definition, Guide & Examples [WWW Document]*. Scribbr. URL <https://www.scribbr.com/methodology/mixed-methods-research/> (accessed 5.11.25).
- Getachew, T., Abebe, S.M., Yitayal, M., Persson, L.Å., Berhanu, D., 2020. Assessing the quality of care in sick child services at health facilities in Ethiopia. *BMC Health Serv. Res.* 20, 574. <https://doi.org/10.1186/s12913-020-05444-7>
- Giguère, A., Zomahoun, H.T.V., Carmichael, P.-H., Uwizye, C.B., Légaré, F., Grimshaw, J.M., Gagnon, M.-P., Auguste, D.U., Massougboji, J., 2020. Printed educational materials: effects on professional practice and healthcare outcomes. *Cochrane Database Syst. Rev.* 2020, CD004398. <https://doi.org/10.1002/14651858.CD004398.pub4>

- Gill, M., Sharma, G., 2013. Evaluation of Vocational Training Program from the Trainees' Perspective: An Empirical Study. *Pac. Bus. Rev. Int.* 6.
- Ginsburg, L.R., Easterbrook, A., Massie, A., Berta, W., Doupe, M., Hoben, M., Norton, P., Reid, C., Song, Y., Wagg, A., Estabrooks, C., 2024. Building a Program Theory of Implementation Using Process Evaluation of a Complex Quality Improvement Trial in Nursing Homes. *The Gerontologist* 64, gnad064.
<https://doi.org/10.1093/geront/gnad064>
- Gqaleni, T.M.H., Mkhize, S.W., 2024. Barriers to implementing patient safety incident reporting and learning guidelines in specialised care units, KwaZulu-Natal: A qualitative study. *PLOS ONE* 19, e0289857. <https://doi.org/10.1371/journal.pone.0289857>
- Graban, M., 2018. *Lean Hospitals: Improving Quality, Patient Safety, and Employee Engagement*, Third Edition, 3rd ed. Productivity Press, New York.
<https://doi.org/10.4324/9781315380827>
- Grasso, V.F., Singh, A., 2011. Early Warning Systems: State-of-Art Analysis and Future Directions (Draft report United Nations Environment Programme (UNEP)).
- Gray, J.R., Grove, S.K., Sutherland, S., 2016. *Burns and Grove's The Practice of Nursing Research - E-Book: Appraisal, Synthesis, and Generation of Evidence*. Elsevier Health Sciences.
- Greenhalgh, T., Wherton, J., Papoutsis, C., Lynch, J., Hughes, G., A'Court, C., Hinder, S., Fahy, N., Procter, R., Shaw, S., 2017. Beyond Adoption: A New Framework for Theorizing and Evaluating Nonadoption, Abandonment, and Challenges to the Scale-Up, Spread, and Sustainability of Health and Care Technologies. *J. Med. Internet Res.* 19, e367.
<https://doi.org/10.2196/jmir.8775>
- Gruppen, L.D., Gruppen, L.D., 2012. Outcome-Based Medical Education: Implications, Opportunities, and Challenges. *Korean J. Med. Educ.* 24, 281–285.
<https://doi.org/10.3946/kjme.2012.24.4.281>
- Halbach, J.L., Sullivan, L.L., 2005. Teaching Medical Students About Medical Errors and Patient Safety: Evaluation of a Required Curriculum. *Acad. Med.* 80, 600.
- Hall, K.K., Shoemaker-Hunt, S., Hoffman, L., Richard, S., Gall, E., Schoyer, E., Costar, D., Gale, B., Schiff, G., Miller, K., Earl, T., Katapodis, N., Sheedy, C., Wyant, B., Bacon, O., Hassol, A., Schneiderman, S., Woo, M., LeRoy, L., Fitall, E., Long, A., Holmes, A., Riggs, J., Lim, A., 2020. Diagnostic Errors, in: *Making Healthcare Safer III: A Critical Analysis of Existing and Emerging Patient Safety Practices [Internet]*. Agency for Healthcare Research and Quality (US).
- Hallo De Wolf, A., Toebe, B., 2016. Assessing Private Sector Involvement in Health Care and Universal Health Coverage in Light of the Right to Health. *Health Hum. Rights* 18, 79–92.
- Haroon, M.A., Noorali, A.A., Khan, A.S., Hussain, M.H., Advani, R., Sami, A., Merchant, A.A., Khan, A.A., Baloch, S.G., Tharwani, A., Fatimi, S.H., Samad, Z., Hasan, B.S., Rasheed, M.A., 2023. Implementation evaluation of a medical student-led intervention to enhance students' engagement with research: Findings and lessons learned. *PLOS ONE* 18, e0290867. <https://doi.org/10.1371/journal.pone.0290867>
- Harrisberg, K., Khan, G., 2020. The quiet front line battle of South Africa's rural nurses. *Mail Guard*.
- Hughes, A.M., Gregory, M.E., Joseph, D.L., Sonesh, S.C., Marlow, S.L., Lacerenza, C.N., Benishek, L.E., King, H.B., Salas, E., 2016. Saving lives: A meta-analysis of team training in healthcare. *J. Appl. Psychol.* 101, 1266–1304.
<https://doi.org/10.1037/apl0000120>
- Hughes, R.G., 2008. Chapter 44. Tools and Strategies for Quality Improvement and Patient Safety, Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Agency for Healthcare Research and Quality (US), Rockville (MD).

- Hung, D.Y., Truong, Q.A., Liang, S.-Y., 2021. Implementing Lean Quality Improvement in Primary Care: Impact on Efficiency in Performing Common Clinical Tasks. *J. Gen. Intern. Med.* 36, 274–279. <https://doi.org/10.1007/s11606-020-06317-9>
- Imenda, S., 2014. Is There a Conceptual Difference between Theoretical and Conceptual Frameworks? *J. Soc. Sci.* 38, 185–195. <https://doi.org/10.1080/09718923.2014.11893249>
- Institute for Healthcare Improvement, 2003. The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement.
- Institute of Medicine (US) Committee on Quality of Health Care in America, 2001. Crossing the Quality Chasm: A New Health System for the 21st Century. National Academies Press (US), Washington (DC).
- Institute of Medicine (US) Committee on Quality of Health Care in America, 2000. To Err is Human: Building a Safer Health System. National Academies Press (US), Washington (DC).
- Institute of Medicine (US) Committee on the Health Professions Education Summit, 2003. Health Professions Education: A Bridge to Quality. National Academies Press (US), Washington (DC).
- Institute of Medicine (US) Committee on the Work Environment for Nurses and Patient Safety, Page, A., 2004. Transformational Leadership and Evidence-Based Management, in: Chapter 4: Keeping Patients Safe: Transforming the Work Environment of Nurses. National Academies Press (US).
- International Organization for Standardization, 2015. Quality management principles.
- Jackson, K.M., Pukys, S., Castro, A., Hermosura, L., Mendez, J., Vohra-Gupta, S., Padilla, Y., Morales, G., 2018. Using the transformative paradigm to conduct a mixed methods needs assessment of a marginalized community: Methodological lessons and implications. *Eval. Program Plann.* 66, 111–119. <https://doi.org/10.1016/j.evalprogplan.2017.09.010>
- Jalilvand, M.A., Raeisi, A.R., Shaarbafchizadeh, N., 2024. Hospital governance accountability structure: a scoping review. *BMC Health Serv. Res.* 24, 47. <https://doi.org/10.1186/s12913-023-10135-0>
- Johannessen, T., Ree, E., Aase, I., Bal, R., Wiig, S., 2021. Exploring managers' response to a quality and safety leadership intervention: findings from a multiple case study in Norwegian nursing homes and homecare services. 10.
- Johnson, J.K., Sollecito, W.A., 2018. McLaughlin & Kaluzny's Continuous Quality Improvement in Health Care. Jones & Bartlett Learning.
- Johnson, J.L., Adkins, D., Chauvin, S., 2020. A Review of the Quality Indicators of Rigor in Qualitative Research. *Am. J. Pharm. Educ.* 84, 7120. <https://doi.org/10.5688/ajpe7120>
- Jones, B., Horton, T., Home, J., 2022. Strengthening NHS management and leadership : priorities for reform. Health Found.
- Juta Medical Brief, 2024. Once a rural health flagship, now the “hospital of death.” *Juta Med. Brief.*
- Kantor, G., Van, den B.D., Brink, A., 2011. Best care... always! *South. Afr. J. Epidemiol. Infect.* 26, 3–5. <https://doi.org/10.10520/EJC80895>
- Kaushik, V., Walsh, C.A., 2019. Pragmatism as a Research Paradigm and Its Implications for Social Work Research. *Soc. Sci.* 8, 255. <https://doi.org/10.3390/socsci8090255>
- Kelemen, M., Rumens, N., 2012. Pragmatism and heterodoxy in organization research. *Int. J. Organ. Anal.* 20, 5–12. <https://doi.org/10.1108/19348831211215704>
- Kelly, L.M., Cordeiro, M., 2020. Three principles of pragmatism for research on organizational processes. *Methodol. Innov.* 13, 2059799120937242. <https://doi.org/10.1177/2059799120937242>

- Kerasidou, A., Bærøe, K., Berger, Z., Caruso Brown, A.E., 2020. The need for empathetic healthcare systems. *J. Med. Ethics* 47, e27. <https://doi.org/10.1136/medethics-2019-105921>
- Kim, J., Terry, D., Jang, S., Gilbert, J., Cruickshank, M., 2020. A critical appraisal of what organisational approaches are pivotal to improve patient safety. *J. Hosp. Adm.* 9, 26–34. <https://doi.org/10.5430/jha.v9n1p26>
- King, O., West, E., Alston, L., Beks, H., Callisaya, M., Huggins, C.E., Murray, M., Mc Namara, K., Pang, M., Payne, W., Peeters, A., Pithie, M., Sayner, A.M., Wong Shee, A., 2024. Models and approaches for building knowledge translation capacity and capability in health services: a scoping review. *Implement. Sci.* 19, 7. <https://doi.org/10.1186/s13012-024-01336-0>
- Kirkpatrick, D., Kirkpatrick, J., 2006. *Evaluating Training Programs: The Four Levels*. Berrett-Koehler Publishers.
- Kirkpatrick, D.J., Kirkpatrick, W.K., 2015. *An Introduction to The New World Kirkpatrick® Model* 10.
- Kirkpatrick, D.L., 2009. *Managing Change Effectively*. Routledge, London. <https://doi.org/10.4324/9780080510859>
- Klaus, P., 2015. The Devil Is in the Details – Only What Get Measured Gets Managed, in: Klaus, P. (Ed.), *Measuring Customer Experience: How to Develop and Execute the Most Profitable Customer Experience Strategies*. Palgrave Macmillan UK, London, pp. 81–101. https://doi.org/10.1057/9781137375469_7
- Koshy, E., Koshy, V., Waterman, H., 2010. *Action Research in Healthcare*. SAGE.
- Kotter, J.P., 2008. *A Sense of Urgency*. Harvard Business Press.
- Kruk, M.E., Gage, A.D., Arsenault, C., Jordan, K., Leslie, H.H., Roder-DeWan, S., Adeyi, O., Barker, P., Daelmans, B., Doubova, S.V., English, M., García-Elorrio, E., Guanais, F., Gureje, O., Hirschhorn, L.R., Jiang, L., Kelley, E., Lemango, E.T., Liljestrand, J., Malata, A., Marchant, T., Matsoso, M.P., Meara, J.G., Mohanan, M., Ndiaye, Y., Norheim, O.F., Reddy, K.S., Rowe, A.K., Salomon, J.A., Thapa, G., Twum-Danso, N.A.Y., Pate, M., 2018. High-quality health systems in the Sustainable Development Goals era: time for a revolution. *Lancet Glob. Health* 6, e1196–e1252. [https://doi.org/10.1016/S2214-109X\(18\)30386-3](https://doi.org/10.1016/S2214-109X(18)30386-3)
- Kwame, A., Petrucka, P.M., 2021. A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. *BMC Nurs.* 20, 158. <https://doi.org/10.1186/s12912-021-00684-2>
- Langa, V., 2023. KZN Health MEC urged to probe issues at Prince Mshiyeni Memorial Hospital. *Dly. News*.
- Langley, G.J., Moen, R.D., Nolan, K.M., Nolan, T.W., Norman, C.L., Provost, L.P., 2009. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. John Wiley & Sons.
- Leape, L.L., 2021a. We Can Do This: The Institute for Healthcare Improvement Adverse Drug Events Collaborative, in: Leape, L.L. (Ed.), *Making Healthcare Safe: The Story of the Patient Safety Movement*. Springer International Publishing, Cham, pp. 69–87. https://doi.org/10.1007/978-3-030-71123-8_6
- Leape, L.L., 2021b. Enforcing Standards: The Joint Commission (TJC), in: Leape, L.L. (Ed.), *Making Healthcare Safe: The Story of the Patient Safety Movement*. Springer International Publishing, Cham, pp. 185–202. https://doi.org/10.1007/978-3-030-71123-8_12
- Leong, T.D., McGee, S.M., Gray, A.L., De Waal, R., Kredo, T., Cohen, K., Reubenson, G., Blockman, M., Nel, J., Maartens, G., Rees, H., Wiseman, R., Jamaloodien, K., Parrish, A.G., 2020. Essential medicine selection during the COVID-19 pandemic: Enabling

- access in uncharted territory. *S. Afr. Med. J.* 110, 1077.
<https://doi.org/10.7196/SAMJ.2020.v110i11.15271>
- Ličen, S., Prosen, M., 2023. The development of cultural competences in nursing students and their significance in shaping the future work environment: a pilot study. *BMC Med. Educ.* 23, 819. <https://doi.org/10.1186/s12909-023-04800-5>
- Lindfield, R., Knight, A., Bwonya, D., 2015. An Approach to Assessing Patient Safety in Hospitals in Low-Income Countries. *PLOS ONE* 10, e0121628.
<https://doi.org/10.1371/journal.pone.0121628>
- Lohr, K.N., Schroeder, S.A., 1990. A strategy for quality assurance in Medicare. *N. Engl. J. Med.* 322, 707–712. <https://doi.org/10.1056/nejm199003083221031>
- Lopez-Enriquez, C., Martinez-Hernandez, L., Donis-hernandez, J.-J., Virgen-Cuevas, M., 2019. 2557. Knowledge, Attitude, and Practices on Vaccination and Occupational Health Among Healthcare Workers in a Teaching Hospital in Mexico City. *Open Forum Infect. Dis.* 6, S888. <https://doi.org/10.1093/ofid/ofz360.2235>
- Lorini, C., Porchia, B.R., Pieralli, F., Bonaccorsi, G., 2018. Process, structural, and outcome quality indicators of nutritional care in nursing homes: a systematic review. *BMC Health Serv. Res.* 18, 43. <https://doi.org/10.1186/s12913-018-2828-0>
- Loureiro, S.M.C., Romero, J., Bilro, R.G., 2020. Stakeholder engagement in co-creation processes for innovation: A systematic literature review and case study. *J. Bus. Res.* 119, 388–409. <https://doi.org/10.1016/j.jbusres.2019.09.038>
- Lowvelder, 2023. Mum blames hospital for twin's death in Lydenburg hospital. Lowvelder.
- Malakoane, B., Heunis, J.C., Chikobvu, P., Kigozi, N.G., Kruger, W.H., 2020. Public health system challenges in the Free State, South Africa: a situation appraisal to inform health system strengthening. *BMC Health Serv. Res.* 20, 58. <https://doi.org/10.1186/s12913-019-4862-y>
- Manly, K., Jackson, C., Martin, A., Wright, T., 2017. Safety culture, quality improvement, realist evaluation (SCQUIRE): evaluating the impact of the patient safety collaborative initiative. Kent Surrey and Sussex Academic Health Science Network.
- Manyathi, S., Burger, A.P.J., Moritmer, N.L., 2021. Public sector procurement: A private sector procurement perspective for improved service delivery. *Afr. Public Serv. Deliv. Perform. Rev.* 9, 521. <https://doi.org/10.4102/apsdpr.v9i1.521>
- Manyisa, Z.M., van Aswegen, E.J., 2017. Factors affecting working conditions in public hospitals: A literature review. *Int. J. Afr. Nurs. Sci.* 6, 28–38.
<https://doi.org/10.1016/j.ijans.2017.02.002>
- Maphumulo, W.T., Bhengu, B.R., 2019. Challenges of quality improvement in the healthcare of South Africa post-apartheid: A critical review. *Curationis* 42.
<https://doi.org/10.4102/curationis.v42i1.1901>
- Maritz, R., Scheel-Sailer, A., Schmitt, K., Prodinger, B., 2019. Overview of quality management models for inpatient healthcare settings. A scoping review. *Int. J. Qual. Health Care* 31, 404–410. <https://doi.org/10.1093/intqhc/mzy180>
- Mate, K., Williams, D., Laderman, M., 2015. IHI Innovation Project Final Report: Learning System Designs for Improvement Wave 36: July-September, 2015. Cambridge, Massachusetts (US).
- Mburu, G., George, G., 2017. Determining the efficacy of national strategies aimed at addressing the challenges facing health personnel working in rural areas in KwaZulu-Natal, South Africa. *Afr. J. Prim. Health Care Amp Fam. Med.* 9, 1–8.
<https://doi.org/10.4102/phcfm.v9i1.1355>
- McDermott, R., 2023. On the scientific study of small samples: Challenges confronting quantitative and qualitative methodologies. *Leadersh. Q.* 34, 101675.
<https://doi.org/10.1016/j.leaqua.2023.101675>

- McGowan, J.G., Martin, G.P., Krapohl, G.L., Campbell, D.A., Englesbe, M.J., Dimick, J.B., Dixon-Woods, M., 2023. What are the features of high-performing quality improvement collaboratives? A qualitative case study of a state-wide collaboratives programme. *BMJ Open* 13, e076648. <https://doi.org/10.1136/bmjopen-2023-076648>
- McNab, D., McKay, J., Shorrock, S., Luty, S., Bowie, P., 2020. Development and application of “systems thinking” principles for quality improvement. *BMJ Open Qual.* 9, e000714. <https://doi.org/10.1136/bmjopen-2019-000714>
- McNicholas, C., Lennox, L., Woodcock, T., Bell, D., Reed, J.E., 2019. Evolving quality improvement support strategies to improve Plan-Do-Study-Act cycle fidelity: a retrospective mixed-methods study. *BMJ Qual. Saf.* 28, 356–365. <https://doi.org/10.1136/bmjqs-2017-007605>
- Melnyk, B.M., Fineout-Overholt, E., Giggelman, M., Cruz, R., 2010. Correlates among cognitive beliefs, EBP implementation, organizational culture, cohesion and job satisfaction in evidence-based practice mentors from a community hospital system. *Nurs. Outlook* 58, 301–308. <https://doi.org/10.1016/j.outlook.2010.06.002>
- Melnyk, B.M., Gallagher-Ford, L., Zellefrow, C., Tucker, S., Thomas, B., Sinnott, L.T., Tan, A., 2018. The First U.S. Study on Nurses’ Evidence-Based Practice Competencies Indicates Major Deficits That Threaten Healthcare Quality, Safety, and Patient Outcomes. *Worldviews Evid. Based Nurs.* 15, 16–25. <https://doi.org/10.1111/wvn.12269>
- Mere, B., 2023. Hospital patient hangs himself. DFA.
- Merrill, K.C., 2015. Leadership Style and Patient Safety: Implications for Nurse Managers. *JONA J. Nurs. Adm.* 45, 319. <https://doi.org/10.1097/NNA.0000000000000207>
- Mistri, I.U., Badge, A., Shahu, S., 2023. Enhancing Patient Safety Culture in Hospitals. *Cureus* 15, e51159. <https://doi.org/10.7759/cureus.51159>
- Mlambo, M., Silén, C., McGrath, C., 2021. Lifelong learning and nurses’ continuing professional development, a metasynthesis of the literature. *BMC Nurs.* 20, 62. <https://doi.org/10.1186/s12912-021-00579-2>
- Mohajan, H.K., 2020. Quantitative Research: A Successful Investigation in Natural and Social Sciences. *J. Econ. Dev. Environ. People* 9. <https://doi.org/10.26458/jedep.v9i4.679>
- Mohamad, N., Osman, K., 2017. Self Efficacy as Mediator Between Learning and Behaviour Among in-Service Science Teachers Training Programme of Higher Order Thinking Skills. *Eurasia Proc. Educ. Soc. Sci.* 6, 177–188.
- Moodley, S.V., Zungu, M., Malotle, M., Voyi, K., Claassen, N., Ramodike, J., Thunzi, N., Mlangeni, N., 2021. A health worker knowledge, attitudes and practices survey of SARS-CoV-2 infection prevention and control in South Africa. *BMC Infect. Dis.* 21, 138. <https://doi.org/10.1186/s12879-021-05812-6>
- Moran, K.M., Harris, I.B., Valenta, A.L., 2016. Competencies for Patient Safety and Quality Improvement: A Synthesis of Recommendations in Influential Position Papers. *Jt. Comm. J. Qual. Patient Saf.* 42, 162–169. [https://doi.org/10.1016/S1553-7250\(16\)42020-9](https://doi.org/10.1016/S1553-7250(16)42020-9)
- Morgan, D.L., 2014. Integrating Qualitative and Quantitative Methods: A Pragmatic Approach. SAGE Publications, Inc. <https://doi.org/10.4135/9781544304533>
- Morris, S., Otto, C.N., Golemboski, K., 2013. Improving patient safety and healthcare quality in the 21st century--competencies required of future medical laboratory science practitioners. *Clin. Lab. Sci. J. Am. Soc. Med. Technol.* 26, 200–204.
- Mortensen, M., Naustdal, K.I., Uibu, E., Mägi, L., Kangasniemi, M., Pölluste, K., Moi, A.L., 2022. Instruments for measuring patient safety competencies in nursing: a scoping review. *BMJ Open Qual.* 11. <https://doi.org/10.1136/bmjopen-2021-001751>
- Mortimer, F., Isherwood, J., Wilkinson, A., Vaux, E., 2018. Sustainability in quality improvement: redefining value. *Future Healthc. J.* 5, 88–93. <https://doi.org/10.7861/futurehosp.5-2-88>

- Naidoo, L., Mahomed, O.H., 2016. Impact of Lean on patient cycle and waiting times at a rural district hospital in KwaZulu-Natal. *Afr. J. Prim. Health Care Fam. Med.* 8. <https://doi.org/10.4102/phcfm.v8i1.1084>
- Nancarrow, S.A., 2015. Six principles to enhance health workforce flexibility. *Hum. Resour. Health* 13, 9. <https://doi.org/10.1186/1478-4491-13-9>
- National Department of Health, 2023. National Department of Health Annual Report 2022-2023 (No. R236/2023). Pretoria.
- National Department of Health, 2020a. Strategic Plan 2020/21 - 2024/25 (No. 108/2020). National Department of Health, Pretoria.
- National Department of Health, 2020b. National Health Quality Improvement Plan.
- National Department of Health, 2018. Section 90(1A) of the National Health Act, 2003 (Act No. 61 of 2003): Norms and Standards Regulations Applicable to Different Categories of Health Establishments.
- National Department of Health, 2013. Quality Improvement Guide: Quality Improvement – the key to providing improved quality of care.
- National Department of Health, 2007. Policy on Quality in Health Care for South Africa.
- National Department of Health, 2022. National Guideline for Patient Safety Incident Reporting and Learning in the Health Sector of South Africa – Version 2.
- National Department of Health, 2011. National Health Insurance in South Africa: Policy Paper.
- Ndebele, N., 2024. The Causes, Extent and Effects of Medico-Legal Claims on Healthcare Delivery in South Africa. *Soc. Sci. Educ. Res. Rev.* 11, 141–151. <https://doi.org/10.5281/ZENODO.15258153>
- Nel, B., 2024. Livingstone Hospital's dirty secret: Flies in wards, medical waste, rotting food and cigarette butts on floors and a foul stench greet Herald team on unannounced visit to facility. *The Herald*.
- Nema, D.S., Singh, A., Tripathi, D.K., Shidhaye, D.P., Dhanvijay, D.A.K., 2015. Biomedical Waste Management: A Study of Knowledge, Practices and Attitude among Health Care Personnel at a Tertiary Care Hospital in Bhopal, Central India. *J. Med. Sci. Clin. Res.* 3, 5844–5855.
- Newton, P.J., Halcomb, E.J., Davidson, P.M., Denniss, A.R., 2007. Barriers and facilitators to the implementation of the collaborative method: reflections from a single site. *BMJ Qual. Saf.* 16, 409–414. <https://doi.org/10.1136/qshc.2006.019125>
- Nilsen, A.H., Helvik, A.-S., Thorstensen, W.M., Austad, B., 2024. 'It is difficult for us to assess the severity!' A qualitative analysis of parents' expectations to postoperative care after ventilation tube surgery. *Int. J. Pediatr. Otorhinolaryngol.* 181, 111941. <https://doi.org/10.1016/j.ijporl.2024.111941>
- Nyelisani, M., Makhado, L., Luhalima, T., 2023. Professional Nurses' Experiences Regarding Continuing Professional Development (CPD) Opportunities at Public Hospitals of Limpopo Province, South Africa. *SAGE Open* 13, 21582440231210614. <https://doi.org/10.1177/21582440231210614>
- Office of Health Standards Compliance, 2023a. Office of Health Standards Compliance Annual Report 2022/2023 (No. RP220/2023). Office of Health Standards Compliance.
- Office of Health Standards Compliance, 2023b. Office of the Health Ombud Annual Report 2022/23. Office of Health Standards Compliance, Office of the Health Ombud Pretoria.
- Office of Health Standards Compliance, 2023c. Early Warning System Recommendations Report National 2023. Office of Health Standards Compliance, Pretoria.
- Office of Health Standards Compliance, 2022. Annual Inspection Report 2021/2022. Office of Health Standards Compliance, Pretoria.
- Office of Health Standards Compliance, 2017. Annual Inspection Report 2016/2017. Office of Health Standards Compliance, Pretoria.

- Oleribe, O.E., Momoh, J., Uzochukwu, B.S., Mbofana, F., Adebisi, A., Barbera, T., Williams, R., Taylor Robinson, S.D., 2019. Identifying Key Challenges Facing Healthcare Systems In Africa And Potential Solutions. *Int. J. Gen. Med.* Volume 12, 395–403. <https://doi.org/10.2147/IJGM.S223882>
- Omona, J., 2013. Sampling in Qualitative Research: Improving the Quality of Research Outcomes in Higher Education. *Makerere J. High. Educ.* 4, 169–185. <https://doi.org/10.4314/majohe.v4i2.4>
- Östlund, U., Kidd, L., Wengström, Y., Rowa-Dewar, N., 2011. Combining qualitative and quantitative research within mixed method research designs: A methodological review. *Int. J. Nurs. Stud.* 48, 369–383. <https://doi.org/10.1016/j.ijnurstu.2010.10.005>
- O’Sullivan, H., van Mook, Walther, Fewtrell, Ray, and Wass, V., 2012. Integrating professionalism into the curriculum: AMEE Guide No. 61. *Med. Teach.* 34, e64–e77. <https://doi.org/10.3109/0142159X.2012.655610>
- Oyebode, F., 2013. Clinical Errors and Medical Negligence. *Med. Princ. Pract.* 22, 323–333. <https://doi.org/10.1159/000346296>
- Pain, D., MacDuffie, E., Martei, Y.M., Kassick, M., Ikeda, D.J., Shulman, L.N., Salazar, L.L., Diaz Pardo, D., Nag, S., Grover, S., 2024. Barriers to Implementing a Quality Improvement Program in Low- and Middle-Income Countries: Adequacy of Resources. *JCO Glob. Oncol.* e2400114. <https://doi.org/10.1200/GO.24.00114>
- Panagioti, M., Khan, K., Keers, R.N., Abuzour, A., Phipps, D., Kontopantelis, E., Bower, P., Campbell, S., Haneef, R., Avery, A.J., Ashcroft, D.M., 2019. Prevalence, severity, and nature of preventable patient harm across medical care settings: systematic review and meta-analysis. *BMJ* l4185. <https://doi.org/10.1136/bmj.l4185>
- Panteli, D., Quentin, W., Busse, R., 2019. Understanding healthcare quality strategies: a five-lens framework, in: *Improving Healthcare Quality in Europe: Characteristics, Effectiveness and Implementation of Different Strategies* [Internet]. European Observatory on Health Systems and Policies.
- Parand, A., Dopson, S., Renz, A., Vincent, C., 2014. The role of hospital managers in quality and patient safety: a systematic review. *BMJ Open* 4, e005055. <https://doi.org/10.1136/bmjopen-2014-005055>
- Pascoe, K.M., Petrescu-Prahova, M., Steinman, L., Bacci, J., Mahorter, S., Belza, B., Weiner, B., 2021. Exploring the impact of workforce turnover on the sustainability of evidence-based programs: A scoping review. *Implement. Res. Pract.* 2, 26334895211034581. <https://doi.org/10.1177/26334895211034581>
- Patey, R., Flin, R., Cuthbertson, B.H., MacDonald, L., Mearns, K., Cleland, J., Williams, D., 2007a. Patient safety: helping medical students understand error in healthcare. *Qual. Saf. Health Care* 16, 256–259. <https://doi.org/10.1136/qshc.2006.021014>
- Patey, R., Flin, R., Cuthbertson, B.H., MacDonald, L., Mearns, K., Cleland, J., Williams, D., 2007b. Patient safety: helping medical students understand error in healthcare. *BMJ Qual. Saf.* 16, 256–259. <https://doi.org/10.1136/qshc.2006.021014>
- Patton, M.Q., 2022. Impact-driven qualitative research and evaluation., in: *The SAGE Handbook of Qualitative Research Design*. SAGE Publications Ltd, pp. 1165–1180.
- Patton, M.Q., 1990. *Qualitative Evaluation and Research Methods*. SAGE Publications.
- Peters, D.H., Tran, N.T., Adam, T., Organization, W.H., 2013. *Implementation Research in Health: A Practical Guide*. World Health Organization.
- Pienaar, L., 2016. Investigating the reasons behind the increase in medical negligence claims. *Potchefstroom Electron. Law J. PELJ* 19, 1–22. <https://doi.org/10.17159/1727-3781/2016/v19i0a1101>
- Pillay, R., 2023. High Reliability Healthcare fundamentals of patient safety.

- Pillay, Y., Barron, P., 2018. On the path to reach the SDG targets: Decreasing maternal and child mortality in South Africa. *S. Afr. Med. J.* 108, 2.
<https://doi.org/10.7196/SAMJ.2017.v108i3b.12901>
- Powell, B.J., McMillen, J.C., Proctor, E.K., Carpenter, C.R., Griffey, R.T., Bunker, A.C., Glass, J.E., York, J.L., 2012. A Compilation of Strategies for Implementing Clinical Innovations in Health and Mental Health. *Med. Care Res. Rev.* 69, 123–157.
<https://doi.org/10.1177/1077558711430690>
- Praslova, L., 2010. Adaptation of Kirkpatrick's four level model of training criteria to assessment of learning outcomes and program evaluation in Higher Education. *Educ. Assess. Eval. Account.* 22, 215–225. <https://doi.org/10.1007/s11092-010-9098-7>
- Pronovost, P.J., Berenholtz, S.M., Goeschel, C.A., Needham, D.M., Sexton, J.B., Thompson, D.A., Lubomski, L.H., Marsteller, J.A., Makary, M.A., Hunt, E., 2006. Creating High Reliability in Health Care Organizations. *Health Serv. Res.* 41, 1599–1617.
<https://doi.org/10.1111/j.1475-6773.2006.00567.x>
- Pronovost, P.J., Cleeman, J.I., Wright, D., Srinivasan, A., 2016. Fifteen years after To Err is Human: a success story to learn from. *BMJ Qual. Saf.* 25, 396–399.
<https://doi.org/10.1136/bmjqs-2015-004720>
- Ranganathan, P., Caduff, C., Frampton, C.M.A., 2024. Designing and validating a research questionnaire - Part 2. *Perspect. Clin. Res.* 15, 42–45.
https://doi.org/10.4103/picr.picr_318_23
- Rea, L.M., Parker, R.A., 2014. *Designing and Conducting Survey Research: A Comprehensive Guide*. John Wiley & Sons.
- Reason, J., 2000. Human error: models and management. *BMJ* 320.
<https://doi.org/10.1136/bmj.320.7237.768>
- Ree, E., Wiig, S., 2020. Linking transformational leadership, patient safety culture and work engagement in home care services. *Nurs. Open* 7, 256–264.
<https://doi.org/10.1002/nop2.386>
- Reed, J.E., Card, A.J., 2016. The problem with Plan-Do-Study-Act cycles. *BMJ Qual. Saf.* 25, 147–152. <https://doi.org/10.1136/bmjqs-2015-005076>
- Republic of South Africa, 1974. Health Professions Act No. 56 of 1974.
- Rispel, L.C., 2016. Analysing the progress and fault lines of health sector transformation in South Africa. *South Afr. Health Rev.* 1, 17–23.
- Rodziewicz, T.L., Houseman, B., Vaqar, S., Hipskind, J.E., 2025. Medical Error Reduction and Prevention, in: *StatPearls*. StatPearls Publishing, Treasure Island (FL).
- Rouse, D. (Nick), 2011. Employing Kirkpatrick's Evaluation Framework to Determine the Effectiveness of Health Information Management Courses and Programs. *Perspect. Health Inf. Manag.* 8, 1c.
- Salas, E., Tannenbaum, S.I., Kraiger, K., Smith-Jentsch, K.A., 2012. The Science of Training and Development in Organizations: What Matters in Practice. *Psychol. Sci. Public Interest J. Am. Psychol. Soc.* 13, 74–101. <https://doi.org/10.1177/1529100612436661>
- Saunders, M., Lewis, P., Thornhill, A., 2019. *Research Methods for Business Students*, 8th ed. Pearson, New York.
- Schlemmer, A., Mash, B., 2006. The effects of a language barrier in a South African district hospital. *S. Afr. Med. J.* 96, 1084–1087.
- Sehlabaka, L.G., 2023. An analysis of ethics compliance challenges within strained healthcare systems: the case of South Africa. Stellenbosch : Stellenbosch University.
- Sharma, D.B., 2016. A focus on reliability in developmental research through Cronbach's Alpha among medical, dental and paramedical professionals. *Asian Pac. J. Health Sci.* 3, 271–278. <https://doi.org/10.21276/apjhs.2016.3.4.43>
- Sharma, Poonam, Sharma, Pooja, Herbert, J., Singh, M.K., 2018. Nurses' training evaluation: An assessment of effective transfer of simulation training. *Int. J. Nurs. Res.* 78–84.

- Simpson, V., Richards, E., 2015. Flipping the classroom to teach population health: Increasing the relevance. *Nurse Educ. Pract.* 15, 162–167.
<https://doi.org/10.1016/j.nepr.2014.12.001>
- Singer, S.J., Benzer, J.K., Hamdan, S.U., 2015. Improving health care quality and safety: the role of collective learning. *J. Healthc. Leadersh.* 7, 91–107.
<https://doi.org/10.2147/JHL.S70115>
- Singh, G., Patel, R.H., Vaqar, S., Boster, J., 2025. Root Cause Analysis and Medical Error Prevention, in: *StatPearls*. StatPearls Publishing, Treasure Island (FL).
- Song, Y., Son, Y.-J., Oh, D., 2015. Methodological Issues in Questionnaire Design. *J. Korean Acad. Nurs.* 45, 323. <https://doi.org/10.4040/jkan.2015.45.3.323>
- South African Lancet National Commission, 2019. Confronting the right to ethical and accountable quality health care in South Africa: A consensus report.
- South African Nursing Council, 2024. Notification of a Phased-in Implementation of Continuing Professional Development (cpd) for Nurses and Midwives by the South African Nursing Council.
- South African Nursing Council, 2005. Nursing Act, 2005 Act No. 33 of 2005.
- Swing, S.R., Schneider, S., Bizovi, K., Chapman, D., Graff, L.G., Hobgood, C., Lukens, T., Radford, M.J., Sanders, A., Smith-Coggins, R., Spillane, L., Hruska, L., Wears, R.L., 2007. Using Patient Care Quality Measures to Assess Educational Outcomes. *Acad. Emerg. Med.* 14, 463–473. <https://doi.org/10.1111/j.1553-2712.2007.tb01809.x>
- Tanner, D., Tanner, L.N., 1995. *Curriculum Development: Theory Into Practice*. Merrill.
- Tariq, S., Woodman, J., 2013. Using mixed methods in health research. *JRSM Short Rep.* 4, 2042533313479197. <https://doi.org/10.1177/2042533313479197>
- Tashakkori, A., Teddlie, C., 2021. *SAGE Handbook of Mixed Methods in Social & Behavioral Research*. SAGE Publications.
- Taylor, M.J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D., Reed, J.E., 2014. Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ Qual. Saf.* 23, 290–298. <https://doi.org/10.1136/bmjqs-2013-001862>
- Thelen, J., Fruchtman, C.S., Bilal, M., Gabaake, K., Iqbal, S., Keakabetse, T., Kwamie, A., Mokalake, E., Mupara, L.M., Seitio-Kgokgwe, O., Zafar, S., Muñoz, D.C., 2023. Development of the Systems Thinking for Health Actions framework: a literature review and a case study. *BMJ Glob. Health* 8. <https://doi.org/10.1136/bmjgh-2022-010191>
- Timeslive, 2024. Steve Biko Hospital suspends five nurses to probe negligence claims: “Unfortunate incident” captured on video by member of public. TimesLIVE.
- United Nations Department of Economic and Social Affairs (UNDESA) and Committee for Development Policy (CDP), 2009. *Implementing the Millennium Development Goals: Health Inequality and the Role of Global Health Partnerships*.
- Vahdat, S., Hamzehgardeshi, L., Hessam, S., Hamzehgardeshi, Z., 2014. Patient Involvement in Health Care Decision Making: A Review. *Iran. Red Crescent Med. J.* 16. <https://doi.org/10.5812/ircmj.12454>
- Vaismoradi, M., Turunen, H., Bondas, T., 2013. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nurs. Health Sci.* 15, 398–405. <https://doi.org/10.1111/nhs.12048>
- Varkey, P., Reller, M.K., Resar, R.K., 2007. Basics of Quality Improvement in Health Care. *Mayo Clin. Proc.* 82, 735–739. <https://doi.org/10.4065/82.6.735>
- Veazie, S., Peterson, K., Bourne, D., 2019. Evidence Brief: Implementation of High Reliability Organization Principles, VA Evidence-based Synthesis Program Reports. Department of Veterans Affairs (US), Washington (DC).
- Vian, T., 2008. Review of corruption in the health sector: theory, methods and interventions. *Health Policy Plan.* 23, 83–94. <https://doi.org/10.1093/heapol/czm048>
- Vincent, C., Amalberti, R., 2016. *Safer Healthcare: Strategies for the Real World*. Springer.

- Walker, H.R., Evans, E., Nirula, R., Hyngstrom, J., Matsen, C., Nelson, E., Pickron, B., Zurbuchen, E., Morrow, E.H., 2022. "I need to have a fulfilling job": A qualitative study of surgeon well-being and professional fulfillment. *Am. J. Surg.* 223, 6–11. <https://doi.org/10.1016/j.amjsurg.2021.07.029>
- Walliman, N., 2010. *Research Methods: The Basics*. Routledge.
- Weick, K.E., Sutcliffe, K.M., 2011. *Managing the Unexpected: Resilient Performance in an Age of Uncertainty*. John Wiley & Sons.
- Weiner, S., Schwartz, A., Altman, L., Ball, S., Bartle, B., Binns-Calvey, A., Chan, C., Falck-Ytter, C., Frenchman, M., Gee, B., Jackson, J.L., Jordan, N., Kass, B., Kelly, B., Safdar, N., Scholcoff, C., Sharma, G., Weaver, F., Wopat, M., 2020. Evaluation of a Patient-Collected Audio Audit and Feedback Quality Improvement Program on Clinician Attention to Patient Life Context and Health Care Costs in the Veterans Affairs Health Care System. *JAMA Netw. Open* 3, e209644. <https://doi.org/10.1001/jamanetworkopen.2020.9644>
- White, K.R., Griffith, J.R., 2010. *The Well-Managed Healthcare Organization*, Seventh Edition. ACHE Learn.
- WHO Service Delivery and Safety Department, 2017. *Service Delivery and Safety at WHO: Placing people at the centre of health services*. World Health Organization.
- Wiles, R., 2012. *What are Qualitative Research Ethics?* Bloomsbury Publishing.
- Wolfe, A., 2001. Institute of Medicine Report: Crossing the Quality Chasm: A New Health Care System for the 21st Century. *Policy Polit. Nurs. Pract.* 2, 233–235. <https://doi.org/10.1177/152715440100200312>
- Wong, S.Y., Fu, A.C.L., Han, J., Lin, J., Lau, M.C., 2021. Effectiveness of customised safety intervention programmes to increase the safety culture of hospital staff. *BMJ Open Qual.* 10, e000962. <https://doi.org/10.1136/bmjopen-2020-000962>
- World Health Organisation, 2011. *Patient safety in developing and transitional countries: New insights from Africa and the Eastern Mediterranean*.
- World Health Organization, 2025. *Health workforce [WWW Document]*. URL <https://www.who.int/health-topics/health-workforce> (accessed 5.7.25).
- World Health Organization, 2023. *Fact sheet: Quality health services [WWW Document]*. World Health Organ. URL <https://www.who.int/news-room/fact-sheets/detail/quality-health-services> (accessed 5.3.25).
- World Health Organization, 2022. *Global Competency and Outcomes Framework for Universal Health Coverage*.
- World Health Organization, 2021. *Global Patient Safety Action Plan 2021–2030: Towards eliminating avoidable harm in health care*.
- World Health Organization, 2019. *World Health Assembly Update, 25 May 2019 (News Release)*. World Health Organization, Geneva.
- World Health Organization, 2008. *The World Health Report: Primary Health Care - Now More Than Ever*.
- World Health Organization, 2003. *Public health Mapping, Health Services, South Africa (as of May 2003)*.
- World Health Organization Africa Region, 2025. *Essential Medicines [WWW Document]*. World Health Organ. URL <https://www.afro.who.int/health-topics/essential-medicines> (accessed 5.7.25).
- Worsley, C., Webb, S., Vaux, E., 2016. Training healthcare professionals in quality improvement. *Future Hosp. J.* 3, 207–210. <https://doi.org/10.7861/futurehosp.3-3-207>
- Yardley, S., Teunissen, P.W., Dornan, T., 2012. Experiential learning: transforming theory into practice. *Med. Teach.* 34, 161–164. <https://doi.org/10.3109/0142159X.2012.643264>

- Yenet, A., Nibret, G., Tegegne, B.A., 2023. Challenges to the Availability and Affordability of Essential Medicines in African Countries: A Scoping Review. *Clin. Outcomes Res.* 15, 443–458. <https://doi.org/10.2147/CEOR.S413546>
- Youngberg, B.J., 2010. *Principles of Risk Management and Patient Safety*. Jones & Bartlett Publishers.
- Yvonne Feilzer, M., 2010. Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm. *J. Mix. Methods Res.* 4, 6–16. <https://doi.org/10.1177/1558689809349691>
- Zeng, G., Hou, H., Peng, K., 2016. Effect of Growth Mindset on School Engagement and Psychological Well-Being of Chinese Primary and Middle School Students: The Mediating Role of Resilience. *Front. Psychol.* 7. <https://doi.org/10.3389/fpsyg.2016.01873>
- Zhao, G., Carlton, D., 2015. Forecast Competency Migration by a Methodology of Competency Analytics. *Open J. Soc. Sci.* 03, 7. <https://doi.org/10.4236/jss.2015.311003>
- Zondi, S., 2021. Training and development as a driver for performance of the local government employees: a case of Ndwedwe local municipality in the KwaZulu-Natal division (Doctoral Dissertation). Durban University of Technology, Kwa-Zulu Natal, South Africa.
- Zuma, T., Wight, D., Rochat, T., Moshabela, M., 2016. The role of traditional health practitioners in Rural KwaZulu-Natal, South Africa: generic or mode specific? *BMC Complement. Altern. Med.* 16, 304. <https://doi.org/10.1186/s12906-016-1293-8>

ANNEXURES

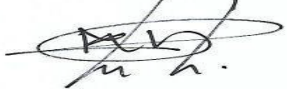
ANNEXURE A: ETHICS APPROVAL

Office of the Chairperson Research Ethics Committee	FACULTY: BUSINESS AND MANAGEMENT SCIENCES
--	--

The Faculty's Research Ethics Committee (FREC) on **16 November 2021**, ethics **APPROVAL** was granted to **Prof Visvanathan Naicker** for a research activity at the Cape Peninsula University of Technology.

Title of project:	National Health Quality Improvement Plan in South Africa [NHQIP] Researcher (s): Prof V Naicker/ Prof R Tengeh/ Prof R Rampersad
-------------------	--

Decision: **APPROVED**

 Signed: Chairperson: Research Ethics Committee	17 November 2021 Date
--	--

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the CPUT Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study requires that the researcher stops the study and immediately informs the chairperson of the relevant Faculty Ethics Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines, and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, notably compliance with the Bill of Rights as provided for in the Constitution of the Republic of South Africa, 1996 (the Constitution) and where applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003 and/or other legislations that is relevant.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after two (2) years for Masters and Doctorate research project from the date of issue of the Ethics Certificate. Submission of a completed research ethics progress report (REC 6) will constitute an application for renewal of Ethics Research Committee approval.

Clearance Certificate No | 2021 FBMSREC 078

ANNEXURE B: LETTER OF SUPPORT



**DIRECTOR GENERAL
HEALTH
REPUBLIC OF SOUTH AFRICA
PRETORIA**

Private Bag X828, PRETORIA, 0001, Dr AB Xuma Building, 1112 Voortrekker Rd, Pretoria Townlands 351-JR, Pretoria, 0187, Tel (012) 395 8000
CAPE TOWN
P.O. Box 3875, CAPE TOWN, 8000, 103 Parliament Towers, Room 615, Plain Street, CAPE TOWN, 8000 Tel (021) 461 2040 Fax (021) 461 6864

To Whom it may concern

Letter of Support: National Quality Health Implementation Plan – Research Project to be conducted in the nine provinces of South Africa

The National Department of Health supports the conduct of following nine studies that will be conducted by Masters and Doctor students based at Cape Peninsula University of Technology under the leadership of Professor Visvanathan Naicker

1. A study of Healthcare Quality and Patient safety capacity building interventions in South Africa. A national sectoral analysis.
2. Bridging the Competency Gap in Quality Patient Care Amongst Clinicians and Clinical Managers.
3. Translation of knowledge during the training into tangible improvements in the quality of care provided for Emergency Medical Services.
4. Towards High Reliability Healthcare in RSA: A Study of capacity building of non-clinical managers and leaders in South Africa.
5. Translation of knowledge from the Healthcare Quality Management training into tangible improvements in healthcare social work services.
6. The lack of strategic management of health services and its effect on quality health care.
7. A “people-centred approach” to realising health care by facilitating patient, and community participation in health attainment.
8. The effect of critical staff shortages, inadequate training, and poor attitudes of staff on health care.
9. Delivering Emergency Medical Services in resource constrained circumstances

The benefit derived from this research will inform the health sector on where and what the problematic areas are - pre and post the training around the various topics the 9 students have chosen in quality healthcare. Evidence from this research and training will further encourage a strong stewardship and leadership for high quality universal health coverage for all South Africans

**DR N CRISP
ACTING DIRECTOR-GENERAL: HEALTH**

DATE: 15/11/2021

ANNEXURE C: MEDIA ALERTS RELATED TO QUALITY AND PATIENT SAFETY INCIDENTS



Office of Health Standards Compliance
Ensuring quality and safety in health care

Physical Address: Office of Health Standards Compliance, 79 Steve Biko Road, Prinshof, **PRETORIA**, SOUTH AFRICA, **Postal Address:** Private Bag X 21, **ARCADIA**, 0007

MEDIA INCIDENTS

HE	INCIDENTS	LINK
JANUARY		
Calcot Dlepu clinic	NURSES MOROTO SHOWER	Daily Sun (Country) 2023-01-27 (storage.googleapis.com)
FEBRUARY		
Pietersburg Provincial Hospital	Casualty unit at Pietersburg Provincial Hospital open after floods	https://reviewonline.co.za/563311/casualty-unit-at-pietersburg-provincial-hospital-closed-after-floods/
KOMANI HOSPITALS	HIT BY FLOODING, OUTAGES	https://storage.googleapis.com/meltwaterafrica/134B041/PHL-1675914631112_134B295.pdf
Thembisa Hospital	suspends visits at accident and emergency department	https://www.timeslive.co.za/news/south-africa/2023-02-16-thembisa-hospital-suspends-visits-at-accident-and-emergency-department/

HE	INCIDENTS	LINK
Warrenton community health clinic	No water at clinic, patients sent home	https://www.dfa.co.za/news/no-water-at-clinic-patients-sent-home-b399741c-fb76-4b1f-9942-cb0e7dca84e7/
MARCH		
Charlotte Maxeke Hospital	Patients told to leave Charlotte Maxeke Hospital amid Nehawu strike	https://www.news24.com/news24/video/southafrica/news/watch-patients-told-to-leave-charlotte-maxeke-hospital-amid-nehawu-strike-20230308
Thelle Mogoerane Regional Hospital	Child dies as workers embark on wildcat strike	https://www.iol.co.za/the-star/news/child-dies-as-workers-embark-on-wildcat-strike-cba8b512-d712-457e-b249-99dce4658100
GJ Crookes Hospital	Patients lose patience at GJ Crookes Hospital	https://midsouthcoastrisingsun.co.za/58872/patients-lose-patience-at-gj-crookes-hospital/
Tygerberg Hospital	Patients suffer at Tygerberg Hospital	https://www.sn124.com/dailysun/news/patients-suffer-at-tygerberg-hospital-20230317
APRIL		
Merebank Clinic	Merebank Clinic security officer saves the day	https://tabloidmedia.co.za/merebank-clinic-security-officer-saves-the-day/
Stellenboch Hospital	Stellies Hospital failed to report teen's rape	https://www.iol.co.za/capetimes/news/stellies-hospital-failed-to-report-teens-rape-913fb2ec-e07a-4544-9aaf-1106ddedc5ef
Frere Hospital	Ten years – that's how long East London patients can expect to wait for knee or hip replacement surgery	https://www.msn.com/en-za/health/health-news/ten-years-%e2%80%93-thats-how-long-east-london-patients-can-expect-to-wait-for-knee-or-hip-replacement-surgery/ar-AA19tgB8
Wentworth Clinic	Clinic closes after attempted gang-related attack	https://southlandssun.co.za/195234/clinic-closes-after-attempted-gang-related-attack/
Hendrina	Bogus doctor to appear in court for contravening the Health Professions Act	https://www.saps.gov.za/newsroom/msspeechdetail.php?nid=45556
Bishop Lavis Day Hospital	Patients 'sickened' by staff behaviour at Bishop Lavis Day Hospital	https://www.iol.co.za/weekend-argus/news/patients-sickened-by-staff-behaviour-at-bishop-lavis-day-hospital-92be5f9a-b6ce-4270-a1bb-c74b641064f4

HE	INCIDENTS	LINK
Livingstone Hospital	Desperate Livingstone Hospital doctors tell patients: Call President Ramaphosa – we can't fix your broken bones	https://www.msn.com/en-za/news/others/desperate-livingstone-hospital-doctors-tell-patients-call-president-ramaphosa-%E2%80%93-we-cant-fix-your-broken-bones/ar-AA196cuk
Madumane Clinic	Limpopo Health has condemned the kidnapping, robbery and rape of a nurse	https://www.iol.co.za/news/south-africa/limpopo/limpopo-health-has-condemned-the-kidnapping-robbery-and-rape-of-a-nurse-0e0ebbb8-3add-46f7-a37b-34aae6c019ab
Jan Witbooi Clinic	Deben health care needs a boost	https://www.polity.org.za/article/deben-health-care-needs-a-boost-2023-04-14
Bitou	Lives at risk as budget constraints again put hold on hospital for Plett	https://storage.googleapis.com/meltwaterafrica/134B10E/PHL-1681445891952_134B15B.pdf
Sterkwater Clinic	Patients at Sterkwater Clinic subjected to poor conditions and neglect	https://www.polity.org.za/article/patients-at-sterkwater-clinic-subjected-to-poor-conditions-and-neglect-2023-04-18
Eastern Cape	'It is not nice being me' — more than 5,000 people in Eastern Cape wait for wheelchairs	https://www.msn.com/en-za/news/others/it-is-not-nice-being-me-%E2%80%94-more-than-5000-people-in-eastern-cape-wait-for-wheelchairs/ar-AA1a1vqf
Christ Hani Baragwanath Academic Hospital	Access to Sufficient Colostomy Bags Still Hit-and-Miss	https://headtopics.com/za/south-africa-access-to-sufficient-colostomy-bags-still-hit-and-miss-at-gauteng-hospitals-38140511
Christ Hani Baragwanath Academic Hospital	Baragwanath Hospital Security Guard's Actions Reunite Babies With Real Mums After Negligent Discharge Mistake Read	https://briefly.co.za/south-africa/157901-baragwanath-hospital-security-officer-reunites-baby-real-mother-newborn-discharged-wrong-mum/
Tzaneen Clinic	Pregnant Limpopo nurse assaulted by patient	https://www.enca.com/news/limpopo-nurse-allegedly-assaulted-patient

HE	INCIDENTS	LINK
Gqheberha Clinics	Patients sent to pharmacies as clinics run out of medicine	https://www.news24.com/citypress/news/patients-sent-to-pharmacies-as-clinics-run-out-of-medicine-20230422
Stilwater Mobile Clinic	Residents of Stillwater have no access to healthcare services	https://www.sabcnews.com/sabcnews/residents-of-stillwater-have-no-access-to-primary-healthcare-services-in-the-area/
Gauteng Health	Gauteng facing condom shortage	https://www.news24.com/news24/southafrica/news/gauteng-facing-condom-shortage-20230425
Thelle Mogoerane	Thelle Mogoerane Hospital casualty exposes patients to preventable deaths	https://www.news24.com/citypress/news/thelle-mogoerane-hospital-casualty-exposes-patients-to-preventable-deaths-20230425
Nellmapuis Clinic	Nellmapius community redirected after clinic fire	https://storage.googleapis.com/meltwaterafrica/134B119/SDM-1682392277900_134B465.pdf
MAY		
Chris Hani Baragwanath Academic Hospital	Doctors' SOS as Chris Hani Baragwanath Academic Hospital faces essential food shortage	https://www.msn.com/en-za/news/others/doctors-sos-as-chris-hani-baragwanath-academic-hospital-faces-essential-food-shortage/ar-AA1aBbw1
Pollsmoor Prison	Claims that Pollsmoor had no dental services for nearly a year dismissed	https://www.capetownetc.com/news/pollsmoor-dental-services/
Finetown Clinic	'We are suffering': Gauteng's Finetown clinic remains shuttered three years after being built	https://www.msn.com/en-za/news/other/we-are-suffering-gauteng-s-finetown-clinic-remains-shuttered-three-years-after-being-built/ar-AA1aEE0Q
Chris Hani Baragwanath Academic Hospital	More than 900 babies died from avoidable incidents at Chris Hani Baragwanath Hospital	https://www.news24.com/news24/health/more-than-900-babies-died-from-avoidable-incidents-at-chris-hani-baragwanath-hospital-20230502
Bakububg Clinic	Clinic causes patients more pain!	https://www.sn124.com/dailysun/news/villagers-in-the-north-west-lash-health-department-over-shortage-of-nurses-20230503

HE	INCIDENTS	LINK
Dora Nginza Hospital	Twenty-nine pregnant women evacuated from overwhelmed hospital in Nelson Mandela Bay	https://www.msn.com/en-za/news/others/twenty-nine-pregnant-women-evacuated-from-overwhelmed-hospital-in-nelson-mandela-bay/ar-AA1aSjk7
Kuruman District Hospital	DENOSA Northern Cape reports provincial health department to SA Human Rights Commission, SA Nursing Council and Office Health Standards Compliance over inhumane conditions	https://www.polity.org.za/article/denosa-northern-cape-reports-provincial-health-department-to-sa-human-rights-commission-sa-nursing-council-and-office-health-standards-compliance-over-inhumane-conditions-2023-05-08
Endayeni Clinic	Gauteng health dept probes why pregnant teen was turned away from clinic	https://www.news24.com/news24/southafrica/news/gauteng-health-dept-probes-why-pregnant-teen-was-turned-away-from-clinic-20230515
Mahatma Ghandi	Phoenix rising? KZN health department denies allegation that 'dead' woman woke up in mortuary	https://www.news24.com/news24/southafrica/news/phoenix-rising-kzn-health-department-denies-allegation-that-dead-woman-woke-up-in-mortuary-20230517
Sebokeng Hospital	Woman who was told daughter died during birth allegedly given body of baby boy to bury by Sebokeng hospital	https://www.timeslive.co.za/news/south-africa/2023-05-15-woman-who-was-told-daughter-died-during-birth-allegedly-given-body-of-baby-boy-to-bury-by-sebokeng-hospital/
Nyanga Clinic	Pensioners are paying people to queue for them at Nyanga clinic	https://www.sapeople.com/2023/05/12/pensioners-are-paying-people-to-queue-for-them-at-nyanga-clinic/
Mahatma Ghandi Hospital	DA to meet with Gandhi hospital management over concerns raised	https://tabloidmedia.co.za/da-to-meet-with-gandhi-hospital-management-over-concerns-raised/

HE	INCIDENTS	LINK
Tlhabane Health Centre	North West health department under fire – again	https://www.citizen.co.za/news/north-west-health-department-under-fire-again/
Mahikeng Provincial Hospital	Whip cracked over babies in boxes	https://storage.googleapis.com/meltwaterafrica/134B181/SYS-16853352995979961_134B2B8.pdf
Cecilia Makiwane Hospital Dordrecht Hospital Marjorie Parrish TB Hospital	Too scared to come to work, nurses say amid rising security concerns at Eastern Cape health facilities	https://www.msn.com/en-za/news/others/too-scared-to-come-to-work-nurses-say-amid-rising-security-concerns-at-eastern-cape-health-facilities/ar-AA1bHh63
JUNE		
Tambo Memorial Hospital	NEW MOTHERS AT MERCY OF NURSES	CityPressEasternCape 2023-06-04 (storage.googleapis.com)
Helen Joseph Hospital	'Massive infection risk' at Helen Joseph Hospital after water pressure plummets	https://www.msn.com/en-za/news/others/massive-infection-risk-at-helen-joseph-hospital-after-water-pressure-plummets/ar-AA1caqRI
Shikhumba Clinic	DA oversight reveals deplorable conditions at Shikhumba Clinic	DA oversight reveals deplorable conditions at Shikhumba Clinic (polity.org.za)
Jabavu Clinic	IFP youth march over bad state of clinic	https://sowetourban.co.za/116790/ifp-youth-march-over-bad-state-of-clinic/
Prince Mshiyeni	KZN Health MEC urged to probe issues at Prince Mshiyeni Memorial Hospital	https://www.iol.co.za/dailynews/news/kzn-health-mec-urged-to-probe-issues-at-prince-mshiyeni-memorial-hospital-c04ddb5b-e2dc-42c2-baeb-0da99675787d
Gugulethu CHC	Cape Town Clinic Security Guards Robbed at Gunpoint by Criminals Pretending to Be Wheelchair-Bound Patients	https://briefly.co.za/south-africa/161653-cape-town-clinic-security-guard-robbed-gunpoint-by-criminals-pretending-wheelchair-bound-patients/

HE	INCIDENTS	LINK
Phomolong Clinic	Henneman residents close down Phomolong Clinic, denouncing ailing state	https://www.sabcnews.com/sabcnews/henneman-residents-close-down-phomolong-clinic-denouncing-ailing-state/
Mpumalanga	`Red tape` puts HIV patients` lives in danger	https://storage.googleapis.com/meltwaterafrica/134B1DA/SMD-1687066814570_134B285.pdf
Sebokeng Hospital	Mother accuses Sebokeng Hospital staff of neglect in her baby's death	https://www.sabcnews.com/sabcnews/mother-accuses-sebokeng-hospital-staff-of-neglect-in-her-babys-death/
Umlazi	Probe into allegations of paramedics abandoning a patient in Umlazi	https://www.sabcnews.com/sabcnews/probe-into-allegations-of-paramedics-abandoning-a-patient-in-umlazi/
Carolina Hospital	Angry thugs trash hospital!	https://storage.googleapis.com/meltwaterafrica/134B1E2/NPM-1687755069117_134B551.pdf
Charlotte Maxeke Academic Hospital, Steve Biko Academic Hospital	Gauteng `dragging` its feet on buying radiation equipment	https://storage.googleapis.com/meltwaterafrica/134B1E2/NGA-1687754742550_134B310.pdf
Carletonville Hospital	Pensioner loses leg after `bad hospital service`	https://carletonvilleherald.com/70601/pensioner-loses-leg-after-bad-hospital-service/
JULY		
Botlokwa Hospital	Woman seeks justice for hospital's alleged negligence	https://www.limpopomirror.co.za/articles/news/58555/2023-07-08/woman-seeks-justice-for-hospitals-alleged-negligence
Charlotte Maxeke Hospital; Tambo Memorial Hospital; South Hills; Germiston City Municipal Clinic; Heidelberg Clinic; and Edenvale Clinic	Pregnant women still turned away by some hospitals despite free treatment court ruling	https://vnexplorer.net/pregnant-women-still-turned-away-by-some-hospitals-despite-free-treatment-court-ruling-s3498535.html
Thelle Mogoerane	Department of Health investigates stillbirth at	https://southerncourier.co.za/270375/doh-investigates-stillbirth-at-tmrh/

HE	INCIDENTS	LINK
	Thelle Mogoerane Regional Hospital	
Limpopo Department of Health	'We are OVERWORKED' - nurses	https://www.sn124.com/dailysun/news/concern-over-shortage-of-healthcare-workers-in-limpopo-20230717
Tshwane District Hospital	'Soft' restraints used on Tshwane hospital patient (84), probe finds	https://rekord.co.za/463759/soft-restraints-used-on-tshwane-hospital-patient-84-probe-finds/
Hillbrow Community Health Centre	Health dept denies that unpaid bills behind month-long darkness at Hillbrow community centre	https://www.news24.com/news24/southafrica/news/health-dept-denies-that-unpaid-bills-behind-month-long-darkness-at-hillbrow-community-centre-20230719
Gauteng Hospitals	Concerns raised about shortage of 90 neonatal Intensive Care Units in Gauteng	https://www.iol.co.za/the-star/news/concerns-raised-about-shortage-of-90-neonatal-intensive-care-units-in-gauteng-d5783995-9782-4ae6-b693-ac2000af8b65
Tembisa Hospital	COSATU Gauteng is deeply concerned about the shortage of medication at Tembisa Hospital	https://www.researchchannel.co.za/login.php?url=/article/cosatu-gauteng-is-deeply-concerned-about-the-shortage-of-medication-at-tembisa-hospital-2023-07-24
Bela Clinic	Health Department employee nabbed for selling ARVs to a Nigerian	https://www.thesouthafrican.com/news/health-department-employee-nabbed-for-selling-arvs-nigerian-24-july-2023-breaking/
Witbank Hospital	DA requests Health Ombud, Human Rights Commission to probe Witbank Hospital	https://www.thesouthafrican.com/news/da-requests-health-ombud-human-rights-commission-to-probe-witbank-hospital-30-july-2023-breaking/
Jack Hindon Clinic	Poor service is order of the day at clinic	https://storage.googleapis.com/meltwaterafrica/134B248/LTM-1690537521714_134B44F.pdf
AUGUST		
Bethesda Hospital	For 5 years, a KZN hospital has struggled for water.	https://www.news24.com/news24/southafrica/news/for-5-years-a-kzn-hospital-has-struggled-for-water-now-a-union-says-it-has-had-enough-20230801

HE	INCIDENTS	LINK
	Now a union says it has had enough	
Lyttelton Clinic Folang Clinic FF Ribeiro Clinic Hercules Clinic Karenpark Clinic Rosslyn Clinic	Protests by SAMWU members interfere with healthcare services in the City of Tshwane	https://www.msn.com/en-za/news/other/protests-by-samwu-members-interfere-with-healthcare-services-in-the-city-of-tshwane/ar-AA1eE097
Tambo Memorial Hospital	THE HORROR HOSPITAL WHERE THE SICK FEAR TO GO	https://storage.googleapis.com/meltwaterafrica/134B296/SYS-169130177850321133_134B5EA.pdf
Nkhensani Hospital	Giyani Concerned Residents march against Nkhensani Hospital	https://letabaherald.co.za/130649/giyani-concerned-residents-march-against-nkhensani-hospital/
Chris Hani Baragwanath Academic Hospital	Chris Hani Baragwanath runs out of life-saving Adrenaline after Gauteng switches suppliers	Chris Hani Baragwanath runs out of life-saving Adrenaline after Gauteng switches suppliers (dailymaverick.co.za)
Far East Rand Hospital	ACCUSED OF HANDING FAMILIES DECOMPOSED BODIES	https://storage.googleapis.com/meltwaterafrica/134B2A4/SYS-169250923750921122_134B341.pdf
Bayibuye Clinic	Great service but long wait times at clinic	https://storage.googleapis.com/meltwaterafrica/134B2A8/LZU-1692867896606_134B45E.pdf
Lydenburg Hospital	Mum blames hospital for twin's death in Lydenburg	https://lowvelder.co.za/831885/mum-blames-hospital-for-twins-death-at-lydenburg-hospital/
SEPTEMBER		
Robert Mangaliso Sobukwe Hospital	Kidnapped Kimberley baby found unharmed	https://www.news24.com/news24/community-newspaper/noordkaapbulletin/kidnapped-baby-found-unharmed-20230908

HE	INCIDENTS	LINK
Kopanong Hospital	Pregnant woman found hanging from hospital toilet door	https://www.news24.com/news24/southafrica/news/pregnant-woman-found-hanging-from-hospital-toilet-door-20230912
Princess Clinic	I cried after we left, and I felt so humiliated – Princess Clinic patient	https://roodepoortrecord.co.za/2023/09/26/family-questions-princess-clinic-staff-after-sensitive-privacy-breach/
Kliptown Clinic	Lack of leadership cripples service delivery at Kliptown Clinic	https://www.polity.org.za/article/lack-of-leadership-cripples-service-delivery-at-kliptown-clinic-2023-09-27
Motherwell NU8 Clinic and Motherwell CHC	Many in Eastern Cape still denied health services despite some improvements, report finds	https://www.dailymaverick.co.za/article/2023-09-27-eastern-cape-ritshidze-report-many-still-denied-health-services/
Ladysmith Hospital	KZN health department launches urgent probe after viral video shows assault of boy, 13, at Ladysmith Hospital	https://www.news24.com/news24/southafrica/news/kzn-health-department-launches-urgent-probe-after-viral-video-shows-assault-of-boy-13-at-ladysmith-hospital-20231001
OCTOBER		
Helen Joseph Hospital	All I wanted was to go home': Man claims Helen Joseph hospital security staff assaulted him	'All I wanted was to go home': Man claims Helen Joseph hospital security staff assaulted him News24
Bedfordview Clinic	Residents concerned about the state of Bedfordview Clinic	https://bedfordviewedenvalenews.co.za/516702/bedfordview-clinic-a-hot-mess/
EMS (Odi Hospital)	Department of Health admits ambulance arrived two hours late in relation to death of Oeratile Chabalala, 6	Department of Health admits ambulance arrived two hours late in relation to death of Oeratile Chabalala, 6 (iol.co.za)

HE	INCIDENTS	LINK
Charlotte Maxeke Hospital	They are kept like animals': Psychiatric patients suffer in dismal conditions at Charlotte Maxeke hospital	https://www.dailymaverick.co.za/article/2023-10-17-they-are-kept-like-animals-psychiatric-patients-suffer-in-dismal-conditions-at-charlotte-maxeke-hospital/
NOVEMBER		
Postmasburg Hospital	Hospital patient hangs himself	https://www.dfa.co.za/news/hospital-patient-hangs-himself-24843ef1-bc44-4b16-b58b-64e659569868/
De Aar Hospital	De Aar hospital needs bolstering	https://www.polity.org.za/article/de-aar-hospital-needs-bolstering-2023-11-03
Bishop Lavis	Pen stuck in pupil's head: Mom slams Bishop Lavis Day Hospital for gross negligence	https://www.dailyvoice.co.za/news/pen-stuck-in-pupils-head-mom-slams-bishop-lavis-day-hospital-for-gross-negligence-5d45f694-ca75-46d4-b46c-ec6fb909173c
	Medical waste illegally dumped at a field in Ormonde	https://www.thesouthafrican.com/news/medical-waste-dumped-ormonde-johannesburg-gauteng-health-12-november-2023/
KZN Heath Establishments	Water woes at 59 health facilities	https://storage.googleapis.com/meltwaterafrica/134B3CB/SMD-1700056306545_134B3EE.pdf
Lenasia South Hospital	Woman Accuses Lenasia South Hospital Nurses of Not Helping Her in Viral Video, SA Concerned	https://briefly.co.za/south-africa/174030-woman-accuses-lenasia-south-hospital-nurses-helping-viral-video-sa-concerned/
KwaMashu CHC	BOY RECOVERING AFTER CIRCUMCISION COMPLICATION	https://storage.googleapis.com/meltwaterafrica/134B3D2/SNS-1700626628379_134B78E.pdf
Northam Clinic	Patient dies in front of Limpopo clinic after security guard denied him access due to load shedding	https://www.news24.com/news24/southafrica/news/patient-dies-in-front-of-limpopo-clinic-after-security-guard-denied-him-access-due-to-load-shedding-20231126

HE	INCIDENTS	LINK
Thele Mogoerane Regional Hospital	Thelle Mogoerane nurses suspended amidst allegations of neglect	https://www.thesouthafrican.com/news/thelle-mogoerane-nurses-suspended-amidst-allegations-of-neglect-25-november-2023/
DECEMBER		
Party wants hospital to do the right thing	Tambo Memorial Hospital	https://storage.googleapis.com/meltwaterafrica/134B428/SYS-1702008766262141_134B596.pdf
JANUARY		
South Africa: We Can't Simply Close Dental Facilities During the Festive Period	Cala District Hospital	https://allafrica.com/stories/202401100072.html
Mabandla Clinic	Staff refuse to work at clinic after fence stolen	https://www.africaninsider.com/news/staff-refuse-work-clinic-fence-stolen/
Stretford Clinic	Sanitary pad left inside Gauteng woman after giving birth	https://www.citizen.co.za/network-news/inn/article/sanitary-pad-left-inside-gauteng-woman-after-giving-birth/
Dr. George Mukhari Academic Hospital	'Horrrifying' — doctor blows whistle on CT scanner disaster at major state hospital	https://www.msn.com/en-za/health/other/horrifying-doctor-blows-whistle-on-ct-scanner-disaster-at-major-state-hospital/ar-BB1hotEs
FEBRUARY		
Charlotte Maxeke Academic Hospital	Patient: the hits kept coming	https://storage.googleapis.com/meltwaterafrica/134D749/TSA-1706760923771_134D874.pdf
Charlotte Maxeke Academic Hospital	'I discharged myself and fled' – Woman tells of how she escaped second amputation at Charlotte Maxeke	https://www.citizen.co.za/news/south-africa/i-discharged-myself-woman-amputation-charlotte-maxeke/amp/
Elizabeth Donkin Psychiatric Hospital	Patient beaten to death by fellow psychiatric patient	https://www.medicalbrief.co.za/patient-beaten-to-death-by-fellow-psychiatric-patient/

HE	INCIDENTS	LINK
Robbers lock nurse, guard in clinic dispensary overnight	Zigodlo Clinic	https://www.medicalbrief.co.za/robbers-lock-nurse-guard-in-clinic-dispensary-overnight/
Livingstone Hospital's dirty secret	Livingstone Hospital	https://www.heraldlive.co.za/news/2024-02-26-livingstone-hospitals-dirty-secret/
Poor service complaints plague Verulam Clinic	Verulam Clinic	https://tabloidmedia.co.za/poor-service-complaints-plague-verulam-clinic/
MARCH		
Outrage after mother gives birth outside clinic	Grabouw Clinic	https://www.iol.co.za/capetimes/news/outrage-after-mother-gives-birth-outside-clinic-505aaa63-dc33-415e-8500-a006d7dbfeda
Steve Biko Hospital suspends five nurses to probe negligence claims	Steve Biko Academic Hospital	https://www.timeslive.co.za/news/south-africa/2024-03-06-steve-biko-hospital-suspends-five-nurses-to-probe-negligence-claims/#google_vignette

ANNEXURE D : PRE- TRAINING ASSESSMENT QUESTIONNAIRE PILOT

View All Responses. **All participants.** View Default order Responses: **20**

Pre-training questionnaire - NQHIP

Section A

Tell us about yourself

1

Please indicate what is your age:

Response	Average	Total
18-24	5%	1
25-34	15%	3
35-44	30%	6
45-54	20%	4
55-64	30%	6
Total responses to question	100%	20/20

2

Please select your gender from the list below:

Response	Average	Total
Male	40%	8
Female	45%	9
Gender variant	5%	1
Prefer not to answer	10%	2
Total responses to question	100%	20/20

3

Please select your primary role (work setting) from the list below:

Response	Average	Total
Clinical	25%	5
Non-clinical (Operational)	30%	6
Management	45%	9
Total responses to question	100%	20/20

4

In which sphere of health service delivery is your basic professional qualification? **Please select one option.**

Response	Average	Total
Medical	25%	5
Nursing	35%	7
Pharmaceutical services	5%	1
Dieticians	5%	1
Clinical technologists	5%	1
Human resources	5%	1
Finance	10%	2
Other Emergency Medical Sevices	5%	1
Other Management	5%	1
Total responses to question	100%	20/20

5

[Please state your number of years of working experience in healthcare?](#)

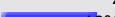
Respondent	Response
1	2
1	3
1	5
2	10
3	15
1	16
3	20
1	22
1	25
1	28

Respondent	Response
1	30
3	31
1	35
Total of numbers entered	384
Average	19

Total responses to question	20/20
-----------------------------	-------

6.

Your level of seniority. Please select one option.

Response		
Provincial		
National		
Management	 32%	5
Sub-district management	 26%	3
Other Hospital level	 16%	2
	 11%	

Total responses to question	 95%	19/20
-----------------------------	---	-------

7.

Your level of seniority. Please select one option.

Health System Management (...

Response	Average	Total
Corporate Management	37%	7
N/A	63%	12
Total responses to question		19/20

8. Your level of seniority. Please select one option.

Health Establishment Management and Service delivery (...

Response	Average	Total
Executive management	21%	4
Senior management	26%	5
Middle management	11%	2
Junior management	5%	1
Operational staff	16%	3
N/A	21%	4
Total responses to question		19/20

9. Your level of seniority. Please select one option.

Health Establishment Management and Service Delivery (...

Response	Average	Total
Executive management	11%	2

Response	Average	Total
Senior management	5%	1
Middle management	16%	3
Junior management	11%	2
Operational staff	11%	2
N/A	47%	9
Total responses to question		19/20

10.

Please state your number of years in the current position.

Respondent	Response
1	2
4	3
2	4
5	5
3	6
3	10
2	20
Total of numbers entered	135
Average	7
Total responses to question	20/20

11.

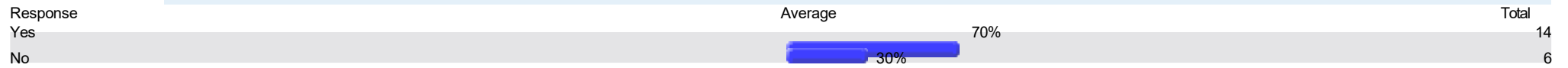
If you are in management, how many staff members directly report to you (You are responsible for)?

Respondent	Response
Lloyd Christopher	26
Sikhumbuzo Gcabashe	3
Grace Labadarios	12
Grace Labadarios	8
Grace Labadarios	3
Grace Labadarios	2
Grace Labadarios	5
Grace Labadarios	20
Grace Labadarios	3
Grace Labadarios	8
Winnie Moleko	2
Winnie Moleko	2
Winnie Moleko	2
Winnie Moleko	0
Winnie Moleko	5
Winnie Moleko	7
Winnie Moleko	14
Winnie Moleko	6
Winnie Moleko	5
Winnie Moleko	3

Total responses to question 20/20

12.

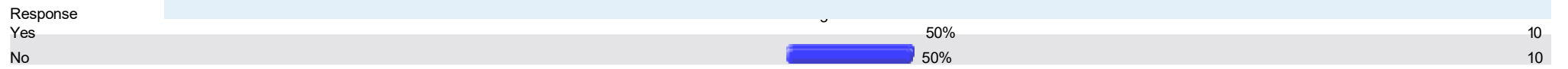
Have you been involved in healthcare quality and patient safety activities?



Total responses to question 100% 20/20

13.

Have you received any formal training in Healthcare Quality and Patient safety?



Total responses to question 100% 20/20

14.

If YES, please select the option which best describes the type of training you received.



Response	Average	Total
Total responses to question	50%	10/20

15.

If you have received any training on Healthcare Quality and patient safety, was it a credit-bearing course?

Response	Average	Total
Yes	35%	7
No	65%	13

Total responses to question	100%	20/20
-----------------------------	-----------------------------	-------

16.

If YES, please select what type of organisation provided the formal training.

Response	Average	Total
NGO	75%	6
University/college	13%	1
Employer (formal training arranged internally)	13%	1

Total responses to question	40%	8/20
-----------------------------	----------------------------	------

17.

If you have received formal training, how would you rate your training experience? Please select one option

Response	Average	Total
Excellent	10%	2
Very good	20%	4
Good	25%	5
Poor	5%	1
Very poor	40%	8

Total responses to question 100% 20/20

18

Have you received any informal training in Healthcare Quality and Patient safety?

Response	Average	Total
Yes	55%	11
No	45%	9

Total responses to question 100% 20/20

19

If YES, please select the option which best describes the type of training you received. Informal training must be explained (conferences/seminars).

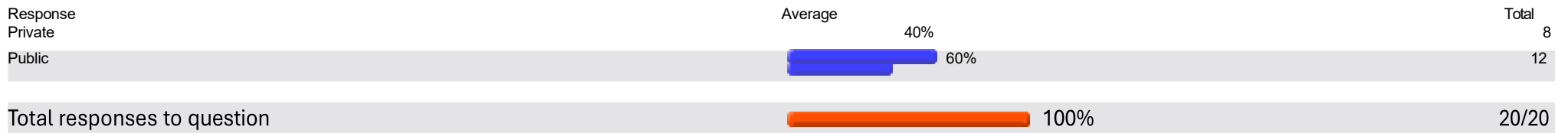
Response	Average	Total
In-service trainer	36%	4
External trainer	18%	2
Self-taught	36%	4
Other conferences	9%	1
Total responses to question	55%	11/20

Section B

Tell us about your organisation - Please select one option:

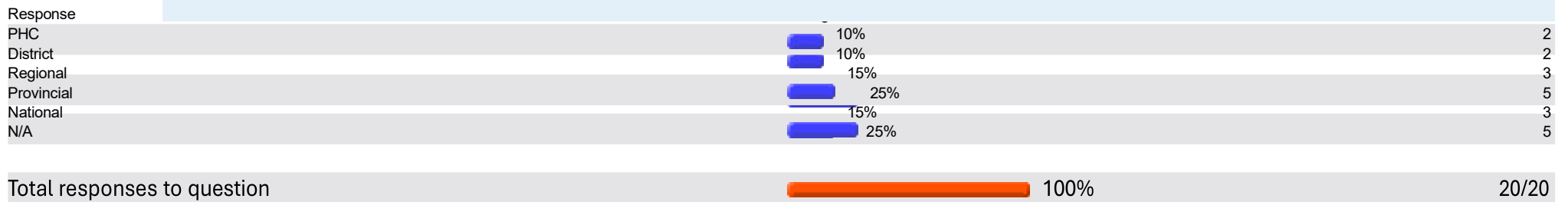
20	Province		
Response	Average	Total	
EC	15%	3	
FS	5%	1	
GP	40%	8	
KZN	20%	4	
LP	10%	2	
MP	5%	1	
WC	5%	1	
Total responses to question	100%	20/20	

21 Sector, please select one option below



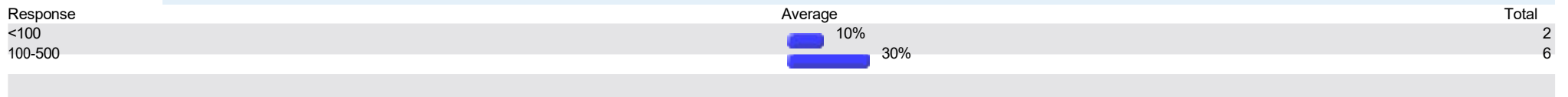
22.

Facility type



23.

If inpatient facility, Select No of Beds



Response	Average	Total
N/A	60%	12

Total responses to question	100%	20/20
-----------------------------	-----------------------------	-------

24.

With reference to Quality in the workplace, choose the most appropriate response in relation to your *current place of employment*:

Please indicate your agreement to the following statements:

	Average rank (and average values)					
	Strongly agree	Agree	Neither	Disagree	Strongly disagree	
1. Improving the quality healthcare in my workplace is not easy						1.9 (1.9)
2. Leadership is solely responsible for quality improvement initiatives						3.0 (3.0)
3. In my workplace quality improvement is valued						2.6 (2.6)
4. In my workplace, not all employees are involved in the development of quality improvement plans						2.6 (2.6)
5. Comprehensive consultation with all employees contributing to the issue to be improved is necessary						2.4 (2.4)
6. Quality improvement is only the responsibility of the Quality Managers/Quality Improvement Coordinators						3.2 (3.2)
7. In my workplace, all individuals affected by the issue to be improved are included in the						3.0 (3.0)

					Average rank (and average values)	↓)
quality improvement process						
8. Developing quality improvement plans is frustrating to me						3.0 (3.0)
9. In my workplace, the resources necessary for quality improvement are allocated for other purposes						2.5 (2.5)
10. In my workplace, quality improvement is not prioritised						2.6 (2.6)
In my workplace, key individuals resist any new ideas						2.6 (2.6)
11. The organisational culture where I work values change in the quality of healthcare services						2.7 (2.7)
12. In my workplace quality improvement takes place in silos						2.8 (2.8)
13. The organisational environment where I work values change to the quality of healthcare services						2.6 (2.6)
14. In my workplace, key individuals obstruct change						2.5 (2.5)
15. My organisation supports change the in quality of healthcare services						2.4 (2.4)
16. In my workplace, there is no incentive to implement quality improvement activities						2.2 (2.2)
Responses	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Total
1. Improving the quality healthcare in my workplace is not easy	7 (35%)	11 (55%)	0	1 (5%)	1 (5%)	20

2. Leadership is solely responsible for quality	2 (10%)	6 (30%)	2 (10%)	10 (50%)	0	20
---	---------	---------	---------	----------	---	----

Responses	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Total
improvement initiatives						
3. In my workplace quality improvement is valued	3 (15%)	8 (40%)	4 (20%)	4 (20%)	1 (5%)	20
4. In my workplace, not all employees are involved in the development of quality improvement plans	3 (15%)	9 (45%)	1 (5%)	6 (30%)	1 (5%)	20
5. Comprehensive consultation with all employees contributing to the issue to be improved is necessary	5 (25%)	7 (35%)	4 (20%)	4 (20%)	0	20
6. Quality improvement is only the responsibility of the Quality Managers/Quality Improvement Coordinators	2 (10%)	5 (25%)	2 (10%)	9 (45%)	2 (10%)	20
7. In my workplace, all individuals affected by the issue to be improved are	1 (5%)	8 (40%)	4 (20%)	4 (20%)	3 (15%)	20

Responses included in the quality improvement process	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Total
8. Developing quality improvement plans is frustrating to me	2 (10%)	8 (40%)	1 (5%)	6 (30%)	3 (15%)	20
9. In my workplace, the resources necessary for quality improvement are allocated for other purposes	5 (25%)	9 (45%)	0	4 (20%)	2 (10%)	20
10. In my workplace, quality improvement is not prioritised	2 (10%)	10 (50%)	3 (15%)	4 (20%)	1 (5%)	20
In my workplace, key individuals resist any new ideas	1 (5%)	11 (55%)	2 (10%)	6 (30%)	0	20
11. The organisational culture where I work values change in the quality of healthcare services	2 (10%)	10 (50%)	1 (5%)	6 (30%)	1 (5%)	20
12. In my workplace quality improvement takes place in silos	1 (5%)	8 (40%)	5 (25%)	6 (30%)	0	20
13. The organisational environment where I work values change to	1 (5%)	10 (50%)	5 (25%)	4 (20%)	0	20

Responses	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Total
the quality of healthcare services						
14. In my workplace, key individuals obstruct change	1 (5%)	11 (55%)	4 (20%)	4 (20%)	0	20
15. My organisation supports change the in quality of healthcare services	2 (10%)	11 (55%)	4 (20%)	3 (15%)	0	20
16. In my workplace, there is no incentive to implement quality improvement activities	3 (15%)	11 (55%)	4 (20%)	2 (10%)	0	20

25.

Select which of the following you would describe as *challenges to implementing quality improvements (QI) in your workplace?* (Tick all that apply).

Response	Average	Total
Staff don't agree with the QI standards	45%	9
Lack of resources and infrastructure	 50%	10
Lack of managerial skill and capacity	75%	15
No support from senior management	 55%	11
No support from staff	 60%	12
Existing workload	 70%	14

Response	Average	Total
No dedicated quality improvement team Limited consultation with stakeholders when developing an plans	40%	8
Insufficient time for implementation	55%	11
Change fatigue leading to frustration	70%	14
Scale of change required was too large	35%	7
Low morale	80%	16
Competing demands	50%	10
Management obstruct change	45%	9
Total responses to question	100%	20/20

26.

Select which of the following you would describe as **enablers** to implementing quality improvements (QI) in your workplace? (Tick all that apply).

Response	Average	Total
Peer pressure to improve	40%	8
Having a Team leader/champion	40%	8
A dedicated quality improvement team	45%	9
Scheduled quality improvement meetings	55%	11
Strong leadership support for the QI team	80%	16
Adequate resources to implement QI activities	45%	9
Intrinsic motivation of staff	65%	13
Linking QI responsibilities to job descriptions/profiles for all staff Linking QI responsibilities to performance appraisal	45%	9
Better utilisation of scarce resources	55%	11

Response	Average	Total
Manageable workload	 25%	5
Frequent monitoring and reporting of QI activities	40%	8
Regular performance feedback on QI activities	40%	8
Regular feedback on improvement achievements on QI activities	 50%	10
Total responses to question	 100%	20/20

27.

Select the most appropriate description of the Quality Management System (QMS) in *your current organisation*.

	Average rank (and average values)					↓
	Strongly agree	Agree	Neither	Disagree	Strongly disagree	
My organisation has a Quality Management System (QMS) that works						2.5 (2.5)
In my organisation, we intend starting a QMS						2.9 (2.9)
My organisation had a QMS, but it failed to make improvements						3.0 (3.0)
In my workplace, there are no resources (time/ money/people) for a QMS						2.6 (2.6)
We need someone to train us on how to implement a QMS						2.5 (2.5)

Responses	Strongly agree	Agree	Neither	Disagree	Average rank (and average Strongly disagree	values) ↓)
My organisation has a Quality Management System (QMS) that works	5 (25%)	8 (40%)	2 (10%)	3 (15%)	2 (10%)	Total 20
In my organisation, we intend starting a QMS	4 (20%)	3 (15%)	5 (25%)	8 (40%)	0	20
My organisation had a QMS, but it failed to make improvements	2 (10%)	6 (30%)	3 (15%)	9 (45%)	0	20
In my workplace, there are no resources (time/ money/people) for a QMS	3 (15%)	8 (40%)	3 (15%)	5 (25%)	1 (5%)	20
We need someone to train us on how to implement a QMS	3 (15%)	9 (45%)	4 (20%)	3 (15%)	1 (5%)	20

28. Which categories of indicators listed in the following table best describe *quality indicator information that is routinely collected at your health establishment. Tick all that apply.*

Response	Average	Total
Clinical indicators	60%	12
Non-clinical indicators	 60%	12
Access to healthcare	70%	14
Safety in healthcare	 65%	13

Response	Average	Total
Effectiveness of healthcare	25%	5
Total responses to question	100%	20/20

[For each of the following questions, please choose the statement which most accurately describes your health establishment. **Please choose one statement only.**](#)

29.

How would you describe your organisation's overall approach to quality and patient safety?

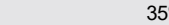
Response	Average	Total
Our strategic quality improvement plans are currently designed primarily to comply with the requirements of outside entities (e.g., OHSC, Ideal Health Facility, other regulatory bodies, government).	35%	7
Our strategic quality improvement plans are currently designed primarily to address regulatory requirements, but we are beginning to set our own goals.	40%	8
Our strategic quality improvement plans address regulatory requirements and are also focused on achieving goals that are specific to our own organisation and the population served	25%	5
Total responses to question	100%	20/20

30.

Which of the following statements best describes the role your governance structure plays in your organisation's quality and safety programs. The governance structure includes but is not limited to Boards for hospitals and private health establishments, clinic health committees, District office for EMS.

Response

The FULL governance structure has delegated oversight of quality and safety to a committee, but a review of/approval of the quality strategy and quality reports is limited to the consent agenda.  50% 10

The FULL governance structure's involvement in quality is limited to hearing routine reports from its quality committee.  35% 7

The FULL governance structure actively participates in the development of the organisation's plan to improve quality and safety by helping to set goals or targets for specific quality initiatives.  15% 3

31.

How would you describe the role the CEO or operational manager plays in your quality and safety programs?

Total responses

Response

The CEO or operational manager has little role in the development, approval and implementation of the organisation's quality improvement plan.  20% 4

The CEO or operational manager has delegated those tasks to a direct report (e.g., CMO, CNO, VPMA, Nursing Services Manager at the health establishment, Quality Assurance coordinator or equivalent; suitably qualified professional staff in primary care).  25% 5

The CEO or operational manager reviews and approves the quality improvement plan developed by a designated leader but does not play a leading  25% 5

Response	Average	Total
role in its creation or implementation.		
The CEO or operational manager sets the strategic direction of the quality improvement plan and monitors its implementation.	25%	5
N/A	5%	1
Total responses to question	100%	20/20

32.

How would you describe the frequency with which doctors LEAD quality improvement _____

Response	Average	Total
Rarely	45%	9
Sometimes	35%	7
Often	10%	2
Almost always	10%	2
Total responses to question	100%	20/20

33.

Overall, how would you characterise doctor PARTICIPATION in quality improvement activities in your organisation? (NA for services that do not include doctors in their staff establishment)

Response	Average	Total
Doctor participation in quality improvement activities is low.	25%	5

Response	Average	Total
Doctors participate in quality improvement activities in some areas, but their participation is not widespread.	30%	6
Doctors participate in quality improvement in most areas, but we still have some important gaps.	25%	5
Doctors participate in quality improvement uniformly throughout our organisation.	10%	2
N/A	10%	2
Total responses to question	100%	20/20

34.

Compared to all the strategic goals your organisation pursues, which of the following best _____

Response	Average	Total
Quality is an important goal, but it is not reflected in our strategic plan or key initiatives.	20%	4
Quality is one of MANY strategic priorities competing for attention and resources.	45%	9
Quality is one of our organisation's top 3 or 4 strategic priorities (i.e. it receives similar resources and attention as volume growth (private sector), financial performance (including auditing) and/or patient satisfaction/patient experience of care).	20%	4
Quality is the highest priority strategic goal for our organisation, elevated above other priorities, as explicitly stated in the strategic plan.	15%	3
Total responses to question	100%	20/20

35.

How would you describe your organisation's approach to measuring different aspects of quality and safety?

Response	Average	Total
We use only those measures required by outside entities (e.g., OHSC, Ideal Health Facility, other regulatory bodies, government, payers).	 50%	10
We measure some aspects of quality not required by outside entities.	 30%	6
We assess our patient population and community needs to determine our quality metrics, which might be different from those required by outside entities.	 20%	4
Total responses to question	 100%	20/20

36.

How would you describe your organisation's approach to reporting or displaying data on _____

Response	Average	Total
Data on quality measures are reported to management but not widely disseminated or displayed within the organisation; staff may not know how to find this information.	 30%	6
Current data on a few quality measures are disseminated or displayed within the organisation and can be easily accessed by staff.	 60%	12
Current data on many quality measures are routinely disseminated and displayed within the organisation and are routinely accessed by staff.	 10%	2

Response	Average	Total
Total responses to question	100%	20/20

37. How would you describe your organisation's approach to making the public aware of measures of the quality of your organisation's care? (e.g., on your website or posted within the hospital in public areas)

Response	Average	Total
We do not make any special effort to make data on quality available to the public beyond what is obtainable from other sources (e.g., government or company websites).	35%	7
We make some data on quality available to the public, but not routinely.	40%	8
We have begun to make current data on quality routinely available to the public at the direction of the governance structure and executive management.	10%	2
We produce routine public reports of current data on quality.	15%	3
Total responses to question	100%	20/20

38. Does your organisation include improvement on quality measures in the key performance areas for any category listed below: (e.g., incentive compensation or bonus payments)

Response	Average	Total
Executive	35%	7
Doctor	15%	3
Employee reward systems	25%	5
Middle managers	20%	4
Frontline staff	5%	1

Response	Average	Total
Total responses to question	100%	20/20

39.

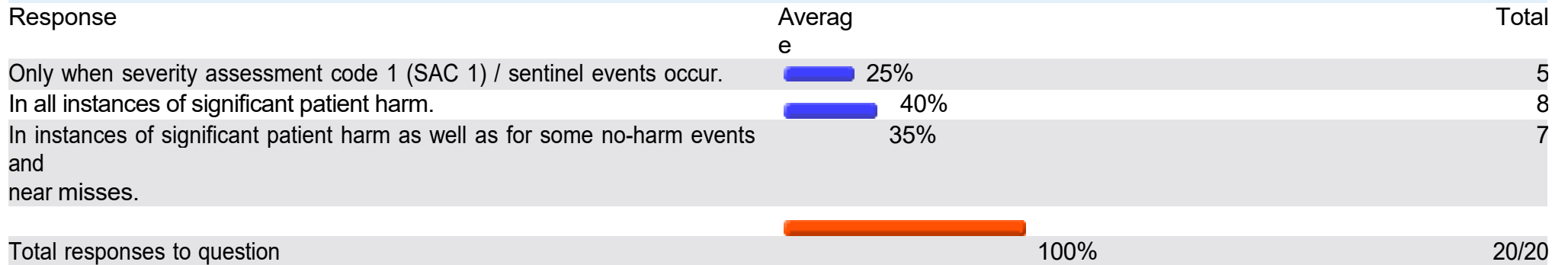
How would you describe the level of support that information technology (IT) _____

Response	Average	Total
IT supports some projects.	35%	7
IT supports many projects.	50%	10
IT supports all important quality initiatives.	15%	3
Total responses to question	100%	20/20

40. How would you describe your organisation's approach to measuring the degree to which you have established a safety culture?

Response	Average	Total
We do not measure safety culture.	25%	5
We have a plan to begin to measure, with some measurement activities underway.	45%	9
We measure safety culture on a defined and regular basis, (such as every 2 years or every 3 years)	15%	3
We have measured safety culture at least twice in the recent past	10%	2
We have measured safety culture and survey participants included leaders, staff and doctors throughout the organisation.	5%	1
Total responses to question	100%	20/20

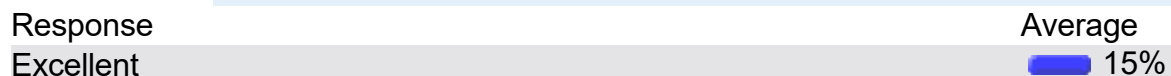
41. Under what circumstances does your organisation conduct a root cause analysis?



42. Does your organisation combine information from comprehensive systematic analyses _____



43. Imagine a scenario where a doctor/nurse enters a patient's room and does not wash his _____



Response	Average	Total
Very good	10%	2
Good	40%	8
Fair	25%	5
Poor	10%	2
Total responses to question		20/20

44.

1. Do you experience barriers to communication and collaboration with the following categories of staff in your workplace? *This can include but is not limited to issues such as Intimidating behaviour, failure to be included in care planning or discharge planning patients, failure to respond timeously to requests for assistance or failure to adhere to referral procedures.*

Management

1.1 Clinical Professionals:

Doctors		
Nurses		2.0 (2.0)
Pharmaceutical Professionals		1.9 (1.9)
Dentistry		1.9 (1.9)
Other (Radiographers, Clinical Technologists)		1.9 (1.9)

EMS

Responses	Yes	No	Don't Know	Total
Doctors	7 (35%)	10 (50%)	3 (15%)	20
Nurses	2 (10%)	15 (75%)	3 (15%)	20
Pharmaceutical Professionals	5 (25%)	11 (55%)	4 (20%)	20
Dentistry	6 (30%)	10 (50%)	4 (20%)	20
Other (Radiographers, Clinical Technologists)	7 (35%)	8 (40%)	5 (25%)	20
EMS	4 (20%)	10 (50%)	6 (30%)	20

Average rank (and average values)



↓
2.1
(2.1
)

45.

1.2 Rehabilitative Health Care Professionals

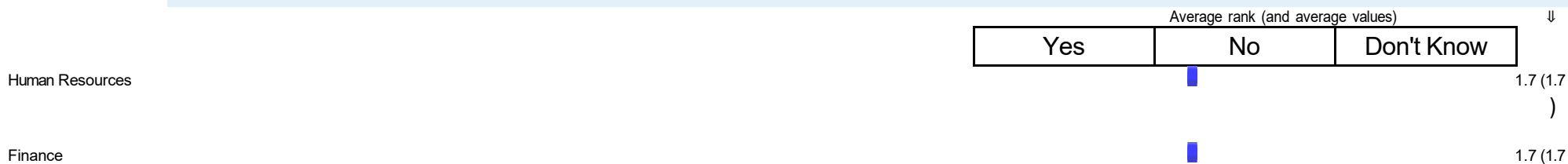
	Average rank (and average values)			↓
	Yes	No	Don't Know	
Social Workers				1.9 (1.9)
Psychologists				1.9 (1.9)
Dieticians				1.9 (1.9)
Occupational Health and Safety Practitioners				2.2 (2.2)
Optometrists				2.2 (2.2)



Responses	Yes	No	Don't Know	Total
Social Workers	6 (30%)	10 (50%)	4 (20%)	20
Psychologists	5 (25%)	11 (55%)	4 (20%)	20
Dieticians	7 (35%)	8 (40%)	5 (25%)	20
Occupational Health and Safety Practitioners	1 (5%)	13 (65%)	6 (30%)	20
Optometrists	4 (20%)	8 (40%)	8 (40%)	20
Physiotherapists	2 (10%)	9 (45%)	9 (45%)	20
Speech Therapists and Audiologists	2 (10%)	11 (55%)	7 (35%)	20
Other	3 (15%)	11 (55%)	6 (30%)	20

46.

1.3 Administrative personnel



				Average rank (and average values)	↓
					)
Supply Chain Management					1.6 (1.6)
					)
Responses	Yes	No	Don't Know	Total	
Human Resources	7 (35%)	12 (60%)	1 (5%)	20	
Finance	6 (30%)	14 (70%)	0	20	
Supply Chain Management	8 (40%)	12 (60%)	0	20	

47.

1.4 Support services

				Average rank (and average values)	↓
	Yes	No	Don't Know		
Cleaning services					1.9 (1.9)
					)
Information management					1.9 (1.9)
					)
IT services					1.9 (1.9)
					)
Maintenance services					1.9 (1.9)
					)
Food services					2.4 (2.4)
					)
Responses	Yes	No	Don't Know	Total	
Cleaning services	4 (20%)	13 (65%)	3 (15%)	20	
Information management	4 (20%)	13 (65%)	3 (15%)	20	
IT services	4 (20%)	13 (65%)	3 (15%)	20	
Maintenance services	5 (25%)	12 (60%)	3 (15%)	20	

Responses
Food services

Yes
2 (10%)

No
9 (45%)

Don't Know
9 (45%)

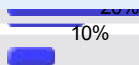
Total
20

48.

How would you rate your organisation's effectiveness in establishing high levels of _____

For instance, think of how often peers hold each other accountable for adhering to the use ____

Response
Excellent
Very Good
Good
Fair
Poor



2

Total responses to question

100%

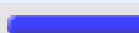
20/20

49.

Response

Does your organization have clear and transparent policies and procedures that evaluate patterns of behaviour and routine causes of

Our policies and procedures for the investigation of patient safety incidents are



45%

9

safety incidents.

Response	Average	Total
specific to each department (e.g., clinical departments, nursing, cleaning).		
We have begun an effort to standardise procedures in some areas, but there is no commitment to do so throughout the organisation.	 40%	8
A systematic effort has begun to establish a standardised approach, but we are not there yet.	 20%	4
Total responses to question	 100%	20/20

50. How would you describe your organisation's approach to quality improvement?

Response	Average	Total
We have an established, well-articulated approach to improvement that is used by all staff.	 35%	7
We are in the process of adopting a uniform set of tools and methods, but they are not fully implemented at present.	35%	7
We have not adopted a uniform set of tools or methods. Individual projects are free to choose any tools or methods they feel are appropriate to their needs.	35% 	7
Don't know	 5%	1
Total responses to question	 100%	20/20

51. Who in your organisation receives formal routine training in quality improvement methods?

Response	Average	Total
Only staff who work in the quality improvement, or compliance departments.	 25%	5
Both staff inside and outside the quality improvement or compliance departments receive training.	 30%	6
		

We have no formal training.	55%	11
Total responses to question	100%	20/20

52. How widely are your organisation's quality improvement methods used across your organisation?

Response	Average	Total
Used only by quality improvement, or compliance department personnel in selected projects.	 30%	6
Used by some operational and/or clinical departments.	 35%	7
Used by both operational and clinical departments as well as quality improvement or compliance department personnel.	 20%	4
Don't know	 20%	4
Total responses to question	 100%	20/20

53. Does your organisation involve patients in its efforts to redesign and improve processes of care?

Response	Average	Total
Yes, routinely	 10%	2
Yes, sporadically	 45%	9
No	 35%	7
Don't know	 15%	3
Total responses to question	100%	20/20

54. Is demonstrated proficiency in process improvement required for success in your organisation's programs for advancement, including pay increases and promotions, of managers, doctors, and staff?

Response	Average	Total
Yes	 40%	8
No	 55%	11
Unsure	 10%	2
Total responses to question	 100%	20/20

Section C

Self-assessment of current knowledge and understanding of key quality management principles

Please rate your level of understanding of the following items.

.....

.....

.....

.....

.....

.....

55.

Introduction to Healthcare Quality Management

Please rate your level of understanding of the following items:

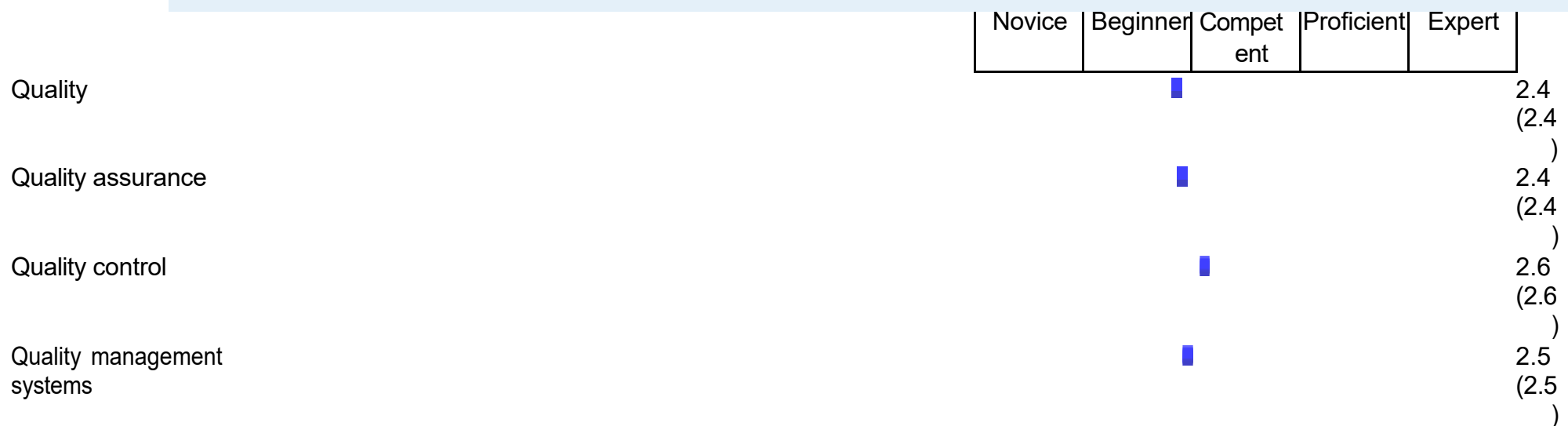


Responses	Novice	Beginner	Competent	Proficient	Expert	Total
Seven dimensions of healthcare quality	4 (20%)	9 (45%)	5 (25%)	2 (10%)	0	20

56.

Different meanings of the following concepts

Please rate your level of understanding of the following items:



Responses	Novice	Beginner	Competent	Proficient	Expert	Total
Quality	3 (15%)	9 (45%)	6 (30%)	2 (10%)	0	20
Quality assurance	3 (15%)	8 (40%)	7 (35%)	2 (10%)	0	20
Quality control	2 (10%)	6 (30%)	10 (50%)	2 (10%)	0	20
Quality management	3 (15%)	7 (35%)	9 (45%)	0	1 (5%)	20

Responses
systems

Novice

Beginner

Competent

Proficient

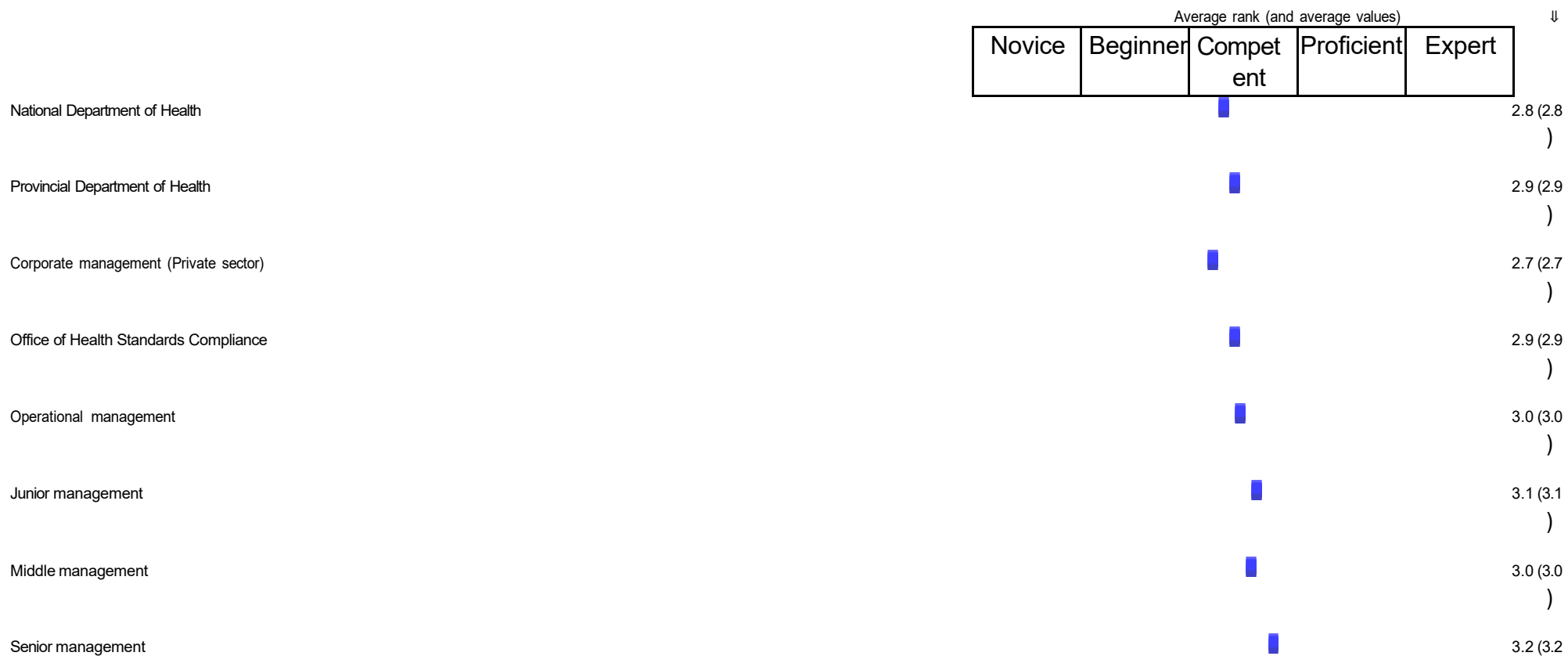
Expert

Total

57.

The role of the following structures in ensuring quality of care at health establishments

Please rate your level of understanding of the following items:



Average rank (and average values)						↓)
Executive management						3.2 (3.2)
Governance structures						3.3 (3.3)
The effect that purchasers can exert on quality of care at health establishments						3.0 (3.0)
The effect that users can exert on quality of care at health establishments						2.9 (2.9)
Identification of external stakeholders for the delivery of healthcare services						3.2 (3.2)
How to engage users to ensure quality of care at health establishments						3.0 (3.0)
How to develop a quality management system within a health establishment						2.9 (2.9)

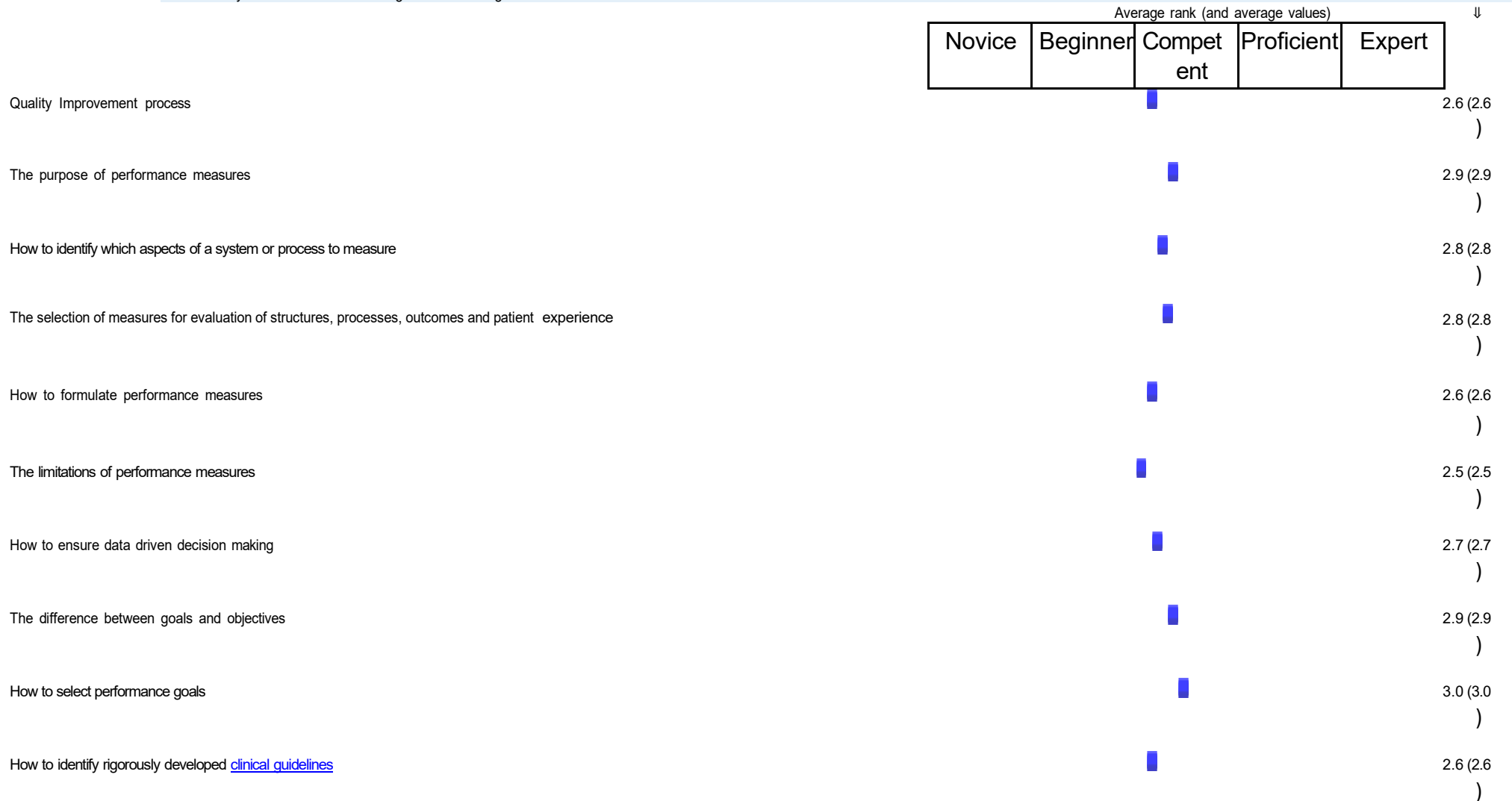
Responses	Novice	Beginner	Competent	Proficient	Expert	Total
National Department of Health	0	6 (30%)	12 (60%)	2 (10%)	0	20
Provincial Department of Health	0	4 (20%)	14 (70%)	2 (10%)	0	20
Corporate management (Private sector)	0	8 (40%)	11 (55%)	0	1 (5%)	20
Office of Health Standards Compliance	1 (5%)	7 (35%)	8 (40%)	1 (5%)	3 (15%)	20
Operational management	0	5 (25%)	12 (60%)	2 (10%)	1 (5%)	20
Junior management	0	4 (20%)	12 (60%)	2 (10%)	2 (10%)	20

Responses	Novice	Beginner	Competent	Proficient	Expert	Total
Middle management	0	4 (20%)	12 (60%)	3 (15%)	1 (5%)	20
Senior management	0	3 (15%)	11 (55%)	4 (20%)	2 (10%)	20
Executive management	0	3 (15%)	11 (55%)	4 (20%)	2 (10%)	20
Governance structures	0	3 (15%)	10 (50%)	5 (25%)	2 (10%)	20
The effect that purchasers can exert on quality of care at health establishments	1 (5%)	4 (20%)	11 (55%)	1 (5%)	3 (15%)	20
The effect that users can exert on quality of care at health establishments	2 (10%)	3 (15%)	12 (60%)	1 (5%)	2 (10%)	20
Identification of external stakeholders for the delivery of healthcare services	2 (10%)	2 (10%)	8 (40%)	6 (30%)	2 (10%)	20
How to engage users to ensure quality of care at health establishments	2 (10%)	3 (15%)	9 (45%)	5 (25%)	1 (5%)	20
How to develop a quality management system within a health establishment	3 (15%)	2 (10%)	10 (50%)	4 (20%)	1 (5%)	20

58.

Performance Measurement

Please rate your level of understanding of the following items:



Responses	Novice	Beginner	Competent	Proficient	Expert	Total
Quality Improvement process	1 (5%)	8 (40%)	8 (40%)	3 (15%)	0	20
The purpose of performance measures	0	7 (35%)	9 (45%)	4 (20%)	0	20

Responses	Novice	Beginner	Competent	Proficient	Expert	Total
How to identify which aspects of a system or process to measure	0	7 (35%)	11 (55%)	2 (10%)	0	20
The selection of measures for evaluation of structures, processes, outcomes and patient experience	0	7 (35%)	10 (50%)	3 (15%)	0	20
How to formulate performance measures	2 (10%)	5 (25%)	11 (55%)	2 (10%)	0	20
The limitations of performance measures	2 (10%)	7 (35%)	9 (45%)	2 (10%)	0	20
How to ensure data driven decision making	1 (5%)	7 (35%)	9 (45%)	3 (15%)	0	20
The difference between goals and objectives	1 (5%)	4 (20%)	12 (60%)	3 (15%)	0	20
How to select performance goals	0	6 (30%)	10 (50%)	3 (15%)	1 (5%)	20
How to identify rigorously developed clinical guidelines	2 (10%)	7 (35%)	8 (40%)	2 (10%)	1 (5%)	20

59.

Obtaining Measurement Data

Please rate your level ____



Responses	Novice	Beginner	Competent	Proficient	Expert	Total
How to design a data collection process	2 (10%)	5 (25%)	12 (60%)	1 (5%)	0	20
How to identify data sources	1 (5%)	10 (50%)	8 (40%)	1 (5%)	0	20
Different methods of	1 (5%)	3 (15%)	11 (55%)	5 (25%)	0	20

Responses	Novice	Beginner	Competent	Proficient	Expert	Total
data collection						
Developing data collection tools	2 (10%)	5 (25%)	10 (50%)	3 (15%)	0	20
Identification of situations where sampling will be appropriate	3 (15%)	7 (35%)	7 (35%)	3 (15%)	0	20
Determining the required sample size	3 (15%)	9 (45%)	5 (25%)	3 (15%)	0	20
Implementing a data collection process	1 (5%)	7 (35%)	9 (45%)	2 (10%)	1 (5%)	20
Managing the collected data, including cleaning and validation of collected data	1 (5%)	5 (25%)	11 (55%)	2 (10%)	1 (5%)	20

60.

Improving Performance

Please rate your level

Average rank (and average values)



Novice	Beginner	Competent	Proficient	Expert
--------	----------	-----------	------------	--------

Average rank (and average values)						↓
How improvement projects are developed						2.5 (2.5)
The purpose of the Plan-Do-Study-Act cycle in quality improvement efforts						2.6 (2.6)
Using the Plan-Do-Study-Act cycle to make positive changes						2.6 (2.6)
Six Sigma Improvement model						2.5 (2.5)
Rapid cycle improvement model/improvement model						2.5 (2.5)
Lean method to eliminate waste and improve processes						2.6 (2.6)
How to use a Gantt Chart to estimate the time and resources required to implement activities						2.8 (2.8)
The four stages of team development (Forming, storming, norming and performing)						3.0 (3.0)

Responses	Novice	Beginner	Competent	Proficient	Expert	Total
How improvement projects are developed	2 (10%)	7 (35%)	10 (50%)	1 (5%)	0	20
The purpose of the Plan-Do-Study-Act cycle in quality improvement efforts	1 (5%)	7 (35%)	10 (50%)	2 (10%)	0	20
Using the Plan-Do-Study-Act cycle to make positive changes	2 (10%)	5 (25%)	11 (55%)	2 (10%)	0	20
Six Sigma improvement model	3 (15%)	4 (20%)	12 (60%)	1 (5%)	0	20

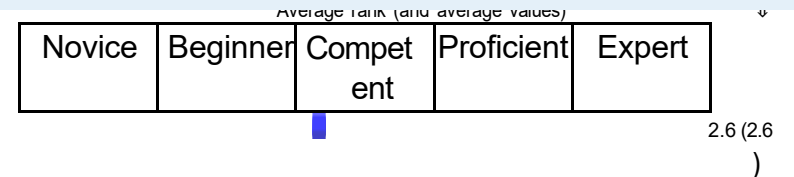
Responses	Novice	Beginner	Competent	Proficient	Expert	Total
Rapid cycle improvement model/improvement model	3 (15%)	7 (35%)	8 (40%)	2 (10%)	0	20
Lean method to eliminate waste and improve processes	3 (15%)	6 (30%)	8 (40%)	2 (10%)	1 (5%)	20
How to use a Gantt Chart to estimate the time and resources required to implement activities	2 (10%)	5 (25%)	11 (55%)	0	2 (10%)	20
The four stages of team development (Forming, storming, norming and performing)	3 (15%)	1 (5%)	11 (55%)	4 (20%)	1 (5%)	20

61.

Improvement Tools and Techniques

Please rate your level of understanding of the following items:

Tools and techniques to improve performance.



The difference between quantitative and qualitative tools.						Average rank (and average values) 	↓ 2.7 (2.7))
Continuous Quality Improvement.							2.7 (2.7))
Responses	Novice	Beginner	Competent	Proficient	Expert	Total	
Tools and techniques to improve performance.	1 (5%)	6 (30%)	12 (60%)	1 (5%)	0	20	
The difference between quantitative and qualitative tools.	0	7 (35%)	12 (60%)	1 (5%)	0	20	
Continuous Quality Improvement.	2 (10%)	6 (30%)	9 (45%)	2 (10%)	1 (5%)	20	

62.

How to use the following quantitative tools to gather and report performance measurement data

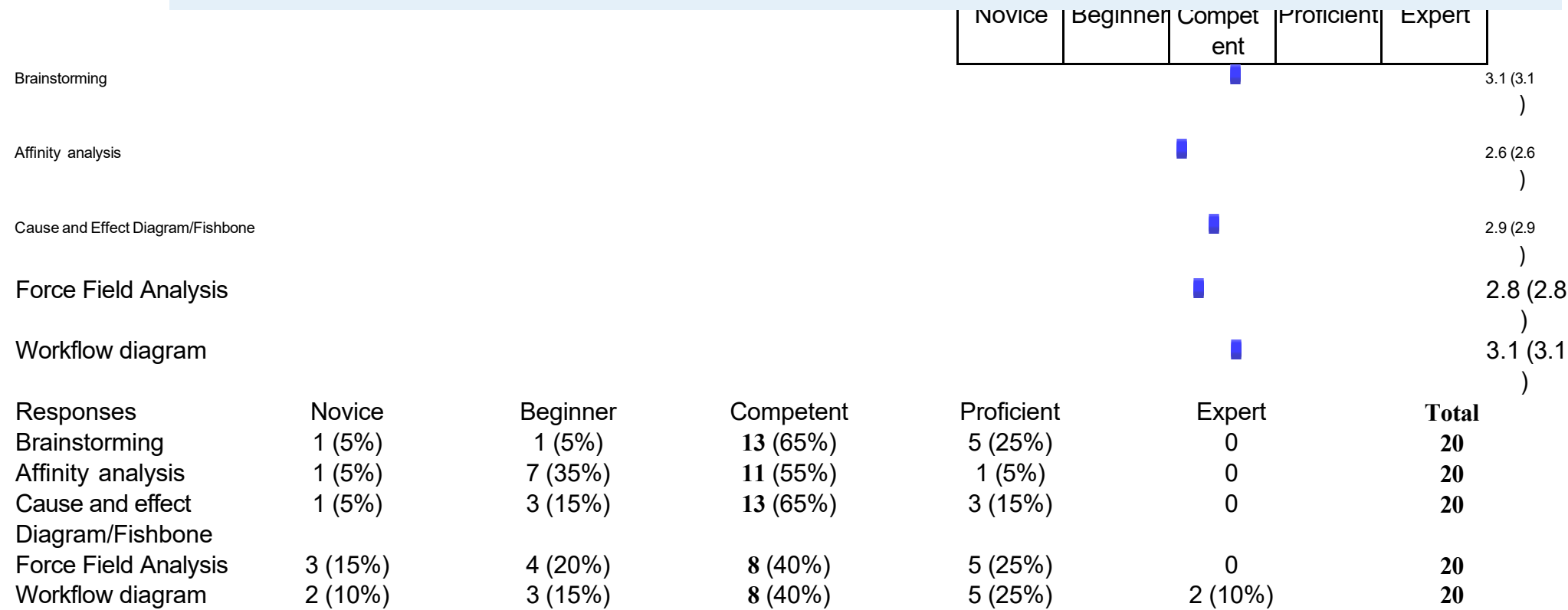
Please rate your level of understanding of the following items:

						Average rank (and average values) 	↓ 2.7 (2.7))
							2.8 (2.8))
Responses	Novice	Beginner	Competent	Proficient	Expert	Total	
Pareto chart	2 (10%)	6 (30%)	8 (40%)	4 (20%)	0	20	
Scatter diagram	2 (10%)	5 (25%)	9 (45%)	4 (20%)	0	20	

63.

How to use the following improvement tools to generate ideas and understand the root cause of a problem

Please rate your level of understanding of the following items:



64.

Managing Patient Safety and Risk

Please rate your level of understanding of the following items:

		Novice	Beginner	Competent	Proficient	Expert	
Definition of patient safety							3.1 (3.1)
How to develop patient safety measures							3.1 (3.1)
Difference between medical error, adverse event and preventable adverse event							3.0 (3.0)
Difference between medical error and medical negligence							2.9 (2.9)
How to manage clinical Risk							3.0 (3.0)
Approaches to root cause analysis (RCA)							3.0 (3.0)
How to conduct a failure mode and effects analysis (FMEA)							2.8 (2.8)
Responses		Novice	Beginner	Competent	Proficient	Expert	Total
Definition of patient safety		1 (5%)	4 (20%)	8 (40%)	5 (25%)	2 (10%)	20
How to develop patient safety measures		1 (5%)	5 (25%)	7 (35%)	5 (25%)	2 (10%)	20
Difference between medical error, adverse event and preventable		3 (15%)	2 (10%)	8 (40%)	5 (25%)	2 (10%)	20

Responses	Novice	Beginner	Competent	Proficient	Expert	Total
adverse event						
Difference between medical error and medical negligence	4 (20%)	3 (15%)	6 (30%)	5 (25%)	2 (10%)	20
How to manage clinical Risk	3 (15%)	4 (20%)	7 (35%)	3 (15%)	3 (15%)	20
Approaches to root cause analysis (RCA)	1 (5%)	7 (35%)	5 (25%)	5 (25%)	2 (10%)	20
How to conduct a failure mode and effects analysis (FMEA)	2 (10%)	7 (35%)	6 (30%)	3 (15%)	2 (10%)	20

65.

Managing the Patient and Staff Experience

Please rate your level of understanding of the following items:

	Average rank (and average values)					↓
	Novice	Beginner	Competent	Proficient	Expert	
Difference between Patient Satisfaction and Patient Experience						2.6 (2.6)
Relationship between Patient experience and quality metrics						2.5 (2.5)
How patient experience should fit into our operational framework as an organisation now and						2.5 (2.5)

in the future	Average rank (and average values)	↓
What healthcare leaders can do to improve patient experience within their organisation		2.8 (2.8)
The AIDET (Acknowledgement, Introduce, Duration, Explanation and Thank you) communication Framework		2.4 (2.4)

Responses	Novice	Beginner	Competent	Proficient	Expert	Total
Difference between Patient Satisfaction and Patient Experience	3 (15%)	5 (25%)	9 (45%)	2 (10%)	1 (5%)	20
Relationship between Patient experience and quality metrics	4 (20%)	8 (40%)	4 (20%)	3 (15%)	1 (5%)	20
How patient experience should fit into our operational framework as an organisation now and in the future	3 (15%)	7 (35%)	8 (40%)	1 (5%)	1 (5%)	20
What healthcare leaders can do to improve patient experience within their organisation	3 (15%)	4 (20%)	9 (45%)	3 (15%)	1 (5%)	20
The AIDET (Acknowledgement, Introduce, Duration, Explanation and	5 (25%)	8 (40%)	3 (15%)	3 (15%)	1 (5%)	20

66.

[High Reliability](#)

[Organisations](#) Please rate

your level of ____

Average rank (and average values)						↓
Novice	Beginner	Competent	Proficient	Expert		
The concept of high reliability organisations (HROs)	■				2.1 (2.1)	)
Characteristics of High Reliability Organisation	■				2.2 (2.2)	)
Understanding how to measure reliability and unreliability	■				2.1 (2.1)	)
How to translate unreliability into metrics in medicine	■				2.1 (2.1)	)
Implementation of High Reliability Organisation best practices	■				2.1 (2.1)	)
How to create reliability statements for your unit/organisation	■				2.1 (2.1)	)
Responses	Novice	Beginner	Competent	Proficient	Expert	Total

Responses	Novice	Beginner	Competent	Proficient	Expert	Total
The concept of high reliability organisations (HROs)	7 (35%)	6 (30%)	5 (25%)	2 (10%)	0	20
Characteristics of High Reliability Organisation	6 (30%)	6 (30%)	6 (30%)	2 (10%)	0	20
Understanding how to measure reliability and unreliability	5 (25%)	10 (50%)	3 (15%)	2 (10%)	0	20
How to translate unreliability into metrics in medicine	6 (30%)	8 (40%)	4 (20%)	2 (10%)	0	20
Implementation of High Reliability Organisation best Practices	6 (30%)	8 (40%)	4 (20%)	2 (10%)	0	20
How to create reliability statements for your unit/organization	6 (30%)	8 (40%)	4 (20%)	2 (10%)	0	20

ANNEXURE E: INFORMATION SHEET

RE: INVITATION TO PARTICIPATE IN A SURVEY

Dear Participant

I hope this letter finds you well. I am writing to invite you to participate in a pivotal survey that aims to assess both organizational and individual readiness for adopting a high reliability approach to healthcare quality and patient safety.

The purpose of this questionnaire/survey is to determine the current knowledge each participant has at the beginning of the training course, regarding each of the key concepts listed in the tables below.

In addition, we would like to understand a bit about you – the position you have been appointed to, where you work and your work environment.

Please answer each question honestly – there are no right or wrong answers!

The information will be kept confidential. Your answers will never be shared with any of your colleagues, employers or employees.

Any information used for **research purposes will be anonymized prior to analysis of the data collected.**

If you have any additional questions you wish to have answered before you complete the questionnaire, **please contact Winnie Moleko at wmoleko@ohsc.org.za or your provincial quality assurance coordinator**

Survey Details:

Duration: Approximately 15-20 minutes.

Survey link: <https://forms.gle/nZAiAJUYnqUjewBH7>

ANNEXURE F: PRE-TRAINING ASSESSMENT QUESTIONNAIRE

SELF-ASSESSMENT QUESTIONNAIRE – TOWARDS HIGH RELIABILITY HEALTHCARE ORGANISATIONS

Thank you for taking time to complete the survey below

The purpose of this questionnaire is to determine the current knowledge each participant has at the beginning of the training course, regarding each of the key concepts listed in the tables below.

In addition, we would like to understand a bit about you – the position you have been appointed to, where you work and your work environment.

Please answer each question honestly – there are no right or wrong answers!

The information will be kept confidential. Your answers will never be shared with any of your colleagues, employers or employees.

Any information used for research purposes will be anonymized prior to analysis of the data collected.

If you have any additional questions you wish to have answered before you complete the questionnaire, **please contact Winnie Moleko @ wmoleko@ohsc.org.za or your provincial quality assurance coordinator.**

THANK YOU!!

Section A

Tell us about yourself

. Please indicate what is your age

Please select your gender from the list below.

Male	
Female	
Other	

Please select your primary role (work setting) from the list below.

Clinical	
Non-clinical	
Management	

In which sphere of health service delivery is your basic professional qualification? **Please select one option.**

Medical	
Nursing	
Pharmaceutical services	
Allied health professionals (registered with HPCSA, including but not limited to):	
Social workers	
Dieticians	
clinical technologists	
radiographers	
Other (specify)	
Emergency Medical Services	
Administrative:	
Human resources	
Finance	
Supply chain management	
Other (specify)	
Support services	
Maintenance	
Cleaning services	
Linen services	
Food services	
Other (specify)	
Other (please state the basic professional qualification)	

Please state your number of years of working experience in healthcare.

Your level of seniority. **Please select one option.**

Health system management			
Public sector	Tick (X)	Private sector	Tick (X)
Provincial management		Corporate management (private sector)	
District management			
Sub-district management			
Other, please specify		Other, please specify	
Health establishment management and service delivery			
Executive management		Executive management	
Senior management		Senior management	
Middle management		Middle management	
Junior management		Junior management	
Operational staff (Frontline staff)		Operational staff (Frontline staff)	
Other, (please specify)		Other, please specify	

Please state your number of years in the current position.

If you are in management, how many staff members directly report to you (You are responsible for)?

Have you been involved in healthcare quality and patient safety activities?

Yes	
No	

Have you received any formal training in Healthcare Quality and Patient safety?

Yes	
No	

If **YES**, please select the option which best describes the type of training you received.

Workshop	
Short Course (< 5 Days)	
Course (≥5 Days)	
Part of formal qualification	
Other please specify	

If you have received any training on Healthcare Quality and patient safety, was it a credit-bearing course?

Yes	
No	

If **YES**, please select what type of organization provided the formal training.

NGO	
University/college	

Employer (formal training arranged internally)	
Other please specify	

If you have received formal training, how would you rate your training experience? Please select one option

Excellent	
Very good	
Good	
Poor	
Very poor	

Have you received any informal training in Healthcare Quality and Patient safety?

Yes	
No	

If **YES**, please select the option which best describes the type of training you received.

In-service trainer	
Conference/seminars	
External trainer	
Self-taught	
Other please specify	

Section B

Tell us about your organization – Please select one option

Province (EC, FS, Gauteng, KZN, Limpopo, Mpumalanga, NC, NW, WC)

Sector, please select one option below

Private		Public	
---------	--	--------	--

Facility type (Tick the one that applies)

PHC		District		Regional		Provincial		National	
-----	--	----------	--	----------	--	------------	--	----------	--

If inpatient facility, Select No of Beds below.

<100		100-500		>500	
------	--	---------	--	------	--

With reference to Quality in the workplace, choose the most appropriate response in relation to your **current place of employment**:

Please indicate your agreement to the following statement	Strongly agree	Agree	Neither	Disagree	Strongly disagree
1.Improving the quality healthcare in my workplace is not easy					
2.Leadership is solely responsible for quality improvement initiatives					
3.In my workplace quality improvement is valued					
4.In my workplace, not all employees are involved in the development of quality improvement plans					
5.Comprehensive consultation with all employees contributing to the issue to be improved is necessary					
6.Quality improvement is only the responsibility of the Quality Managers/Quality Improvement Coordinators					
7.In my workplace, all individuals affected by the issue to be improved are included in the quality improvement process					
8.Developing quality improvement plans is frustrating to me					
9.In my workplace, the resources necessary for quality improvement are allocated for other purposes					
10.In my workplace, quality improvement is not prioritised					
11.In my workplace, key individuals resist any new ideas					

12.The organisational culture where I work values change in the quality of healthcare services					
13.In my workplace quality improvement takes place in silos					
14.The organisational environment where I work values change to the quality of healthcare services					
15.In my workplace, key individuals obstruct change					
16.My organisation supports change the in quality of healthcare services					
17.In my workplace, there is no incentive to implement quality improvement activities					

Select which of the following you would describe as **challenges to implementing quality improvements (QI) in your workplace?** (Tick all that apply)

Staff don't agree with the QI standards	
Lack of resources and infrastructure	
Lack of managerial skill and capacity	
No support from senior management	
No support from the staff	
Existing workload	
No dedicated quality improvement team	
Limited consultation with stakeholders when developing QI plans	
Insufficient time for implementation	
Change fatigue leading to frustration	
Scale of change required was too large	
Low morale	
Competing demands	
Management obstruct change	

Select which of the following you would describe as **enablers** to implementing quality improvements (QI) in your workplace? (Tick all that apply)

Peer pressure to improve	
Having a Team leader/champion	
A dedicated quality improvement team	

Scheduled quality improvement meetings	
Strong leadership support for the QI team	
Adequate resources to implement QI activities	
Intrinsic motivation of staff	
Linking QI responsibilities to job descriptions/profiles for all staff	
Linking QI responsibilities to performance appraisal	
Better utilisation of scarce resources	
Manageable workload	
Frequent monitoring and reporting of QI activities	
Regular performance feedback on QI activities	
Regular feedback on improvement achievements on QI activities	

8. Select the most appropriate description of the Quality Management System (QMS) in ***your current organisation***.

Please indicate your agreement to the following statement	Strongly agree	Agree	Neither	Disagree	Strongly disagree
My organisation has a Quality Management System (QMS) that works					
In my organisation, we intend starting a QMS					
My organisation had a QMS, but it failed to make improvements					
In my workplace, there are no resources (time/ money/people) for a QMS					
We need someone to train us on how to implement a QMS					

Which categories of indicators listed in the following table best describe ***quality indicator information that is routinely collected at your health establishment***. Please select all which applies.

Response

Clinical indicators	
Non-clinical indicators	
Access to healthcare	
Safety in healthcare	
Effectiveness of healthcare	

For each of the following questions, please choose the statement which most accurately describes your health establishment. NB: Choose one statement only

10.1 How would you describe your organization's overall approach to quality and patient safety?		
10.1.1	Our strategic quality improvement plans are currently designed primarily to comply with the requirements of outside entities (e.g., OHSC, Ideal Health Facility, other regulatory bodies, and government).	
10.1.2	Our strategic, quality improvement plans are currently designed primarily to address regulatory requirements, but we are beginning to set our own goals.	
10.1.3	Our strategic, quality improvement plans address regulatory requirements and are also focused on achieving goals that are specific to our own organization and the population served	
10.2 Which of the following statements best describes the role of your governance structure plays in your organization's quality and safety programs? <i>The governance structure includes but is not limited to Boards for hospitals and private health establishments, clinic health committees, District office for EMS.</i>		
10.2.1	The FULL governance structure has delegated oversight of quality and safety to a committee, but a review of/approval of the quality strategy and quality reports is limited to the consent agenda.	
10.2.2	The FULL governance structure's involvement in quality is limited to hearing routine reports from its quality committee.	
10.2.3	The FULL governance structure actively participates in the development of the organization's plan to improve quality and safety by helping to set goals or targets for specific quality initiatives.	
10.3 How would you describe the role the CEO or operational manager plays in your quality and safety programs?		
10.3.1	The CEO or operational manager has little role in the development, approval and implementation of the organization's quality improvement plan.	
10.3.2	The CEO or operational manager has delegated those tasks to a direct report (e.g., CMO, CNO, VPMA, Nursing Services Manager at the health establishment, Quality Assurance coordinator or equivalent; suitably qualified professional staff in primary care).	
10.3.3	The CEO or operational manager reviews and approves the quality improvement plan developed by a designated leader but does not play a leading role in its creation or implementation.	
10.3.4	The CEO or operational manager sets the strategic direction of the quality improvement plan and monitors its implementation.	
10.4 How would you describe the frequency with which doctors LEAD quality improvement initiatives, when appropriate, throughout the organization?		
10.4.1	Rarely	
10.4.2	Sometimes	

10.4.3	Often	
10.4.4	Almost always	
10.5 Overall, how would you characterize doctor PARTICIPATION in quality improvement activities in your organization? <i>(NA for services that do not include doctors in their staff establishment)</i>		
10.5.1	Doctor participation in quality improvement activities is low.	
10.5.2	Doctors participate in quality improvement activities in some areas, but their participation is not widespread.	
10.5.3	Doctors participate in quality improvement in most areas, but we still have some important gaps.	
10.5.4	Doctors participate in quality improvement uniformly throughout our organization.	
10.6 Compared to all the strategic goals your organization pursues, which of the following best describes the priority your organization gives to improving quality and patient safety issues?		
10.6.1	Quality is an important goal, but it is not reflected in our strategic plan or key initiatives.	
10.6.2	Quality is one of MANY strategic priorities competing for attention and resources.	
10.6.3	Quality is one of our organization's top 3 or 4 strategic priorities (i.e. it receives similar resources and attention as volume growth (private sector), financial performance (including auditing) and/or patient satisfaction/patient experience of care).	
10.6.4	Quality is the highest priority strategic goal for our organization, elevated above other priorities, as explicitly stated in the strategic plan.	
10.7 How would you describe your organization's approach to measuring different aspects of quality and safety?		
10.7.1	We use only those measures required by outside entities (e.g., OHSC, Ideal Health Facility, other regulatory bodies, government, payers).	
10.7.2	We measure some aspects of quality not required by outside entities.	
10.7.3	We assess our patient population and community needs to determine our quality metrics, which might be different from those required by outside entities.	
10.8 How would you describe your organization's approach to reporting or displaying data on quality measures, internally, WITHIN your organization?		
10.8.1	Data on quality measures are reported to management but not widely disseminated or displayed within the organization; staff may not know how to find this information.	
10.8.2	Current data on a few quality measures are disseminated or displayed within the organization and can be easily accessed by staff.	
10.8.3	Current data on many quality measures are routinely disseminated and displayed within the organization and are routinely accessed by staff.	
10.9 How would you describe your organization's approach to making the public aware of measures of the quality of your organization's care? <i>(e.g., on your website or posted within the hospital in public areas)</i>		

10.9.1	We do not make any special effort to make data on quality available to the public beyond what is obtainable from other sources (e.g., government or company websites).	
10.9.2	We make some data on quality available to the public, but not routinely.	
10.9.3	We have begun to make current data on quality routinely available to the public at the direction of the governance structure and executive management.	
10.9.4	We produce routine public reports of current data on quality.	
10.10 Does your organization include improvement on quality measures in the key performance areas for any category listed below: (e.g., incentive compensation or bonus payments)		
10.10.1	Executive	
10.10.2	Doctor	
10.10.3	Employee reward systems	
10.10.4	Middle managers	
10.10.5	Frontline staff	
10.11 How would you describe the level of support that information technology (IT)---of all/kinds---provides for your quality and safety improvement programs? <i>(IT" includes the entire effort, both the people and the technology.</i>		
10.11.1	IT supports some projects.	
10.11.2	IT supports many projects.	
10.11.3	IT supports all-important quality initiatives.	
10.12 How would you describe your organization's approach to measuring the degree to which you have established a safety culture?		
10.12.1	We do not measure safety culture.	
10.12.2	We have a plan to begin to measure with some measurement activities underway.	
10.12.3	We measure safety culture on a defined and regular basis, <i>(such as every 2 years or every 3 years)</i>	
10.12.4	We have measured safety culture at least twice in the recent past	
10.12.5	We have measured safety culture and survey participants included leaders, staff and doctors throughout the organization.	
10.13 Under what circumstances does your organization conduct a root cause analysis?		
10.13.1	Only when severity assessment code 1 (SAC 1) / sentinel events occur.	
10.13.2	In all instances of significant patient harm.	

10.13. 3	In instances of significant patient harm as well as for some no-harm events and near misses.													
10.14 Does your organization combine information from comprehensive systematic analyse of several different events to identify system problems that may have contributed to a number of adverse events or no harm events? <i>Examples of system problems are miscommunication during transitions in care, specimen mislabelling, misuse of barcoding, and failures of supervision.</i>														
10.14. 1	Rarely or never													
10.14. 2	Sometimes													
10.14. 3	Often													
10.14. 4	Don't know													
10.15 Have these analyses of different events revealed any such system problems as:														
		<table border="1"> <thead> <tr> <th>Yes</th> <th>No</th> <th>Don't Know</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Yes	No	Don't Know									
Yes	No	Don't Know												
10.15. 1	Ineffective time-outs													
10.15. 2	Patient identification errors													
10.15. 3	Computerized Provider Order Entry (CPOE) overrides													
10.16 Imagine a scenario where a doctor/nurse enters a patient's room and does not wash his or her hands. Consider whether or not a member of the cleaning staff team in the room would speak up and ask the doctor/nurse to wash hands before touching the patient. Considering your response to this scenario, how would you rate your organization' effectiveness in establishing high levels of trust and mutual respect regardless of rank or role, and eliminating barriers such as intimidating behaviour?														
10.16. 1	Excellent													
10.16. 2	Very good													
10.16. 3	Good													
10.16. 4	Fair													
10.16. 5	Poor													
10.17 Does your organization regularly measure specific attributes of trust														
10.18 Do you experience barriers to communication and collaboration with the following categories of staff in your workplace? This can include but is not limited to issues such as <i>Intimidating behaviour, failure to be included in care planning or discharge planning patients, failure to respond timeously to requests for assistance or failure to adhere to referral procedures.</i>														

10.18.1			Yes	No	Don't Know
	Management				
	Clinical Professionals	Doctors			
		Nurses			
		Pharmaceutical Professionals			
		Dentistry			
		Other (Radiographers, Clinical Technologists)			
		EMS			
	Rehabilitative Health Care Professionals	Social Workers			
		Psychologists			
		Dieticians			
		Occupational Health and Safety Practitioners			
		Optometrists			
		Physiotherapists			
		Speech Therapists and Audiologists			
		Other			
	Administrative personnel	Human Resources			
		Finance			
		Supply Chain Management			
	Support services	Cleaning services			
		Information management			
		IT services			
Maintenance services					
Food services					
10.19 How would you rate your organization's effectiveness in establishing high levels of personal accountability among all staff and employees for adhering to safe practices? <i>For instance, think of how often peers hold each other accountable for adhering to the use of two patient identifiers.</i>					
10.19.1	Excellent				
10.19.2	Very Good				
10.19.3	Good				
10.19.4	Fair				
10.19.5	Poor				
10.20 Does your organization have clear and transparent policies and procedures that evaluate patterns of behaviour and routine causes of patient safety incidents, such as an incident decision tree or investigation template, to determine contributory factors to patient safety incidents					

10.20.1	Our policies and procedures for the investigation of patient safety incidents are specific to each department (e.g., clinical departments, nursing, cleaning).	
10.20.2	We have begun an effort to standardize procedures in some areas, but there is no commitment to do so throughout the organization.	
10.20.3	A systematic effort has begun to establish a standardised approach, but we are not there yet.	
10.20.4	We have adopted clear and transparent policies, uniformly, throughout our organization.	
10.21 How would you describe your organization's approach to quality improvement?		
10.21.1	We have an established, well-articulated approach to improvement that is used by all staff.	
10.21.2	We are in the process of adopting a uniform set of tools and methods, but they are not fully implemented at present.	
10.21.3	We have not adopted a uniform set of tools or methods. Individual projects are free to choose any tools or methods they feel are appropriate to their needs.	
10.21.4	Don't know	
10.22 Who in your organization receives formal routine training in quality improvement methods?		
10.22.1	Only staff who work in the quality improvement, or compliance departments.	
10.22.2	Both staff inside and outside the quality improvement or compliance departments receive training.	
10.22.3	We have no formal training.	
10.23 How widely are your organization's quality improvement methods used across you organization?		
10.23.1	Used only by quality improvement, or compliance department personnel in selected projects.	
10.23.2	Used by some operational and/or clinical departments.	
10.23.3	Used by both operational and clinical departments as well as quality improvement or compliance department personnel.	
10.23.4	Don't know	
10.24 Does your organization involve patients in its efforts to redesign and improve processes of care?		
10.24.1	Yes, routinely	
10.24.2	Yes, sporadically	
10.24.3	No	
10.24.4	Don't know	

10.25 Is demonstrated proficiency in process improvement required for success in your organization's programs for advancement, including pay increases and promotions, of managers, doctors, and staff?		
10.25.1	Yes	
10.25.2	No	
10.25.3	Unsure	

Section C

Self-assessment of current knowledge and understanding of key quality management principles

Please rate your level of understanding of the following items.

The grading scale¹ is as follows:

Stages	Description
Novice	little or no knowledge of the subject
Beginner	basic grasp of the concept
Competent	having the required knowledge to do the job to the level expected of a comparable professional / employee
Proficient	well advanced in the concept and able to train others to a competent level
Expert	a thought leader in the concept, influencing what is taught to those in levels 1-4 of understanding

1	Introduction to Healthcare Quality Management					
Please rate your level of understanding of the following items.		Novice	Beginner	Competent	Proficient	Expert
1.1	Seven dimensions of healthcare quality					
1.2	Different meanings of the following concepts:					
1.2.1	quality					
1.2.2	quality assurance					
1.2.3	quality control					
1.2.4	quality management systems					
1.3	The role of the following structures in ensuring quality of care at health establishments					
1.3.1	National Department of Health					

¹ Based on Dreyfus skills acquisition model: Dreyfus, S.E., 2004. The five-stage model of adult skill acquisition. *Bulletin of science, technology & society*, 24(3), pp.177-181.

1.3.2	Provincial Department of Health					
1.3.3	Corporate management (Private sector)					
1.3.4	Office of Health Standards Compliance					
1.3.5	Operational management					
1.3.6	Junior management					
1.3.7	Middle management					
1.3.8	Senior management					
1.3.9	Executive management					
1.3.10	Governance structures					
1.4	The effect that purchasers can exert on quality of care at health establishments					
1.5	The effect that users can exert on quality of care at health establishments					
1.6	Identification of external stakeholders for the delivery of healthcare services					
1.7	How to engage users to ensure quality of care at health establishments					
1.8	How to develop a quality management system within a health establishment					

2	Performance Measurement					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
	Quality Improvement process					
	The purpose of performance measures					
	How to identify which aspects of a system or process to measure					
	The selection of measures for evaluation					

	of structures, processes, outcomes and patient experience					
	How to formulate performance measures					
	The limitations of performance measures					
	How to ensure data-driven decision making					
	The difference between goals and objectives					
	How to select performance goals					
	How to identify rigorously developed clinical guidelines					

3.	Obtaining Measurement Data					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
	How to design a data collection process					
	How to identify data sources					
	Different methods of data collection					
	Developing data collection tools					
	Identification of situations where sampling will be appropriate					
	Determining the required sample size					
	Implementing a data collection process					
	Managing the collected data, including cleaning and validation of collected data					

4	Evaluating Performance					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert

	The purpose of performance evaluation					
	Different methods of displaying data to facilitate understanding of the situation being evaluated					
	How to select the most appropriate graphic representation for data, e.g. box and whisker plots, bar charts, run charts, etc., according to the type of data collected, the process assessed and the message to be communicated.					
	How to identify a trend					
	How to construct and interpret control charts					
	How to use comparative data to drive improvement					

5	Improving Performance					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
	How improvement projects are developed					
	The purpose of the Plan-Do-Study-Act cycle in quality improvement efforts					
	Using the Plan-Do-Study-Act cycle to make positive changes					
	Six Sigma improvement model					
	Rapid cycle improvement					

	model/improvement model					
	Lean method to eliminate waste and improve processes					
	How to use a Gantt Chart to estimate the time and resources required to implement activities					
	The four stages of team development (Forming, storming, norming and performing)					

6	Improvement Tools and Techniques					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
6.1	Improvement Tools and Techniques					
6.1.1	Tools and techniques to improve performance.					
6.1.2	The difference between quantitative and qualitative tools.					
6.1.3	<i>Continuous</i> Quality Improvement.					
6.2	How to use the following quantitative tools to gather and report performance measurement data:					
6.2.1	Pareto chart					
6.2.2	Scatter diagram					
6.3	How to use the following improvement tools to generate ideas and understand the root cause of a problem:					
6.3.1	Brainstorming					
6.3.2	Affinity analysis					
6.3.3	Cause and Effect Diagram/Fishbone					
6.3.4	Force Field Analysis					
6.3.5	Workflow diagram					

7.	Managing Patient Safety and Risk					
	Please rate your level of	Novice	Beginner	Competent	Proficient	Expert

	understanding of the following items.					
7.1	Managing Patient Safety and Risk					
7.1.1	Definition of patient safety					
7.1.2	How to develop patient safety measures					
7.1.3	Difference between medical error, adverse event and preventable adverse event					
7.1.4	Difference between medical error and medical negligence					
7.1.5	How to manage clinical Risk					
7.1.6	Approaches to root cause analysis (RCA)					
7.1.7	How to conduct a failure mode and effects analysis (FMEA)					

8	Managing the Patient and Staff Experience					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
8.1	Managing the Patient and Staff Experience					
8.1.1	Difference between Patient Satisfaction and Patient Experience					

8.1.2	Relationship between Patient experience and quality metrics					
8.1.3	How patient experience should fit into our operational framework as an organization now and in the future					
8.1.4	What healthcare leaders can do to improve patient experience within their organization					
8.1.5	The AIDET (Acknowledgement, Introduce, Duration, Explanation and Thank you) communication Framework					

9	High Reliability Organisations					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
9.1	The concept of high reliability organisations (HROs)					
9.2	Characteristics of High Reliability Organisation					
9.3	Understanding how to measure reliability and unreliability					
9.4	How to translate unreliability into metrics in medicine					
9.5	Implementation of High Reliability Organisation best practices					
9.6	How to create reliability statements for your unit/organisation					

ANNEXURE G: POST-TRAINING ASSESSMENT QUESTIONNAIRE

SELF-ASSESSMENT QUESTIONNAIRE – TOWARDS HIGH RELIABILITY HEALTHCARE ORGANISATIONS

Thank you for taking time to complete the survey below

The purpose of this questionnaire is to determine the knowledge each participant has acquired during the training course regarding each of the key concepts listed in the tables below.

Please answer each question honestly – there are no right or wrong answers!

The information will be kept confidential. Your answers will never be shared with any of your colleagues, employers or employees.

Any information used for research purposes will be anonymized prior to analysis of the data collected.

THANK YOU!!

Section A

Tell us about yourself

. Please indicate what is your age

Please select your gender from the list below.

Male	
Female	
Other	

Please select your primary role (work setting) from the list below.

Clinical	
Non-clinical	
Management	

Section B

Self-assessment of knowledge and understanding of key quality management principles

Please rate your level of understanding of the following items.

The grading scale² is as follows:

Stages	Description
Novice	little or no knowledge of the subject
Beginner	basic grasp of the concept
Competent	having the required knowledge to do the job to the level expected of a comparable professional / employee
Proficient	well advanced in the concept and able to train others to a competent level
Expert	a thought leader in the concept, influencing what is taught to those in levels 1-4 of understanding

1	Introduction to Healthcare Quality Management					
Please rate your level of understanding of the following items.		Novice	Beginner	Competent	Proficient	Expert
1.1	Seven dimensions of healthcare quality					
1.2	Different meanings of the following concepts:					
1.2.1	quality					
1.2.2	quality assurance					
1.2.3	quality control					
1.2.4	quality management systems					
1.3	The role of the following structures in ensuring quality of care at health establishments					
1.3.1	National Department of Health					
1.3.2	Provincial Department of Health					
1.3.3	Corporate management (Private sector)					
1.3.4	Office of Health Standards Compliance					
1.3.5	Operational management					
1.3.6	Junior management					
1.3.7	Middle management					
1.3.8	Senior management					
1.3.9	Executive management					

² Based on Dreyfus skills acquisition model: Dreyfus, S.E., 2004. The five-stage model of adult skill acquisition. *Bulletin of science, technology & society*, 24(3), pp.177-181.

1.3.10	Governance structures					
1.4	The effect that purchasers can exert on quality of care at health establishments					
1.5	The effect that users can exert on quality of care at health establishments					
1.6	Identification of external stakeholders for the delivery of healthcare services					
1.7	How to engage users to ensure quality of care at health establishments					
1.8	How to develop a quality management system within a health establishment					

2	Performance Measurement					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
	Quality Improvement process					
	The purpose of performance measures					
	How to identify which aspects of a system or process to measure					
	The selection of measures for evaluation of structures, processes, outcomes and patient experience					
	How to formulate performance measures					
	The limitations of performance measures					
	How to ensure data-driven decision making					
	The difference between goals and objectives					
	How to select performance goals					

	How to identify rigorously developed clinical guidelines					
--	--	--	--	--	--	--

3.	Obtaining Measurement Data					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
	How to design a data collection process					
	How to identify data sources					
	Different methods of data collection					
	Developing data collection tools					
	Identification of situations where sampling will be appropriate					
	Determining the required sample size					
	Implementing a data collection process					
	Managing the collected data, including cleaning and validation of collected data					

4	Evaluating Performance					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
	The purpose of performance evaluation					
	Different methods of displaying data to facilitate understanding of the situation being evaluated					
	How to select the most appropriate graphic representation for data, e.g. box and whisker plots, bar					

	charts, run charts, etc., according to the type of data collected, the process assessed and the message to be communicated.					
	How to identify a trend					
	How to construct and interpret control charts					
	How to use comparative data to drive improvement					

5	Improving Performance					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
	How improvement projects are developed					
	The purpose of the Plan-Do-Study-Act cycle in quality improvement efforts					
	Using the Plan-Do-Study-Act cycle to make positive changes					
	Six Sigma improvement model					
	Rapid cycle improvement model/improvement model					
	Lean method to eliminate waste and improve processes					
	How to use a Gantt Chart to estimate the time and resources required to implement activities					
	The four stages of team development (Forming, storming, norming and performing)					

6	Improvement Tools and Techniques					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
6.1	Improvement Tools and Techniques					
6.1.1	Tools and techniques to improve performance.					
6.1.2	The difference between quantitative and qualitative tools.					
6.1.3	<i>Continuous</i> Quality Improvement.					
6.2	How to use the following quantitative tools to gather and report performance measurement data:					
6.2.1	Pareto chart					
6.2.2	Scatter diagram					
6.3	How to use the following improvement tools to generate ideas and understand the root cause of a problem:					
6.3.1	Brainstorming					
6.3.2	Affinity analysis					
6.3.3	Cause and Effect Diagram/Fishbone					
6.3.4	Force Field Analysis					
6.3.5	Workflow diagram					

7.	Managing Patient Safety and Risk					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
7.1	Managing Patient Safety and Risk					
7.1.1	Definition of patient safety					
7.1.2	How to develop patient safety measures					
7.1.3	Difference between medical error,					

	adverse event and preventable adverse event					
7.1.4	Difference between medical error and medical negligence					
7.1.5	How to manage clinical Risk					
7.1.6	Approaches to root cause analysis (RCA)					
7.1.7	How to conduct a failure mode and effects analysis (FMEA)					

8	Managing the Patient and Staff Experience					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
8.1	Managing the Patient and Staff Experience					
8.1.1	Difference between Patient Satisfaction and Patient Experience					
8.1.2	Relationship between Patient experience and quality metrics					
8.1.3	How patient experience should fit into our operational framework as an organization now and in the future					
8.1.4	What healthcare leaders can do to improve patient experience within their organization					

8.1.5	The AIDET (Acknowledgement, Introduce, Duration, Explanation and Thank you) communication Framework					
-------	---	--	--	--	--	--

9	High Reliability Organisations					
	Please rate your level of understanding of the following items.	Novice	Beginner	Competent	Proficient	Expert
9.1	The concept of high reliability organisations (HROs)					
9.2	Characteristics of High Reliability Organisation					
9.3	Understanding how to measure reliability and unreliability					
9.4	How to translate unreliability into metrics in medicine					
9.5	Implementation of High Reliability Organisation best practices					
9.6	How to create reliability statements for your unit/organisation					

ANNEXURE H: DATA MANAGEMENT PLAN

Bridging the health care quality, patient safety and competency gaps in South Africa: A study of clinicians and quality managers - Data Management Plan

DATA COLLECTION

What data will you collect/create?

Quantitative and qualitative data - The data will cover the Personal Information of the participants; the organizational data and the participant's current knowledge.

How will the data be collected or created?

The participants will complete a pre-assessment questionnaire before the commencement of the training and post-training they will complete the same assessment question to assess the whether the training intervention was effective.

DATA DOCUMENTATION AND METADATA

What documentation and metadata will accompany your dataset?

All three data repositories **Figshare** <https://cput.figshare.com/>, **MediaTum** <http://rdm.cput.ac.za/> and the **Institutional**

repository <http://digitalknowledge.cput.ac.za/> provide metadata fields to describe each dataset by adding title, author/s, subject categories, default list of keywords including options to add key words manually. There's a space to describe datasets or add abstract. Each dataset in each folder will be described using metadata fields with each data repository.

ETHICS AND LEGAL COMPLIANCE

How will you manage any ethical issues pertaining to data?

Follow proper ethical procedures as required by the Research Committee of the University.

How will you manage copyright and Intellectual Property Rights (IPR) issues?

Findings will remain the property of the University and the funder. Our findings will be published in peer-reviewed Open Access Journals. Therefore, there will be no unforeseen copyright and IPR issues.

DATA STORAGE AND BACKUP

How will you store and back up your data during the research?

The data for this project will be saved and backed up in CPUT data repositories **Figshare** at <https://cput.figshare.com/> or **MediaTum** at <http://rdm.cput.ac.za/> as well as the **Institutional repository** accessible at <http://digitalknowledge.cput.ac.za/>

How will you manage access and security? During the research process access to datasets will only be given to direct or indirect participants by assigning rights. This includes collaborators who will be given rights to read, edit and collaborate through the data repositories (**Figshare** at <https://cput.figshare.com/> or **MediaTum** at <http://rdm.cput.ac.za/>).

DATA SELECTION AND PRESERVATION

Explain which data should be retained, shared, and /or preserved?

The period of data retention will be informed by the CPUT institutional policy. Upon completion of the project, the principal investigator and the project supervisors will identify project materials that may be of long-term interest for archiving and preservation. This data will be digitized to ensure ease of storage and retrieval. It is reasonable to assume that the data will be needed for up to 10 years after the study is completed.

The survey and interview data from the study will be retained and may be used to validate the findings of the research or to conduct further analysis. The electronic data will be stored and available for at least 10 years. The paper-based questionnaires will be stored for a period of 5 years post the study.

DATA SHARING

How will data be shared?

Data will be shared between collaborators using "MY DATA and PROJECT" on Figshare (<https://cput.figshare.com/>) or folders and directories within MediaTum (<http://rdm.cput.ac.za/>) . This will allow the project leader/s or researchers to INVITE participants via email to view or participate in each project folder and each dataset will be protected by either a private link or DOI. After publications, data will be shared using Open Access Repositories Figshare (<https://cput.figshare.com/>) and the Institutional Repository (<http://digitalknowledge.cput.ac.za/>) for public access.

Are any restrictions on data sharing required?

No.

RESPONSIBILITIES AND RESOURCES

Who will be responsible for data management?

The principal investigator and supervisors will be responsible for data management. These responsibilities will include data capture, metadata production, data quality, storage and backup, data archiving & data sharing. The principal investigator as a student will adhere to ethics guiding principles of research data management and CPUT policies as expected. The primary supervisor is employed at CPUT, it will be his responsibility to ensure CPUT policies are respected and the student adheres to them.

As there are no external collaborators or partners, the principal investigator will be responsible for the review and updating of the DMP.

What resources will you require to deliver your plan?

No additional resources are required to deliver the DMP. The principal investigator as a student has access to the CPUT library specialists to provide any additional support that may be required.

PERSONAL, SENSITIVE AND IDENTIFIABLE HUMAN RESEARCH DATA

Will you be collecting personal information?

yes

List all the types of personal/sensitive/identifiable data you will be collecting.

Age, gender, qualification, primary position, level of seniority, and years of experience.

Conduct a benefit/risk analysis to ensure that the benefit of collecting such data outweighs the risk and then motivate why you need to collect such information.

The benefit outweighs the risk as the participant's names and surnames are not going to be collected and the age range will be used to avoid any linkage or association. The name of individual health facilities is not included in the questionnaire to avoid any linkages with any information collected.

Confidentiality, anonymity, and privacy of human participants.

The data will not contain any identifiable personal information this is to ensure the confidentiality of the information.

What happens to the information if a participant withdraws from a study?

The information will be deleted, and or destroyed in a safe permanent manner.

After completion of the research, will the information be used for anything else in the future?

No.

Will study participants/groups etc. receive feedback before disseminating the results of the research?

Yes. This will be done through their institutions as this is capacity-building action research.

Outline your informed consent process and details of the data management plan.

Dear Participant

I am enrolled for a doctoral study in the Department of Public Administration & Governance at the Faculty of Business and Management Sciences at the Cape Peninsula University of Technology (CPUT). The topic of my research study is bridging the health care quality, patient safety, and competency gaps in South Africa: A study of clinicians and quality managers.

This study is part of the National Quality Health Implementation Plan research project that is approved by the Faculty of Business and Management Sciences, Faculty Research Ethics Committee, certificate number 2021_FBMSREC078. Approval for the study to be conducted with the participants from the nine provinces in South Africa who will be participating in the NHQIP training has been obtained from the National Department of Health.

This is an invitation to participate voluntarily in the research project. Please be assured that your responses will remain confidential. Your name and place of work will not be identified in any part of the research. The data will be securely stored and all data will be deleted and destroyed after 10 years in compliance with the CPUT policies on data management. The data will not be used for anything else, nor will it be shared. The project supervisors and I will be the only people who will have access to the information gathered. You may refer any queries or questions to me (molekow@gmail.com) or the project supervisor Professor V. Naicker (naickerv@cput.ac.za).

I, Winnifred Moleko (Researcher) (*please print your name and surname*)

agree voluntarily to be part of the research undertaken. I understand that I am under no compulsion and may withdraw at any stage of the research

project without prejudice. Any data or part thereof of participants who withdraw will be deleted and destroyed and confirmation thereof will be communicated to you. You also have the right to request removal after the study has been completed.

Signed: _____ Date: _____

If you would like to receive further information on Quality Management training and be invited to a webinar where the results of the study will be discussed. All records will be deleted at the end of the study period.

This research will be undertaken in full compliance with the Protection of Personal Information Act (POPIA), No. 4 of 2013, and to ensure that the

rights of research participants ("data subjects") as enshrined in the Act are upheld and respected.

Without derogating from the generality of the foregoing, in relation to the processing of all personal information, other than information that has been de-identified to the extent that it cannot be re-identified again, I undertake the following –

1. to ensure that the data subjects are aware of the purpose of the collection of their personal information;
2. to obtain the consent of data subjects for processing their personal information, and to refrain from further processing of the personal information of data subjects if they withdraw their consent;
3. to process such personal information lawfully and in a reasonable manner that does not infringe the privacy of the data subject;
4. to secure the integrity and confidentiality of such personal information in my possession or under my control, and to notify the Information Regulator, the data subjects concerned, of any access or acquisition of such information by unauthorized persons; and
5. to retain such personal information for no longer than is necessary for purposes of the research, and thereafter to destroy, delete or de-identify it as soon as reasonably practicable.

ANNEXURE I: CODING

R Code and Output

R-Code

R code used to conduct hypothesis testing on level of understanding of quality of key quality concepts pre training and post training.

1. Introduction to Healthcare Quality Management

```
prop.test(x=c(1484,23), n=c(3909, 740),conf.level=0.95, alternative = "greater")
```

2. Performance Measurement

```
prop.test(x=c(956,9), n=c(1986, 370),conf.level=0.95, alternative = "greater")
```

3. Obtaining Measurement Data

```
prop.test(x=c(848,4), n=c(1591, 296),conf.level=0.95 , alternative = "greater")
```

4. Evaluating Performance

```
prop.test(x=c(643,4), n=c(1190, 218),conf.level=0.95 , alternative = "greater")
```

5. Improving Performance

```
prop.test(x=c(1074,15), n=c(1571, 222),conf.level=0.95, alternative = "greater")
```

6. Improvement Tools and Techniques

```
prop.test(x=c(1322,34), n=c(1964, 370),conf.level=0.95 , alternative = "greater")
```

7. Managing Patient Safety and Risk

```
prop.test(x=c(570,6), n=c(1382, 259),conf.level=0.95 , alternative = "greater")
```

8. Managing the Patient and Staff Experience

```
prop.test(x=c(471,5), n=c(982, 185),conf.level=0.95 , alternative = "greater")
```

9. High Reliability Organisations

```
prop.test(x=c(1028,15), n=c(1199, 222),conf.level=0.95 , alternative = "greater")
```

R-Output

1. Introduction to Healthcare Quality Management

```
> prop.test(x=c(1484,23), n=c(3909, 740),conf.level=0.95, alternative = "greater")
```

2-sample test for equality of proportions with continuity correction

```
data: c(1484, 23) out of c(3909, 740)
X-squared = 343.46, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.331226 1.000000
sample estimates:
   prop 1    prop 2 
0.37963674 0.03108108
```

2. Performance Measurement

```
> prop.test(x=c(956,9), n=c(1986, 370),conf.level=0.95, alternative = "greater")
```

2-sample test for equality of proportions with continuity correction

```
data: c(956, 9) out of c(1986, 370)
X-squared = 267.53, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.4327784 1.0000000
sample estimates:
   prop 1    prop 2 
0.48136959 0.02432432
```

3. Obtaining Measurement Data

```
> prop.test(x=c(848,4), n=c(1591, 296),conf.level=0.95 , alternative = "greater")
```

2-sample test for equality of proportions with continuity correction

```
data: c(848, 4) out of c(1591, 296)
X-squared = 269.86, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.4941331 1.0000000
sample estimates:
   prop 1    prop 2 
0.53299811 0.01351351
```

4. Evaluating Performance

```
> prop.test(x=c(643,4), n=c(1190, 218),conf.level=0.95 , alternative = "greater")
```

2-sample test for equality of proportions with continuity correction

```
data: c(643, 4) out of c(1190, 218)
X-squared = 200.04, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.4911983 1.0000000
```

```
sample estimates:
  prop 1      prop 2
0.54033613 0.01834862
```

5. Improving Performance

```
> prop.test(x=c(1074,15), n=c(1571, 222),conf.level=0.95, alternative = "greater")
      2-sample test for equality of proportions with continuity correction

data:  c(1074, 15) out of c(1571, 222)
X-squared = 307, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.5797348 1.0000000
sample estimates:
  prop 1      prop 2
0.68364099 0.06756757
```

6. Improvement Tools and Techniques

```
> prop.test(x=c(1322,34), n=c(1964, 370),conf.level=0.95 , alternative = "greater")
      2-sample test for equality of proportions with continuity correction

data:  c(1322, 34) out of c(1964, 370)
X-squared = 429.66, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.5493974 1.0000000
sample estimates:
  prop 1      prop 2
0.67311609 0.09189189
```

7. Managing Patient Safety and Risk

```
> prop.test(x=c(570,6), n=c(1382, 259),conf.level=0.95 , alternative = "greater")
      2-sample test for equality of proportions with continuity correction

data:  c(570, 6) out of c(1382, 259)
X-squared = 143.4, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.3603264 1.0000000
sample estimates:
  prop 1      prop 2
0.41244573 0.02316602
```

8. Managing the Patient and Staff Experience

```
> prop.test(x=c(471,5), n=c(982, 185),conf.level=0.95 , alternative = "greater")
      2-sample test for equality of proportions with continuity correction

data:  c(471, 5) out of c(982, 185)
```

```
X-squared = 130.17, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.4166498 1.0000000
sample estimates:
      prop 1      prop 2
0.47963340 0.02702703
```

9. High Reliability Organisations

```
> prop.test(x=c(1028,15), n=c(1199, 222),conf.level=0.95 , alternative = "greater")
```

2-sample test for equality of proportions with continuity correction

```
data: c(1028, 15) out of c(1199, 222)
X-squared = 594.43, df = 1, p-value < 2.2e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.7548374 1.0000000
sample estimates:
      prop 1      prop 2
0.85738115 0.06756757
```

```
>
```

ANNEXURE J: TURNITIN REPORT

ANNEXURE K: EDITING CERTIFICATE

Ken Barris, PhD

Editing and research writing services

18 Doris Road, Claremont 7708, Cape Town, South Africa ken.barris@gmail.com

+27(0)829289038

11 June 2025

To whom it may concern

This is to certify that I have copy-edited the following thesis by Winnie Moleko, titled

BRIDGING THE HEALTHCARE QUALITY, PATIENT SAFETY, AND COMPETENCY GAPS IN SOUTH AFRICA: A STUDY OF CLINICIANS AND QUALITY MANAGERS

Please note that this does not cover content, conceptual organisation or textual changes made subsequent to the editing process.

Best regards



KEN BARRIS

ANNEXURE L: EDITOR'S AI DECLARATION FOR THESES, DISSERTATIONS, OR RESEARCH ARTICLES

I understand that the use of generative AI tools (such as ChatGPT or similar) in editing or preparing scholarly documents must be transparently declared to maintain academic integrity and avoid misrepresentation of authorship. Undisclosed use of such tools may constitute a breach of ethical guidelines.

I declare that in the course of editing the thesis/dissertation/research report/article titled:

BRIDGING THE HEALTHCARE QUALITY, PATIENT SAFETY, AND COMPETENCY GAPS IN SOUTH AFRICA:
A STUDY OF CLINICIANS AND QUALITY MANAGERS

☒ I did not make use of generative AI tools.

OR

☐ I did make use of generative AI tools for the following purposes (tick all that apply):

- ☐ Grammar and Language Editing (grammar correction, clarity, readability)
- ☐ Rewriting or Paraphrasing for improved expression (without altering meaning)
- ☐ Text Summarisation or Condensation
- ☐ Formatting (document layout, referencing style formatting)
- ☐ Reference Management (structuring, organising references)
- ☐ Generating suggested titles, headings, or sub-headings
- ☐ Checking consistency of terminology and style
- ☐ Other (please specify): _____

Generative AI tool(s) used (list all): NONE

Used for (specific purpose):

I confirm that any changes made using AI tools were limited to editorial improvements and did not introduce new academic content, interpretations, or data analysis beyond the author's original work.

Editor's Name: Ken Barris

Affiliation (if any): _____

Signature: *Ken Barris*

Date: 7 July 2025