A CROSS SECTIONAL REVIEW OF MORBIDITY AND MORTALITY MEETINGS IN GAUTENG PROVINCE HOSPITALS IN 2014

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DECLARATION

I, Azwidihwi Nthangeni Takalani, declare that this research report is my own work. It is being submitted for the degree of Master of Medicine in the field of Community Health, in the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

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21 Day of December 2016

DEDICATION

This work is dedicated to the memory of my mother, Sarah Ntheveleni Takalani.

To my husband, Kiletji Manaka, your love and patience anchored me.

To my father and my siblings who found the strength to encourage me to keep going even though at times our loss and grief seemed to be too hard to bear.

Above all to my Lord, Jesus Christ, whose blood makes all things new.

EXECUTIVE SUMMARY

Introduction

Morbidity and mortality meetings are recognised clinical audit tools with the aim to contribute to improving clinical outcomes. Their role as quality improvement tools, in the South African context, is authenticated by their inclusion into the National Core Standards. The National Core Standards stipulate that monthly morbidity and mortality meetings should be conducted within the various health establishments. Although this standard makes it compulsory for meetings to be held there are no guidelines that outline how meetings should be prepared for and executed.

Aim

The main aim of this study is to assess if meetings are being convened in the various hospital departments in Gauteng Province, 2014 and to determine whether the manner in which meetings are scheduled, prepared for and conducted enable meetings to be used as effective quality improvement tools.

Methods

A cross sectional process review of morbidity and mortality meetings in hospitals in Gauteng province was conducted in 2014. Departments were stratified according to levels of care and a proportional random sample was selected. There were two parts to the study: meeting coordinators from four clinical departments: paediatrics; obstetrics and gynaecology; internal medicine and general surgery completed the administered questionnaire. The respective morbidity and mortality meetings held in each of these departments were then observed.

Results

Twenty three questionnaires were administered and twenty five meetings observed from five districts, three regional, one tertiary and one central hospital. The majority of departments (93%) held meetings. In terms of meeting preparation, 96% of meetings were being coordinated and chaired by the correct people and scheduling of meetings was appropriate. However only 52% of meetings had representative attendance, 27% of cases that were presented were not aligned to meeting objectives and 40% of presentations did not include

sufficient information for insightful discussion. Remedial action plans were not developed in 44% of meetings and up to 57% of those who developed action plans did not follow up on the implementation of these plans. No records of meetings were kept in 48% of departments and 68% of meetings were conducted in the absence of an agenda.

Conclusion

Morbidity and mortality meetings are being held in Gauteng Province however practices are heterogeneous with several indicating that meetings in their current state are not effective quality improvement tools. There is a need for guidelines that inform the purpose, preparation and execution of morbidity and mortality meetings in Gauteng Province to be developed in order to standardise and increase the effectiveness of meetings

Keywords

Morbidity and mortality meetings, quality improvement, clinical audit

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LIST OF ABBREVIATIONS

CE	**Clinical Executive**
CEO	**Chief Executive Officer**
CHBAH	**Chris Hani Baragwanath Academic Hospital**
CHC	**Community Health Centre**
CMJAH	**Charlotte Maxeke Academic Hospital**
GDoH	**Gauteng Department of Health**
HOD	**Head of Department**
ICU	**Intensive Care Unit**
M&M	**Morbidity & Mortality**
MOU	**Midwife Obstetric Unit**
NDOH	**National Department of Health**
NHI	**National Health Insurance**
O&G	**Obstetrics and Gynaecology**
OHSC	**Office of Health Standards Compliance**
SAE	**Serious Adverse Event**
SCE	**Senior Clinical Executive**
SOP	**Standard Operating Procedures**

CHAPTER ONE

1. INTRODUCTION

A Morbidity and mortality (M&M) meeting can be defined as follows: *"A routine, structured forum for the open examination and review of cases which have led to illness or death of a patient, in order to collectively learn from these events and to improve patient management and quality of care"*. (1)(p119) M&M meetings are recognised clinical audit tools and, as such, aim to contribute to improving clinical outcomes. Through the creation of a forum that has a patient centred focus and supports open and honest discussion, these meetings can effectively serve their function – to identify events that have led to poor or unexpected patient outcomes, analysis of these events, reinforcement of accountability at both an individual and system level, as well as the implementation of recommendations to reduce or prevent similar future occurrences. These meetings take various forms but their defining characteristics remain: the identification of error with a view to learn, as well as to improve quality of care.

1.1 Background

Between 1900 and 1910 Emery Codman developed a system of quality assurance that he termed the 'End Result System' which formed the basis for outcomes management in patient care. This card based system recorded patient identification data, diagnosis, treatment, results and the long-term follow-up evaluation of patients post discharge. In this 10 year period he compiled data on six hundred surgical patients and analysed their long term outcomes which enabled him to determine factors that influenced these outcomes. Based on these findings he recommended the need for weekly morbidity and mortality meetings which would allow open and transparent discussion about patient management in order to encourage learning and improve patient outcomes. (2) (3)

The Flexner report on medical education, published in 1910, adopted Codman's recommendation, as did the American College of Surgeons when it was established in 1912.

In 1983, M&M meetings were made mandatory by the Accreditation Council for Graduate Medical Education for all programmes that trained surgeons and were soon adopted into other disciplines such as internal medicine and paediatrics.(4)

In 1966 Avedis Donabedian, an icon in clinical practice and quality of care, first described a framework that contributes to current thinking. This framework outlines a systematic way that allows for quantification of quality of care which forms the basis of modern day quality assurance. In the framework published in: "Evaluating the Quality of Medical Care." he outlines a systematic way that allows for quantification of quality of care in three main domains: structure, process and outcome. Making quality a quantifiable entity and thus demystifying error or limitation in clinical practice made it a tangible outcome that one could work toward or objectively evaluate. (2)

In 1991 the Institute of Medicine defined quality of care as 'the degree to which health services for individuals and population increase the likelihood of desired health outcomes and are consistent with current professional knowledge'(5) Qualifying quality in clinical practice in terms of outcomes and evidence based practice is increasingly becoming central in medicine, although it is a relatively new field in comparison to other trades and industries. Historically, outcomes in clinical practice have been directly attributed to the physician's ability and this has resulted in an inherent reluctance within the field to evaluate the quality of care provided for fear of blame.(2)

Today quality assurance in health care is a defined science and a system that encompasses self-assessment, peer review and management accountability. This is further reflected by the emergence of clinical governance as a systematic approach to quality improvement within health organisations. In a United Kingdom (UK) White Paper policy document on the National Health System, clinical governance was defined as: "new system in NHS Trusts and primary care to ensure that clinical standards are met, and that processes are in place to ensure continuous improvement, backed by a new statutory duty for quality in NHS Trusts".(6) There are six pillars of clinical governance: clinical audit, clinical effectiveness, research and development, risk management, openness, education and training. Clinical audit is defined as the systematic review of diagnosis, care and treatment against explicit criteria, and the

implementation of change to improve patient care and outcomes. Although M&M meetings are a way of auditing morbidly and mortality, they are also a critical component of risk management and continuing education. (7)

In July 2009 the National Department of Health released its Strategic Plan 2009 to 2014: The Programme of Action for Health. This programme is commonly known as the ten point plan, as ten priorities for the department are highlighted as necessary to create a well- functioning health system capable of producing improved health outcomes. Improving the quality of health services is one of these priorities.(8)

Emanating from this strategy, as embodied in the South African National Health Act, 61 of 2003, the Office of Health Standard Compliance (OHSC) was established. In July 2013, the President of the State assented the National Health Amendment Act, which made provision for the establishment of the OHSC. The main objective of the OHSC being "to promote and protect the health and safety of users of health service" by ensuring that all facilities adhere to certain basic core standards.(9) These National Core Standards are articulated in seven domains: 1. Patient Rights; 2. Patient Safety and Clinical Governance and Care; 3. Clinical Support Services; 4. Public Health; 5. Leadership and Cooperate Governance; 6. Operational Management and 7. Facilities and Infrastructure.(10)

The second domain: Patient Safety and Clinical Governance and Care covers *"how to ensure quality nursing and clinical care and ethical practice; reduce unintended harm to health care users or patients in identified cases of greater clinical risk; prevent or manage problems or adverse events, including health care associated infections, and support any affected patients or staff."* Two specific measures are included and they are in line with reporting systems for quality improvement.

- Adverse events are routinely analysed and managed in order to prevent recurrence to future patients, to learn from our mistakes and to respond to any medico-legal cases
- "Mortality and Morbidity" meetings are held at least monthly to evaluate patient deaths and put in place measures to avoid further preventable deaths.(11)

Over the years, the formalisation of M&M meetings, their wider adoption into clinical practice and quality improvement initiatives have resulted in several guidelines on how to conduct effective M&M meetings being developed. Guidelines tend to be similar across organisations and most are an extension of what has been shown to make meetings in general effective as well as M&M meeting specific factors. (12) (13) (14) (15)

There are initiatives within the country that give guidelines on how M&M meetings should be conducted but these are limited to the mother and child disciplines. These guidelines include the type of cases which are to be reviewed and they also offer guidance on the level of preparation, reporting, formulation of action plans and the implementation thereof. Traditionally these are well structured programmes that facilities could opt to participate in. These include the Child Healthcare Problem Identification Program (ChIP) and Perinatal Problem Identification Program (PPIP).(12)(16) While these program guidelines are comparable with international norms and standards, the main downfall is that institutions utilise these programs on a voluntary basis (ChIP & PPIP).

The second set of guidelines has been developed for and with members of the District Clinical Specialist Teams (DCST): Guidelines for Perinatal Review Meetings (PNRM) at facilities. These are to be utilised by the team as they establish or restructure perinatal M&M meetings within their districts.(15) KwaZulu/Natal is the only province, in South Africa which has comprehensive guidelines on how meetings should be planned for and conducted in all disciplines and the various levels of care within the health care system. (17)

1.2 Literature Review

The literature reviewed outlines aspects of the purpose, preparation and execution of meetings that have been shown to contribute to the effectiveness of M&M meetings in various settings. Of note most of the literature has been generated from health systems that are quite different from the South African health care system, particularly in terms of health

care worker distribution and other quality assurance measures in place. Unfortunately there is no local literature on M&M meetings or other countries with a similar health care profile.

The District Clinical Specialist Team (DCST) consists of four medical specialists: anaesthetist; obstetrician and gynaecologist; paediatrician; family physician and three advanced nursing professionals: advanced primary health care nurse; advanced paediatric nurse and an advanced midwife. This team of seven medical specialists are to be placed in each district in the country and their role is strengthening clinical governance at primary health care facilities and district hospitals.

1.2.1 Objectives of Meetings

There are four main objectives of M&M meetings, these are consistent with those of a learning reporting system as outlined by the World Alliance on Patient Safety.(18) M&M meetings should be held to openly discuss, identified cases in a non-persecutory manner in order to (19)(20)(21)(22):

- Continuously improve the quality of care or management being rendered to patients
- Identify health systems error
- Identify clinical management error
- Use the platform as an opportunity to teach

Meeting these objectives is often hampered by a lack of focus on other aspects of the meeting, which have been shown to be integral in determining the effectiveness of these meetings as quality improvement tools, as well as learning platforms. These aspects of meetings are mainly to do with the manner in which meetings are prepared for (scheduling and case selection process) and their execution (attendance, facilitation and record keeping).(19)

Antonacci, et al were able to show an improvement in clinical outcomes over a four year period after restructuring the review of morbidity and mortality in their unit. Meetings were well structured, they were held weekly, attendance was mandatory, all adverse outcomes and deaths had to be reported, a presentation outline and time were stipulated, presentations were submitted and circulated prior to meetings, a standard case review methodology was utilised and this a included root cause analysis for major cases.(23)

1.2.2 Preparation for M&M Meetings

Scheduling of Meetings

The scheduling of meetings has an effect on attendance and participation within the group. In order to maximise both, it is suggested that meetings should not be held haphazardly but rather that they be regularly scheduled and become part of the unit's routine.(24) The consistency of intervals and times of meetings, particularly if included as part of the work day routine (staff members excused from their usual activities), emphasizes the importance of the meeting and results in increased attendance.(13)(25)

There are various recommendations as to how often meetings should be held. While most of these are institution specific or tailored for a particular health system, there are two principles that can be used to determine the frequency of meetings. (24)(26) The first being that meetings are held often enough to avoid a lag between the incident and the discussion that could lead to a temporal disconnect.(27)(21) The time interval required for a temporal disconnect to occur can be variable and indeed subjective. However if this principle is used in conjunction with the second principle, consideration of size of the institution and the number of incidents that occur within a time interval, it is possible for each institution or department to define a time interval that is suitable for their department. Larger institutions should hold meetings more frequently, preferably on a weekly basis. In the event that this is not possible due to workload or other engagements within the institution, more frequent decentralised meetings should be held. For example, a unit within the department could have weekly M&M meetings and then choose pertinent cases from these meetings to discuss at a more communal fortnightly or monthly departmental M&M meeting.(13)

Case Selection Criteria and Process

The lack of criteria to select cases restricts the ability of a meeting to realise its objectives, particularly those that have to do with learning and quality improvement. This can be attributed to the resultant heterogeneity in the focus of the meeting.(24)(28)(29) Explicit case selection criteria were noted to have a positive influence on the perceptions of meetings

amongst junior staff members.(24) Upon finding differences between medicine and surgical departmental meetings, Pierlussi et al discussed the benefits that can be derived from having explicit case selection criteria, which include identification of error. This structured case selection process increased junior staff members' ability to recognise and avoid similar mistakes in future practice. The ability of junior staff members to identify and avoid error was more distinct when accompanied by explicit attribution of poor prognosis or an adverse event to the error.(29)

Furthermore, in the absence of case selection criteria, there seems to be a preference to select uncommon or unexpected cases and outcomes in an effort to generate interest in the meeting.(27)(30) This comes at the price of neglecting general cases with common morbidities that result from common error. Even when these common errors are discussed they are often aggregated and presented as a single phenomenon, which underscores recurrent events that can be attributed to specific processes of care. (30) The identification and attribution of common error to poor outcomes tends to be more instructive for junior colleagues.(13) Criteria for case selection should be comprehensive and should not be restricted to demonstration of gross mismanagement. (21)

Criteria for case selection that improve the efficacy of meetings should include the following: adverse events; poor or unexpected outcomes; those outcomes that are potentially preventable; those that have an implication for quality improvement or an educational aspect as well as outstanding outcomes wherein lessons can be identified. (19)(28)(31)

The case selection process has to be transparent with continuous identification of cases using set criteria. A long interval between the incident and the review meeting should be avoided as this leads to a waning of unrecorded details of the case (27) or events and also erodes the role that the review of any error plays in clinical management. If case selection cannot be done on a continuous basis then a system of recording cases that are identified, such as a morbidity book or register, should be considered. (13)

For meetings or departments where there is a mix between general and high dependency wards the case selection process or system should consider stratifying cases prior to selection.

This is to avoid under representation from general wards as high dependency wards tend to report more cases. (27)

1.2.3 Execution of M&M Meetings

Attendance at Meetings

Each meeting should have all the right people around the table to effect change. *A*dverse events are usually of multi-disciplinary origin, and for this reason, it is important that there is multi- disciplinary representation at meetings.(32) This team approach directs the meeting toward systems analysis and results in collaborative efforts when addressing the identified error.(33)

There is consensus that all clinician groups within the department/unit should be attending M&M meetings. This includes: the treating clinicians, both senior and junior, as well as students involved in the case, other senior clinicians, junior clinicians and nursing staff. External clinicians, from other departments or institutions, may also be invited.(1)(34)(35)(21) The advantage of having external clinicians, or those from other disciplines is to ensure that the meeting has a more objective outlook as opposed to continuous self-assessment.(13)

Management representatives provide the leadership that is required to consolidate the importance of meetings but, more importantly, they are directly responsible for certain health system factors that may be identified. (36)(37) For this reason there not only has to be managerial attendance but the management team has to show commitment and provide leadership for meetings to be effective.(19)

Meeting Facilitation

The execution of the meeting is a large determinant of their effectiveness as a quality improvement tool. A significant proportion of how meetings are executed will be determined by the adequacy of the aforementioned preparatory steps. However the meeting process itself is equally important, starting off with who facilitates the meeting and how well this is done. This role should be taken up by a senior consultant or the senior most people in the department.(13)(21)(24) The responsibility of the chair is to establish a safe environment wherein open discussion can take place without blame being assigned and a non-persecutory tone.(27)(33)(38)Therefore the chair should have enough authority to control the group and ensure adherence to the agenda as well as sufficient expertise to stimulate and steer the discussion to meet the meeting's objectives.(13)

Case Presentation

The meeting should answer the following three questions: what happened, why it happened and what interventions will be put in place to improve or to reduce this occurrence in the future.(20) Case presentations need to cover sufficient information to enable attendees to have a complete picture of '*what happened'.* Should the presentation not accomplish this then the presenter and or the attending clinicians should be able to supply this information. It has been shown that using a template to compile case presentations offers a framework within which clinicians are able to interrogate events and consider other factors that may have led to the poor outcome. (37)

The discussion or case analysis serves to answer *'why it happened'.* The discussion should be structured with a systems level perspective(39)accompanied by explicit identification of error.(29) Case analysis should include elements of medical incident analysis models: input from staff members directly involved with the case and a structured framework to elicit underlying causes.(37)

Agenda Items

The whole M&M process is geared toward addressing the following: what interventions will be put in place to improve or reduce this occurrence in the future. This step should be done after each case presentation and should also be a separate agenda item for the meeting. After the development of these action or quality improvement plans, it is important to ensure that progress reports are given at subsequent meetings. (36)(31)(21)(39)

The incorporation of a quantitative review of performance into meetings facilitates the following: the data reflects common morbidities which present an opportunity for further exploration thereby steering the discussion away from unusual cases. Secondly, it allows for trends within the department to be reviewed, including an opportunity to reflect on changes in outcomes after interventions or practice changes. Finally, it also an opportunity for benchmarking practices with other peers or as outlined in the literature. (30)

Record Keeping

M&M meetings are influenced by various practices that can lead to "maladaptive defense mechanisms" these tend to include avoidance of meetings and minimization of error during case presentation. (21) Taking of minutes of meetings is one of the practices that can lead to this behavior. However, if well managed, and participants are aware that only vital information is recorded, and all patients are de-identified, then minutes can be used to increase meeting effectiveness. (13) Records of what was discussed and action plans that were decided on can be used to follow up on progress, or re-visit decisions that were made at an earlier stage. (39)

Table 1.1 summarises the key aspects of preparing for and conducting M&M meetings as outlined in the literature.

Table 1.1: Summary of Literature, Norms and Best Practices of M&M Meetings

Scheduling a.) Frequency: weekly or monthly; large units should strive for weekly meetings or have decentralised weekly meetings and joint monthly meetings b.) Time: during work hours and part of work responsibility, provision for staff to attend meetings should be made c.) Venue: on site and as consistent as possible
Case Identification a.) Who: senior clinician e.g. consultant, senior registrar, etc b.) When: on a continuous basis c.) How: review of registers and clinical notes , ward rounds, referral from attending physicians
Case Selection Criteria a.) All mortality, all adverse events, complaints, referrals from other units, any unexpected poor outcome, common and minor complications
Attendance a.) All clinicians staff (juniors & seniors) b.) Nursing staff c.) Allied professionals d.) Management representation
Agenda/Meeting Proceedings a.) Review of progress on previous action plans b.) Review of data ('statistics' presentation): admissions, discharges, procedures, complications morbidities, mortalities c.) Case presentation d.) Formulation of action plans and allocation of responsibility
Chair a.) Who: clinical manager; the head of department or a suitable senior delegate; someone who can control the meeting, assist with case analysis and advocate for change at patient and system level b.) Roles and responsibilities: ensure non-hostile environment, elicit information required for analysis of case, guide discussion, formulate action plans and allocate responsibility
Case Analysis a.) A structured approach that covers the following: what happened, how did it go wrong, why did it go wrong b.) What has been learnt c.) Recommendations and action plans
Record Keeping 1) Who should scribe: pre-assigned senior member of staff 2) Responsibilities: case coordination prior to meeting, minute taking, dissemination of minutes to all attendees, management and quality assurance team 3) Minutes should include: cases should be de-identified, summaries of case and decisions taken, action plans and person tasked with responsibility and timelines

A hostile environment refers to a meeting were attendees are not free to participate or freely divulge information about the case for fear of blame being apportioned to the individual as opposed to the system as a whole.

1.3 Problem Statement

There are concerted efforts to improve the quality of health care in South Africa, with several strategies being put in place. At the core of these strategies is the establishment of the Office of Health Standards Compliance, which has developed the National Core Standards. As part of their fast track areas these standards stipulate that departments should hold M&M meetings on a monthly basis. Although it is now compulsory for meetings to be held there are no guidelines as to how meetings should be prepared for and executed. In order to develop guidelines they would have to be informed by evidence in the literature. Furthermore there would also have to be an analysis of current practice in order to ensure that recommendations are context specific and to ensure successful implementation. Currently there has been no work done to fill this gap in South Africa.

1.4 Justification

This study will provide an outline of the current evidence based practices with regards to M&M meetings as well as a situation analysis of current knowledge and practices within Gauteng Province. More importantly, collecting this information will provide an opportunity to identify gaps, barriers to change and best practices that can be used to advocate for a policy framework for meetings to be adopted or drafted at a provincial level in order to ensure that practices are abreast with evidence based practices relating to clinical audits and M&M meetings.

1.5 Aim and Objectives

1.5.1 Aims

Morbidity and mortality meetings, by definition, are structured forums which should be routinely convened to review and examine all cases that have resulted in further illness or death in an open and transparent manner that will lead to collective learning as well as improvement in patient management and quality of care. Therefore the study aims to assess if meetings are being convened in the various hospital departments in Gauteng Province, 2014 and the manner in which meetings are scheduled, prepared for and conducted.

1.5.2 Objectives

Objective 1:

Determine the proportion of clinical departments in hospitals in Gauteng Province 2014 that are holding monthly morbidity and mortality meetings.

Objective 2:

Assess M&M coordinators' in Gauteng Province, 2014 perceptions about the purpose and importance of morbidity and mortality meetings.

Objective 3:

To assess if meeting preparation in Gauteng Province, 2014

a.) Enables the identification of error (clinical management and health systems), as reflected by the following:
    - Coordinator's designation
    - Scheduling of meetings
    - Case selection and presentation
    - Attendance

b.) Enables the formulation of specific recommendations as reflected by the following:
    - Availability of an agenda
    - Meetings are scheduled

Objective 4:

To assess if meetings in Gauteng Province, 2014 are conducted in a manner that enables collective learning and improvement of the quality of care.

CHAPTER TWO

This chapter outlines the methods used during the research process, in particular the study design, site, population and sample. It also provides detail about the variables that were collected, the tools that were used and how variables were combined to create new judgement variables that are used to describe and compare meetings to literature recommendations and each other.

2. STUDY METHODS AND MATERIALS

2.1 Study Design

A cross sectional review of morbidity and mortality meetings in hospitals in Gauteng Province was conducted in 2014. There were two parts to the study: heads of clinical departments or morbidity and mortality meeting coordinators had questionnaires administered and morbidity and mortality meetings were then observed in each department.

2.2 Study Site

The study was conducted in hospitals in Gauteng Province. The hospitals in Gauteng are listed and categorised in the Regulations Relating to Categories of Hospitals. (40) According to the Regulations, there are thirty three hospitals in Gauteng Province and they are categorised into five levels of care: nine district, nine regional, three tertiary, four central and six specialised hospitals.

2.3 Study Population

District hospitals offer nurse and general practitioner driven services and provision is made for five specialist services to be provided: paediatric health services, obstetrics and gynaecology, internal medicine, general surgery and family physician oriented care. With the exception of family physician services, the first four services are also provided in regional, tertiary and central hospitals. This means that all four levels of hospitals (excluding specialised hospitals) render health services in these four disciplines, although the level of care varies between the levels of hospital. As these disciplines were common to four levels of care they were selected as the study population.

The study population was the four clinical departments: paediatrics, obstetrics and gynaecology, internal medicine and general surgery in hospitals in Gauteng in 2014.

However, variation was to be expected in how the levels of hospitals would constitute meetings. For example, in district hospitals all four streams of care are provided by the same clinicians. If discipline specific morbidity and mortality meetings were not held in district hospitals, general morbidity and mortality meetings were reviewed, as well as perinatal mortality meetings. If sub-speciality meetings were held in central or tertiary hospitals, the least specialised departmental meeting was included. For example, if a paediatric department consisted of neonatology and general paediatrics units, and an Intensive Care Unit then the general paediatrics unit would be included in the study.

Key informants for the questionnaires were those identified as the M&M meeting coordinators, in most cases this was the Head of Department (HoD) or another individual delegated by the HoD for this role. In district hospitals there are no HoDs and therefore the M&M meeting coordinators as identified by the hospital management team formed part of the study population.

2.4 Exclusions

Two central hospitals were excluded. Chris Hani Baragwanath Academic Hospital (CHBAH) was excluded as the study had already been conducted at this hospital by the researcher as commissioned by the management team. On occasion results from this hospital's study have been compared to results from this research in the discussion section of this report to highlight certain findings. Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) was also excluded. The management team had expressed that they wanted to commission this work as operational research in their institution. Since random sampling was to be employed this would have meant that the hospital may not have been selected. To ensure that research was conducted at CMJAH, and that they receive timeous feedback as opposed to waiting for the end of the research period, they were selected for pre-testing of the data collection process and tools. Specialised hospitals were excluded as they offer a completely different range of services to the selected departments.

2.5 Study Sample

Hospitals were stratified according to their respective levels of care as stipulated in the Regulations Relating to Categories of Hospitals. (See Appendix A: Hospital Categories and Districts in Gauteng Provinces)

After hospitals were stratified according to the four levels of care, proportional random sampling was used to select hospitals in each stratum.

The researcher intended to have nine hospitals (one central; one tertiary; three regional and four district hospitals) as the study sample. The sample size was set at nine as it meant that at least one third of hospitals in each stratum would be reviewed. This undertaking to gain adequate process insight had to be balanced with a sample size that would also be sufficiently representative of hospitals in each stratum.

Experience gained during previous projects reflected that the process of getting permission from hospital management to collect data was particularly time consuming. There are significant administrative delays when liaising with hospital management teams and no guarantee that the management team would grant permission to allow data collection. Therefore, in the event that one hospital did not approve data collection, re-starting the process of obtaining permission in another hospital would have delayed data collection beyond the time frames that were acceptable for the researcher. Permission to conduct the research was therefore requested from fifteen hospitals selected at the same time, on the assumption that at least nine would grant permission.

Table 2.1: Proportional Random Sampling Strategy Used to Constitute Study Sample

LEVEL OF CARE	NUMBER OF HOSPITALS	SAMPLE SIZE	
		SELECTED HOSPITALS	HOSPITALS THAT APPROVED DATA COLLECTION
Central	4 (minus 2) = 2	1	1
Tertiary	3	2	1
Regional	9	5	3
District	11	7	5

Management teams of five district hospitals approved the research and expressed interest in the research findings to inform management interventions. This was one more hospital than the four that were required to make the original sample size of nine hospitals. In the remaining levels of care, only the initially estimated numbers to make up a sample size of nine approved research. Therefore, as a result of the intentional oversampling, ten hospitals were part of the study sample. The final study sample consisted of five district hospitals, three regional hospitals, one tertiary and one central hospital. Figure 2.1 shows the results of the enrolment process.

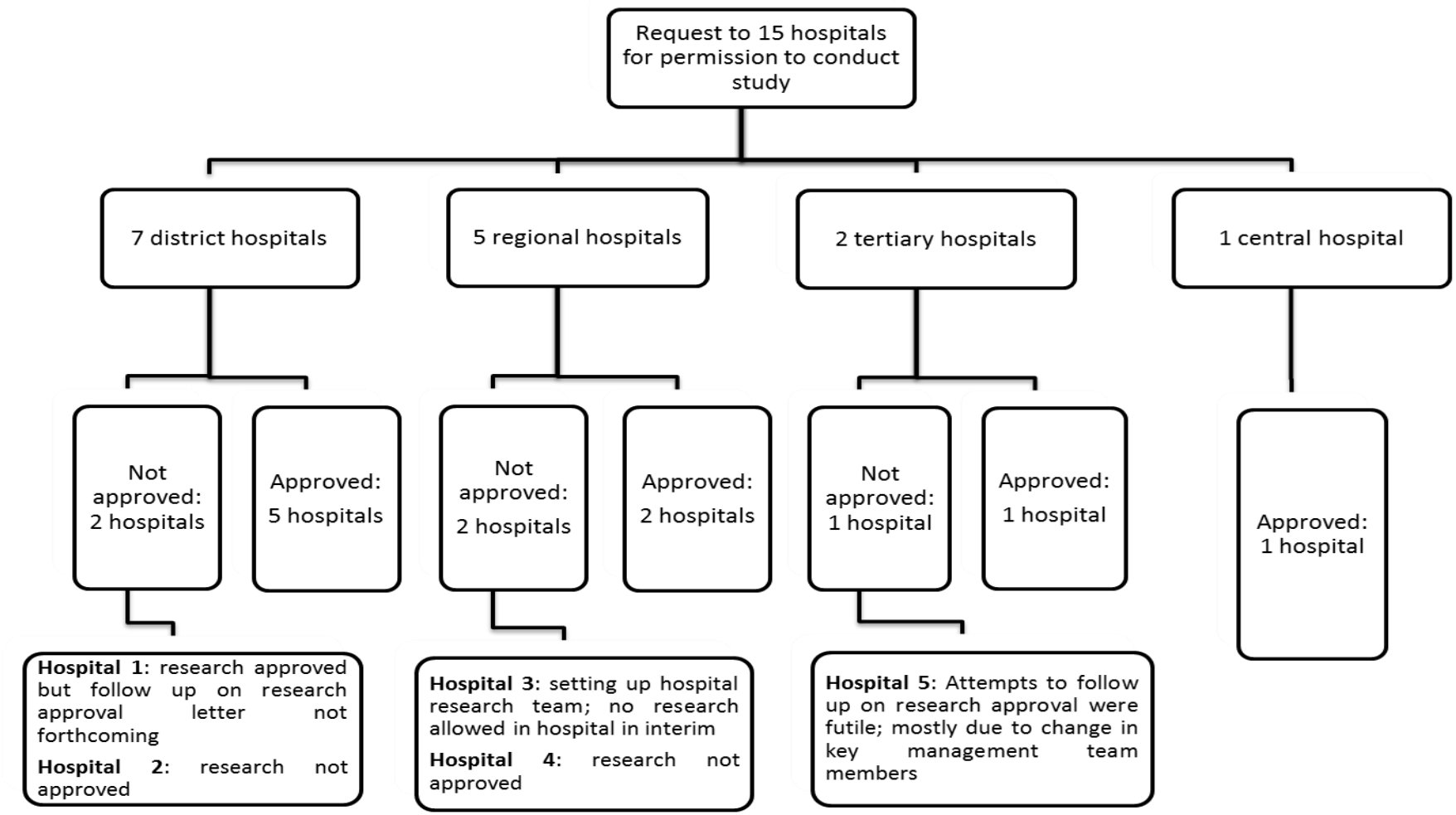

Figure 2.1 Enrolment of hospitals after random selection

Table 2.2 summarises the reasons five of the fifteen hospitals were not included in the final sample for the study.

Table 2.2: Reasons for not including hospitals in study

HOSPITAL	REASON FOR NON-INCLUSION IN TO STUDY SAMPLE
Hospital 1 – district hospital	Unable to obtain approval letter from the district office although telephonically notified that the study proposal had been approved by the District Research Committee
Hospital 2 – district hospital	Management team did not approve data collection in the hospital. No explanation was given for refusal
Hospital 3- regional hospital	Management team was in the process of appointing a hospital research committee to review and coordinate all research being conducted in the hospital. No research could be conducted in the hospital until committee was functional.
Hospital 4 – regional hospital	Management team did not approve data collection in the hospital. No explanation was given for refusal.
Hospital 5- tertiary hospital	Study documents submitted to hospital management team research liaison accordingly but attempts to get a response were futile. This member of the management team left the hospital and they were still to appoint a replacement. No one was willing to fulfil this role until someone else was employed to do so.

2.6 Meetings at the different levels of care

In district hospitals two meetings are held: combined general and perinatal morbidity and mortality meetings. In the other hospitals individual departmental meetings are held. The study sample was expected to be as follows:

- Two meetings at each district hospital
- Four meetings in each at the regional, tertiary and central hospital with the possibility of a perinatal mortality meeting as a fifth meeting

2.7 Ethics Approval

The study was approved by the Human Research Ethics Committee at the University of Witwatersrand, certificate clearance number M130605. (See Appendix B: Ethics Clearance Certificate) The study was also approved by the Gauteng Department of Health (GDoH) Research Committee. (See Appendix C: GDoH Provincial Protocol Review Committee Approval Letter). No harm to any of the participants was foreseen, but the nature of the study may have impacted on how meetings were being conducted. While this effect could have been negative or positive, it was more likely that cases would be discussed more thoroughly and therefore benefit the patients discussed as well as increase the learning component of the meeting. In order to ensure confidentiality all participants were reassured that none of the data that was collected would be linked back to them or their facility. All data collection forms were marked with a code that only the researcher could link back to the facility or the respondent. Information that linked the code back to the respondent or facility was kept by the researcher in a locked cupboard.

2.8 Data Measurement

2.8.1 Data Collection

Upon receiving approval for data collection from the hospital, contact was made with the HoD of the four departments selected for the research. The aim and study procedures were outlined, and, if the HoD was the meeting coordinator, an appointment for the administration of the questionnaire was set up. If the task of meeting coordination had been delegated then contact with the coordinator was made through the HoD. An appointment for the questionnaire to be administered was made as well as a request to attend and observe one meeting.

If the appointment for the questionnaire to be administered or the meeting were cancelled, for any reason, they were rescheduled twice. If the appointment was cancelled three times, no attempts were made to re-schedule a fourth time. If the coordinator had approved that the researcher could come and observe a meeting and the meeting took place while awaiting

an appointment, the meeting was attended and observed. In the instance were the appointment for the administration of the questionnaire was cancelled three times but meeting observation had already taken place, the meeting was included without the complimentary questionnaire. Conversely, if the questionnaire was administered but meetings were cancelled three times, then the questionnaire was included without a complementary meeting being observed.

The questionnaire was administered over a period that ranged from forty-five to ninety minutes, according to the participants qualitative responses. All interviews were conducted by the researcher, in a place designated by the meeting coordinator. The responses given by the coordinator were recorded in writing by the researcher on the questionnaire. They were not taped.

Meetings were observed for their full duration by the researcher. All observations were recorded in writing. The meetings were not taped.

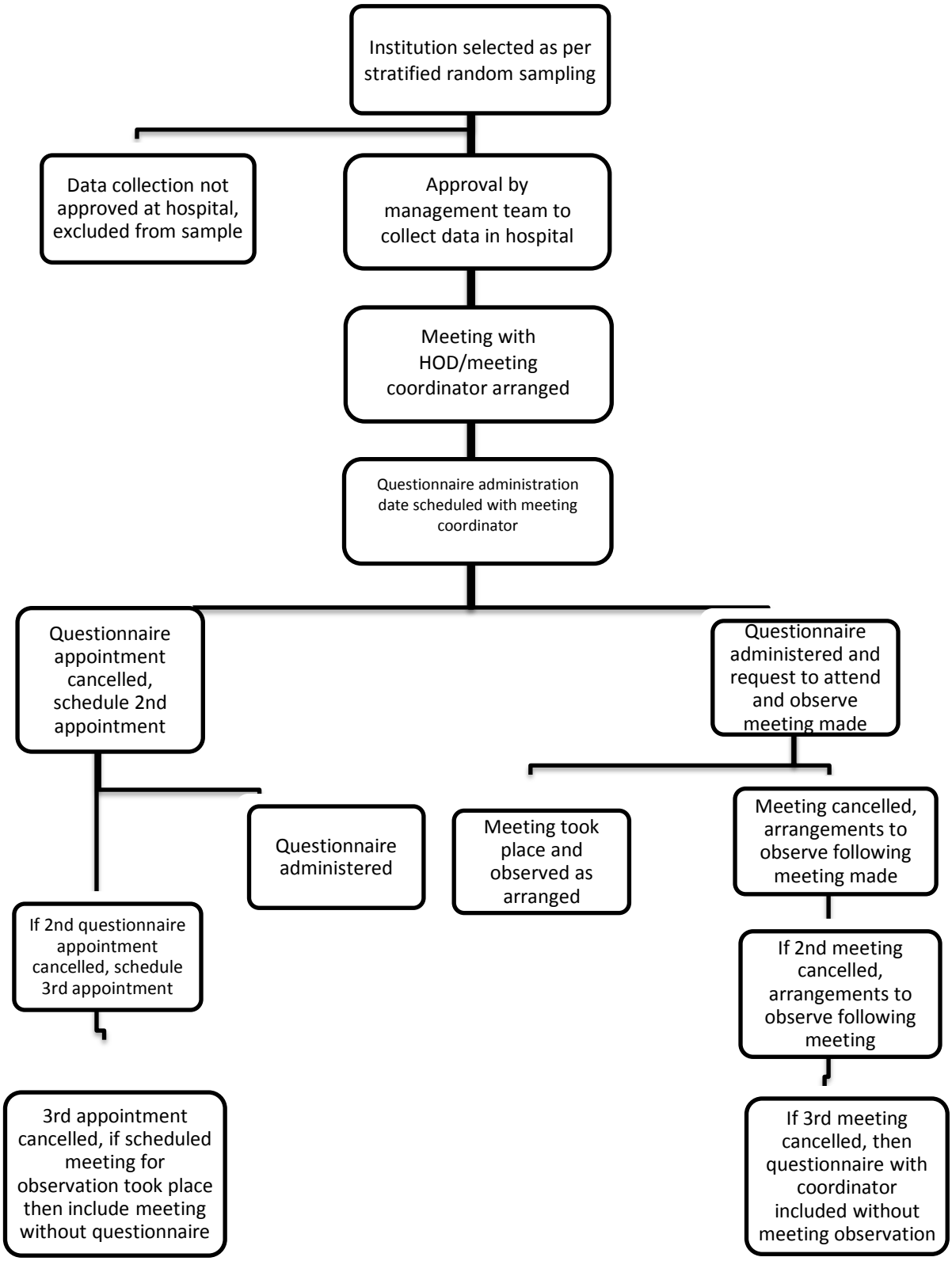

Figure 2.2 : Data Collection Process Flow

2.8.2 Data collection tools

A review of international norms for morbidity and mortality review meetings were combined for benchmarking with practices that will be observed, see Table 1. Two data collection tools that would enable the researcher to capture practices in Gauteng Province, 2014 with regards to the purpose, preparation and execution of meetings to these guidelines were designed. These data collection tools were a questionnaire for the key informant (designated meeting coordinators) and an assessment guide to be used when observing meetings. (See Appendix D: Questionnaire; Appendix E: Observation Guide Tool)

The key informant questionnaire focussed on the purpose and preparation for meetings, as well as the coordinators impression of the execution of the meeting. Meeting coordinators were requested to rate their agreement with regards to several aspects of the purpose and preparation for their meetings on a five point Likert scale. Where appropriate, a qualitative component was added to the section to allow the coordinator to express variation from the pre-set options or expand on certain aspects. In some instances, the coordinators were requested to describe specific aspects of the meetings in their own words. Qualitative data was collected in order to give the researcher a broader perspective of barriers or challenges experienced by coordinators in planning for and conducting morbidity and mortality meetings.

An observation guide was used to assess meetings. This tool allowed the researcher to make an independent assessment of pre-determined aspects of the meeting: those which were identified in the literature as important facets of morbidity and mortality meetings, as well as aspects that are essential for having an effective meeting. Similar to the questionnaire, five point Likert scale was used, while for some aspects the researcher merely had to indicate if certain key activities had taken place.

In order to improve the validity of these tools they were reviewed by a panel of five public health medicine specialists and seven registrars. The panel reviewed the tools and international guidelines independently and made comments on the clarity and

appropriateness of the tools. A forum was then set up where these concerns were discussed until consensus about changes that had been suggested was reached.

2.8.3 Pre-test of Data Collection Tools

The next two steps were included in a pre-test of the data collection tools to ensure the reliability of the tools. Four departments, similar in profile to those that would form part of the final sample, were selected. One of the HoD's took long to respond to requests for a meeting, until such a time that the specific department had to be excluded from the pre-test in order to avoid delaying the initiation of data collection for the study. Therefore, three departments were part of the pre-testing of the data collection tools.

The researcher, who was the sole data collector, administered the questionnaire, to the meeting coordinators of two departments and subsequently observed their meetings upon being granted permission to do so by the coordinators. This process was put in place to determine if the questions indeed assessed what they had intended to and the acceptability of questions to participants. This assisted the researcher to standardise the manner in which tools were administered and, in particular, the rating on the Likert scales. Finally one questionnaire was administered and one meeting was observed with an assistant. The findings of the data collector and the assistant were then compared and discussed. In so doing a measure of objectivity of the data collection process could be inferred.

Table 2.3: Variables collected by data collection tools

OBJECTIVE	DATA COLLECTION TOOL	VARIABLES
Proportion holding monthly meetings	Questionnaire	Departments with designated M&M meetings as per definition
		Other platforms used to review morbidities and mortalities
Assess clinicians perception about the purpose of M&M meetings and explore barriers to regular constructive meetings	Questionnaire	Purpose of meeting
		Meetings objectives
		- Identify clinical management error - Identify system error - Improve standard of care - Teaching opportunity
		Meeting cancellation frequency
		Meeting perceived to be important
		Reasons for not holding meetings
		Change required that will enable departments to at least hold monthly meetings monthly
		Proposed areas of improvement
		Awareness of National Core Standard measure on M&M meetings
To determine if meetings that are held are sufficiently prepared for to lead to a comprehensive review process	Questionnaire	Time intervals for meetings held
		Scheduling of meetings
		Timing of meetings
		Consistency of meeting venue
		Change in scheduling practice
		Motivation for change in scheduling practice
		Perceived impact of scheduling practice change on effectiveness of meeting
		Case Selection Process
		Existence of case selection criteria
		People expected at meetings
		People who have to attend meetings (mandatory)
		Barriers to attendance as perceived by coordinator
		What department does to ensure people attend
To determine if the execution of meetings enables an open transparent and non-persecutory atmosphere to ensure learning and appropriate recommendations to be made	Questionnaire	Designation of attendees (Questionnaire) Designation of the meeting's chair/facilitator (Questionnaire)
	Observation	Pre- set agenda available (Observation)
		Agenda Items (Observation)
		Facilitation of meeting (Observation)
		- Control of meeting - Establishes a safe environment - Encourages representative participation
		Learning platform (Observation)
		- Senior clinician input - Identification of learning points - Junior clinicians input
		Case presentation (Observation)
		- Length of presentation in minutes - Presented information
		Action plan with tasked responsibilities and timelines developed at meeting (Observation)

2.9 Data Analysis

Data that was collected was captured by the researcher in the following manner, notes were kept by the researcher as the questionnaires were administered and scores were allocated as per the pre-designed Likert scales for meeting observations. Furthermore notes were also kept of other observations in the meeting that had not been allocated a Likert scale for scoring. Following this process data was then entered into Epi-Info© and exported to Stata-13© for analysis.

2.9.1 Descriptive Analysis

The descriptive part of the analysis will be characterised by an outline of the distribution of variables collected. This will mainly be characterised by proportions and counts of meetings within which certain variables were observed or reflected upon by the meeting coordinator.

Table 2.4: Descriptive Analysis (Objectives 1&2)

VARIABLES	ANALYSIS
OBJECTIVE 1: DETERMINE THE PROPORTION OF CLINICAL DEPARTMENTS THAT ARE HOLDING MONTHLY (M&M) MEETINGS	
Designated M&M meetings	Proportion of departments with designated M&M meetings
Other platform used to review morbidities and mortalities	Describe the purpose and structure of other platforms used to discuss morbidities and mortalities.
OBJECTIVE 2: ASSESS CLINICIANS PERCEPTION ABOUT THE PURPOSE AND IMPORTANCE OF M&M MEETINGS	
Meeting objectives - Identify clinical management error - Identify system error - Improve standard of care - Teaching opportunity	Proportion of those who agreed with each of the four objectives
Frequency of cancellation of meetings.	Proportions of meeting cancellations in the 12 month period preceding the administration of the questionnaire - >30% cancellation of meetings will be seen as excessive cancellations of meetings - and analysis will focus on the reasons for cancellation - >10% - 30% cancellations = frequent cancellations - <10% cancellations = acceptable cancellations (if meeting rescheduled then not classified as cancelled)

Variables analysed as part of objective one will enable the researcher to have an overview of how many departments hold meetings within the study sample, as well as an opportunity to outline other forums that are being utilised to discuss morbidity and mortality where there is no designated M&M meeting.

The assessment of coordinator's perception of the purpose of meetings, as alignment with the four objectives shown above was assessed as part of the second objective. In order to assess the importance of the meetings in various departments, meeting cancellation frequency was outlined. Frequent meeting cancellations will reflect that there are other activities that are prioritised over meetings.

Table 2.5: Descriptive Analysis (Objectives 3)

VARIABLES	ANALYSIS	
OBJECTIVE 3: TO ASSESS IF MEETING PREPARATION ENABLES THE IDENTIFICATION OF ERROR AND THE FORMULATION OF SPECIFIC RECOMMENDATIONS		
Meeting coordinators' designation	Designation of meeting coordinators: - Managers: HoD, clinical managers, operational managers - Senior clinicians: years of clinical practice (≥10 years) - Specialisation: postgraduate medical training	
Frequency of meetings	- Proportion of meetings held daily, weekly, fortnightly & monthly. - Comparison by level of hospital and speciality.	
	Meetings held ≤1monthly (National Core Standards)	
Scheduling plan	Meetings scheduled in advance	Other: describe other scheduling practices
Timing of meetings	Meetings scheduled during work hours	Meetings scheduled outside of working hours
Consistency of meeting venue	Proportion of departments holding meetings in consistent venue	
Recent change in scheduling practice	< 12months since change = recent change	
	If recent change then outline old practice in terms of: - frequency, scheduling practice, meeting times & venue - Explore reasons for change in scheduling practice how did you analyse this information	
Attendance patterns	- Attendance patterns according to below listed categories - Senior clinicians: heads of department; consultants; registrars - Junior clinicians: community service medical officers; interns and clinical associates* - Allied professionals - Management representative *(*medical officers = junior clinicians in central & tertiary hospitals; senior clinicians in regional & district hospitals)*	
Set criteria for case selection	Departments with explicit, written case selection criteria again	
Case selection process	Departments where a system was in place for case identification	
Case preparation	- Designation of presenters - Departments with presentation templates - # of cases that met one of the four meeting objectives	
Agenda	No. of depts. with pre-set agenda The following items on the agenda will also be looked for: - Review of data (statistics) - Case presentation Progress report on previous action plans	

The following aspects of meeting preparation were reviewed as shown in Table 2.5: the coordinator's designation, how the meeting was scheduled for, case selection and preparation, those invited to attend meetings and agenda items. This will mainly consist of a reflection of proportion of meetings / department s who meet standards and norms that are outlined in the literature.

Table 2.6: Descriptive Analysis (Objective 4)

OBJECTIVE 4: TO ASSESS IF MEETINGS IN GAUTENG PROVINCE, 2014 ARE CONDUCTED IN A MANNER THAT ENABLES COLLECTIVE LEARNING AND IMPROVEMENT OF THE QUALITY OF CARE.	
Facilitation of meeting	5 point Likert scale ratings converted to 3 point scale for each of below: - Encourages representative participation from both senior and junior clinicians - Establishes a safe environment you have nothing on how you measured this
Quantitative review of performance	Departments which review numerical data/summaries on departmental activities and morbidity and mortality - Is the review comprehensive (includes review of indicators other than admissions, discharges and mortalities) - Analysis of data prior to meeting in order to link it to performance how did you determine this
Action plan developed at meeting	- Departments which developed action plans - Set deadlines - Tasked to an individual or group
Record keeping practices	- Minutes of meeting taken - Minutes circulated within department and to management team - Designation of scribe (? senior)

These final variables were based on meeting observations by the researcher.

2.9.2 Composition of new variables

The following section outlines how some of the variables were aggregated to form seven new composite variables. Scores for variables were reduced to a three point Likert scale as the sample size was small and dividing the sample into more than three groups resulted in several unpopulated groups which made it difficult to analyse.

a.) Appropriateness of coordinators perception of the purpose of M&M meetings

Section 11 of the questionnaire consisted of four statements which cover the purpose of M&M meetings. Meeting coordinators were requested to state what they thought the purpose of meetings were and their responses were compared to these statements. A point was allocated for agreement with each statement as shown in Table 2.7.

Table 2.7: Assessment of coordinators perception about the purpose of M&M meetings

OBJECTIVES OF M&M MEETINGS	AGREE	DISAGREE
Identify clinical management error	1 point	0 points
Identify health system error	1 point	0 points
Improve standard of care	1 point	0 points
Teaching or learning opportunity	1 point	0 points
Total	4 points	

A total score of four was possible and responses were then categorised as follows:

- Aligned to literature norms: ≥3 points
- Not aligned to literature norms: ≤ 2 points

b.) Appropriate scheduling of meetings

An important aspect of effective M&M meetings is how they are scheduled. Frequency was rated in accordance to the criteria set out in the National Core Standards, which requires that meetings are held at least monthly. Furthermore as per literature, in order to encourage attendance, meetings should be scheduled as follows: during work hours, in advance and held in a consistent venue. Points were allocated for alignment with the aforementioned scheduling recommendations, as shown in Table 2.8.

Table 2.8: Assessment of Appropriate Meeting Scheduling

SCHEDULING PRACTICE	YES	NO
Meetings held ≤monthly	1 point	0 points
Meetings held during work hours	1 point	0 points
Meeting scheduled in advance	1 point	0 points
Meeting venue consistent	1 point	0 points
Total	4 points	

A total score of four was possible and responses were then categorised as follows:

- Poor scheduling practice: ≤1 point
- Average scheduling practice: 2 points
- Good scheduling practices: ≥3 points

c.) Representative attendance at meetings

Representative attendance of meetings to facilitate learning and change at patient and system level includes attendance of junior and senior staff members as well as nursing and management representation. The new variable "representative attendance" is an aggregation of attendance by the above four groups. According to section 4 of the questionnaire meeting coordinators were requested to outline attendance patterns of staff to meetings as follows: often, sometimes, rarely or never. For the purpose of this new variable those who attended meetings 'rarely' or 'never' were not awarded an attendance point. In order to score a point for attendance, the meeting coordinator had to have reflected that the staff category attends 'often' or 'sometimes'.

Table 2.9: Assessment of representative meeting attendance

CATEGORY OF STAFF	ATTENDS 'OFTEN/SOMETIMES'	ATTENDS 'RARELY/NEVER'
Management Representatives	1 point	0 points
Senior Staff Members	1 point	0 points
Junior Staff Members	1 point	0 points
Nursing Staff Members	1 point	0 points
Total	4 points	

A total score of four was possible and responses were then categorised as follows:

- Non-representative attendance: ≤2 points
- Average representative attendance: 3 points
- Good representative attendance: 4 points

These scores were not weighted in favour of any particular group as an effective meeting depends on the balance of those who can identify error and teach, those who are in a position to learn from this and from each other's error as well as those who can facilitate or institute change at system level.

d.) Appropriate record keeping practices

Three aspects of record keeping were aggregated to form this variable: whether minutes were taken, circulated and the designation of the scribe. Points were allocated as reflected in Table 2.10.

Table 2.10: Assessment of appropriate record keeping practices

RECORD KEEPING PRACTICES	YES	NO
Minutes taken at meetings	1 point	0 points
Minutes of meetings are circulated	1 point	0 points
Scribe is a senior staff member	1 point	0 points
Total	3 points	

A total score of three was possible and responses were then categorised as follows:

- Poor record keeping practices: ≤1 point
- Average record keeping practices: 2 points
- Good record keeping practices: 3 points

e.) Adequate facilitation

For this composite variable two facets of facilitation were considered: firstly if the facilitator encouraged representative participation and if the facilitator established a safe environment for learning. These factors were created by combining Likert scale ratings from the observation guide tool, section 6: Facilitation.

- Facilitator encourages representative participation was a combination of the following ratings:
  - ✓ Chair encourages participation other senior clinicians
  - ✓ Chair encourages participation from junior clinicians
- Facilitator establishes a safe environment was a combination of the following ratings:
  - ✓ Chair does not allow direct criticism/blame game
  - ✓ Chair does not allow staff members to address each other directly (dialogue)

During data collection a five point Likert scale was used to rate various aspects of facilitation however for this composite variable these five groups will be collapsed into three and allocated points accordingly as shown in Table 2.11.

Table 2.11: Assessment of facilitation

FACILITATION ASPECTS	POOR/FAIRLY POOR	AVERAGE	GOOD/VERY GOOD
Facilitator encourages representative participation			
Chair encourages participation other senior clinicians	0 points	1 point	2 points
Chair encourages participation from junior clinicians	0 points	1 point	2 points
Facilitator establishes a safe environment			
Chair does not allow direct criticism/blame game	0 points	1 point	2 points
Chair does not allow staff members to address each other directly (dialogue)	0 points	1 point	2 points

A total score of eight was possible and responses were then categorised as follows:

- Poor facilitation: ≤2 points
- Average facilitation: 3-6 points
- Good facilitation: ≥7 points

f.) Adequacy of Case Presentation Information

This variable assessed the information presented about the patient's condition including how they were managed while in hospital. It is not possible to critically analyse, identify error or develop remedial action when insufficient information about the patients' condition and management is presented at meetings. This variable was a composite of two questions in section two of the observation guide tool as shown in Table 2.12. Similar to the above the five point Likert scale rating was collapsed into three categories

Table 2.12: Assessment of information presented per case

Case Presentation Information	POOR/FAIRLY POOR	AVERAGE	GOOD/VERY GOOD
Information on patients' condition	**0 points**	**1 point**	**2 points**
Information on clinical management undertaken	**0 points**	**1 point**	**2 points**

- Insufficient information for insightful discussion to ensue: ≤2
- Sufficient information presented: ≥3

g.) Adequacy of Agenda

The adequacy of the agenda was assessed on the basis of the following, the availability of a written agenda for the meeting and the following three items being on the agenda: data review, case presentation and progress report on action plans set at previous meetings.

Table 2.13: Assessment of agenda adequacy

AGENDA AVAILABILITY/ITEMS	YES	NO
Written Agenda	1 point	0 points
Review of data	1 point	0 points
Case presentation	1 point	0 points
Progress report on action plans set at previous meetings	1 point	0 points
Total	4 points	

A total score of four was possible and responses were then categorised as follows:

- Poor: ≤1 points
- Average: 2-3 points
- Good: 4 points

As M&M meetings are often assumed to be an academic exercise as opposed to learning from clinical error, a difference in how meetings were prepared for and conducted was expected between levels of care. It was assumed that this difference would most likely be between levels of care that have specialists and those that do not have. Therefore the hospitals were categorised into two groups those delivering specialised care and those who deliver non-specialised care. Specialised care is delivered in central, tertiary and regional hospitals while district hospitals deliver non-specialised care.

CHAPTER THREE

3. RESULTS

This chapter presents the main results of the study. A description of various aspects that were covered in the questionnaire and meetings observed are outlined.

3.1 Questionnaires administered conducted and meetings observed

There were five hospitals in the study sample from the central, tertiary and regional levels of care. Each of the four departments in these hospitals reported that they had designated M&M meetings as per the definition used in this study.

> *"A routine, structured forum for the open examination and review of cases which have led to illness or death of a patient, in order to collectively learn from these events and to improve patient management and quality of care"*. (1)

The study sample also consisted of five district hospitals; at this level of care at least two meetings were expected per hospital: a combined general meeting and a perinatal meeting. However one hospital did not have a general meeting and the other did not have a perinatal meeting.

Administered questionnaires and observed meetings are outlined in Table 3.1 below. A total of twenty three questionnaires were administered: fifteen from central, tertiary and regional levels of care and eight from district hospitals. In comparison to the twenty three questionnaires that were administered, twenty five meetings were observed: eighteen from central, tertiary and regional levels of care and seven from district hospitals.

Table 3.1: Administered questionnaires and meetings observed, June-October 2014

Hospital Category	Hospital	Department	Questionnaires administered	Meetings Observed
Central	**Hospital A**	**O&G**	Administered	Observed (Obstetrics)
		Paediatrics	Administered	Observed
		Surgery	***Cancelled x3***	Observed
		Medicine	Administered	Observed
Tertiary	**Hospital B**	**O&G**	Administered	Observed (Obstetrics)
				Observed (Perinatal)
		Paediatrics	Administered	Observed
		Surgery	Administered	Observed
		Medicine	Administered	Observed
Regional	**Hospital C**	**O&G**	Administered	Observed
		Paediatrics	Administered	Observed
		Surgery	Administered	Observed
		Medicine	Administered	Observed
	Hospital D	**O&G**	Administered	Observed (Obstetrics)
				Observed (Perinatal)
		Paediatrics	Administered	***Cancelled X3***
		Surgery	Administered	***Cancelled X3***
		Medicine	***Cancelled x3***	***Cancelled X3***
	Hospital E	**O&G**	**Refused to participate**	
		Paediatrics	***Cancelled x3***	Observed
		Surgery	***Cancelled x3***	Observed
		Medicine	Administered	Observed
Subtotal	**Central/Tertiary/Regional**		**15**	**18**
District	**Hospital F**	**Combined**	Administered	Observed
		Perinatal	**No meeting**	
	Hospital G	**Combined**	Administered	Observed
		Perinatal	Administered	Observed
	Hospital H	**Combined**	**No meeting**	
		Perinatal	Administered	Observed
	Hospital I	**Combined**	Administered	***Cancelled x3***
		Perinatal	Administered	Observed
	Hospital J	**Combined**	Administered	Observed
		Perinatal	Administered	Observed
Subtotal	**District**		**8**	**7**
Total	**10**		**23**	**25**

3.1.1 Meetings at central, tertiary and regional hospitals

The study sample consisted of one central hospital, one tertiary hospital and three regional hospitals Meetings at central, tertiary and regional hospitals take place at departmental level. With a total of five hospitals at these levels of care, and a meeting with each of the four departments a total of twenty meetings and twenty questionnaires were expected. Only fifteen (15 of 20, 75%) questionnaires were administered. This was due to one coordinator

refusing to participate in the study and four coordinators who cancelled their questionnaire appointments three times.

Eighteen meetings were observed in sixteen departments (16 out of 20, 80%). An additional two meetings were observed as two hospitals (one tertiary and one regional) also host perinatal morbidity and mortality meetings in addition to the expected four departmental meetings. These meetings were also included as part of the study sample as an extension of the obstetrics and paediatrics departments meetings. Four departments cancelled meetings three times and therefore were excluded as per the study protocol.

Of note, two meeting coordinators, who cancelled the meetings scheduled for administration of the questionnaire three times, had already approved the observation of a meeting, and meetings were observed. Conversely in two departments, the questionnaire with the coordinator was administered but meeting observation were cancelled three times and therefore not observed as determined by the study protocol.

3.1.2 Meetings at District Hospitals

District hospitals held combined general meetings and perinatal meetings, seven of ten meetings at District Hospitals were observed. However, two hospitals (F and H) did not have a perinatal meeting and a combined general meeting respectively. Each perinatal and combined general meeting in the other hospitals were coordinated by a separate person. Therefore, excluding the two aforementioned meetings, and their respective coordinators, all eight coordinators participated in the administration of questionnaires. In terms of meeting observation one of the eight meetings were cancelled three times, leaving seven meetings.

Perinatal morbidity and mortality review meetings at district hospitals were established by the DCST as inter-institutional meetings. All the clinics and Midwife Obstetric Units (MOU) that refer to the hospital were either expected or encouraged to attend these meetings.

3.1.3 Reasons for not having designated morbidity and mortality meetings

Hospital F had stopped their perinatal review meetings when the outreach program that was run by the tertiary hospital in their cluster was terminated. Hospital H reported that they reviewed all the cases they admitted to the hospital at their daily doctors' morning meeting. This meeting is held daily Monday to Friday and is attended by all the doctors who work in the hospital. The primary purpose of this meeting is to review all admissions and referrals to a higher level of care, in the previous 24 hours. However should there be mortality in the wards, then it is also discussed at this meeting. The clinical manager indicated that, there was no apparent need for designated morbidity and mortality review meetings at present but explicit guidelines for designated M&M meetings, that distinguish them from the current platform, would enable them to hold designated meetings.

3.2 Coordinator's perceptions about the purpose of morbidity and mortality meetings

Table 3.2: Coordinators perception of the purpose of M&M meetings

OBJECTIVES OF MORBIDITY AND MORTALITY MEETINGS	ALL DEPARTMENTS (n =23)	
	AGREE N (%)	DISAGREE N (%)
Identify clinical management error	16 (70%)	7 (30%)
Identify health system error	16 (70%)	7 (30%)
Improve standard of care	22(96%)	1 (4%)
Teaching or learning opportunity	22 (91%)	1 (9%)

Although the coordinators perception of the purpose of meetings was largely congruent with what was outlined in literature, seven coordinators did not think that meetings were about identifying clinical management or health system error.

One coordinator (respondent 4, Hospital E) agreed with the purpose of meetings, however he stated the following about meetings in his department: "we currently hold meetings to comply with the management directive. In order for us to make meetings more meaningful we need more support from the management team, in terms of attendance and addressing our grievances. As long as they just tell us to have meetings and ask for minutes of the meetings every now and then our meetings will continue to be meaningless".

All 23 respondents were aware that they had to conduct morbidity and mortality meetings as per the National Core Standards and submit minutes of the meetings to the CEO's office. Two departments, both obstetric departments at a central and tertiary hospital, had drafted their own M&M meeting guidelines and two paediatrics departments (one tertiary and one regional hospital) had implemented ChIP.

3.3 Meeting Cancellations

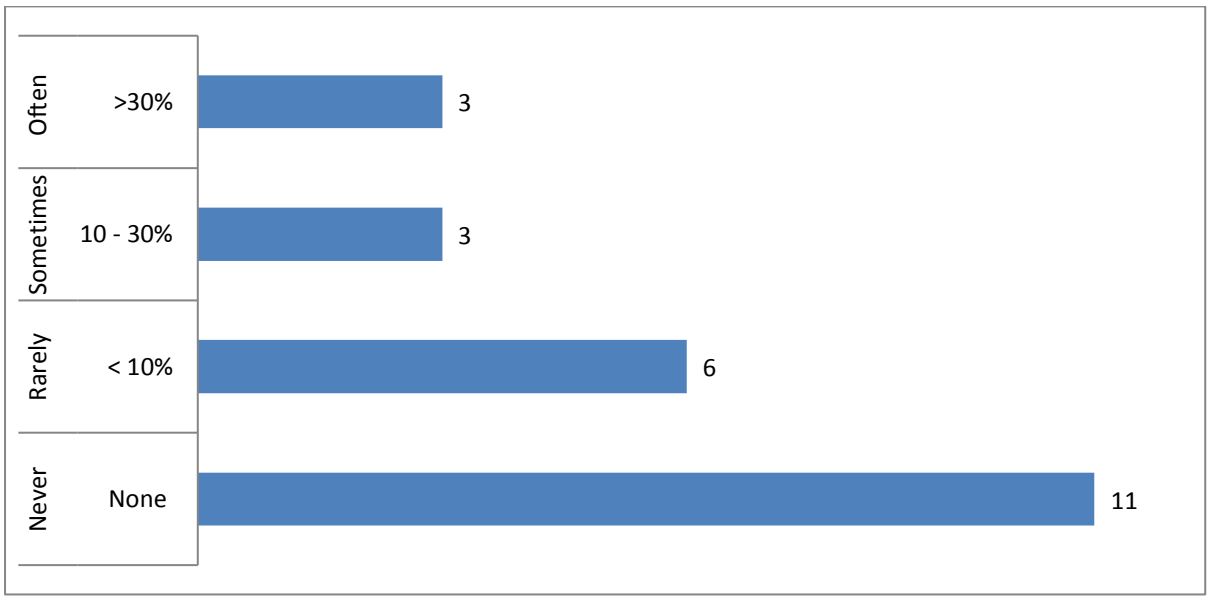

Figure 3.1: Frequency of meeting cancellation (n=23)

Figure 3.1 shows that 48% (11 of 23) of coordinators stated that meetings were never cancelled.They stated that, if unavoidable, meetings were postponed as opposed to being cancelled. Reasons for postponing meetings included instances when a significant portion of staff members had to attend other events -scientific conferences and external examinations.

Twenty six percent (6 of 23) departments had cancelled less than 10% of meetings in the past 12 months. These six departments coordinators reported that meetings were mostly cancelled during prolonged holiday periods such as Easter and Christmas holidays.

The remaining twenty-six percent (6 of 23) reported that they cancelled more than ten percent of meetings in the preceding 12 months mainly because staff did not turn up for the meetings and attributed this lack of attendance to workload.

Table 3.3: Meeting Coordinator Profiles (n=23)

Variable	Category	Frequency n (%)
Age	31 – 40	5 (22)
	41 – 50	11 (48)
	>50	7 (30)
Sex	Male	10 (43)
	Female	13 (57)
Qualification	Specialised Nurse/Medical Practitioner	18(78)
	Nurse/Medical Practitioner – no specialisation	5 (22)
Designation (n=15; Central/Tertiary/Regional Hospitals)	HoD	7 (47)
	Clinician	8 (53)
Designation (n=8; District Hospitals)	Manager (Clinical/Operational/DCST)	7 (88)
	Clinician	1 (12)
Clinical Practice (years)	10 – 19	11 (48)
	20- 29	7 (30)
	≥30	5 (22)

All meeting coordinators had over ten years of clinical practice and 78% were specialised clinicians. In central, tertiary and regional hospitals 47% of coordinators were HoDs. The remaining clinician coordinators were senior specialists within the departments. There was only one hospital where the coordinator was a medical officer, neither a specialist nor head of department.

In district hospitals 88% of coordinators were managers: clinical managers coordinated combined general meetings and operational managers coordinated perinatal meetings. There was one meeting that was coordinated by a member of the DCST. See comment above.

3.4 Scheduling of Meetings

3.4.1 Frequency of Meetings

Only one department scheduled its meeting less frequently than stipulated in the National Core Standards. A breakdown of how meetings were scheduled is shown in Table 3.4.

Table 3.4: Frequency of meetings (n=23)

SCHEDULED FREQUENCY	NUMBER OF DEPARTMENTS n (%)
Weekly	10 (43%)
Fortnight	1 (4%)
Monthly (National Core Standards)	11 (48%)
Every second month	1 (4%)

Meeting coordinators who scheduled meetings less frequently than fortnightly were asked what the barriers to holding meetings more frequently were. Thirty three percent (4 of 12) coordinators reported that, as their meetings included representatives from other institutions, the logistics of bringing representatives together more frequently would be overwhelming. Seventeen percent (2 of 12) reported that, as they had daily meetings to discuss all admitted cases, they felt that meetings as currently scheduled were sufficient and there was no need for them to be held frequently. Forty one percent (5 of 12) reported that the workload of staff members is overwhelming and they could therefore not increase meeting frequency. The coordinator for the department that held meetings every second month felt that it would not be beneficial to scale up meetings in their current form. The coordinator (respondent 2, Hospital A) stated: "…senior staff members do not recognise the importance of meetings; they often do not attend meetings even when it is their turn to prepare and present cases. Most of them are more interested in their private practices and trying to get them to attend meetings has been difficult."

3.4.2 Other Parameters: Scheduling Plan, Time and Venue

All departments held their meetings on pre-set dates that were part of the department's annual calendar. This was done in one of two ways: either the same day was chosen for meetings, for example every second Tuesday of the month or dates were pre-selected when the year commenced and the schedule circulated to relevant members of the department.

As far as possible, meetings were reported to have been scheduled to occur in the same venue. Of the 25 meetings that were observed 24 were held during work hours. One department held meetings outside core working hours. Meetings in this department were held at 17: 00 on a weekly basis and had been so for many years.

3.4.3 Change in Scheduling of Meetings

Table 3.5: Time since last change in scheduling practice (n=23)

PERIOD SINCE CHANGE IN SCHEDULING	NUMBER OF DEPARTMENTS n (%)
<1 year	2 (9%)
1 – 5 years	3 (13%)
>5 years	18 (78%)

Twenty-two percent (5 of 23) departments had changed their scheduling practice in the last five years. Three departments had started their meetings within the last five years under instruction by management in order to be compliant with National Core Standards, all these were at district level.

One department increased the frequency of their meetings from monthly to fortnightly meetings. The coordinator reported that the change was brought about by a realisation that monthly meetings were too infrequent to review sufficient cases that would lead to a change in practice. She reflected that when meetings were held monthly, the meeting would consist of a quantitative review of performance from each unit, with no opportunity to adequately analyse trends from the data that was presented or to present cases. The department planned to hold weekly meetings but had opted to introduce the change gradually. When asked what the perceived impact of holding meetings more regularly has been thus far, she (respondent 1, Hospital F) stated the following: "at meetings we are now able to discuss a few

cases, although as you may have noticed we still had a lot of cases to get through. I do however feel that since we started having meetings every second week referrals have gotten better, we are now getting fewer complaints about the patients we refer…"

3.5 Case Selection

3.5.1 Case Selection Process

Two explicit ways of case selection were described, the first being that departments put a system in place for case selection. This included the identification of cases by a senior clinician during ward rounds. These cases would then be prepared for presentation at the subsequent meeting. Forty three percent (10 of 23) of meetings had this system in place. The second way of selecting cases entailed smaller units of the department convening to review and select cases for presentation during the departmental meeting. This was used by 17% (4 of 23) of meetings.

Thirty nine percent (9 of 23) departments did not have any system in place for case selection prior to meetings. Staff members were tasked to present cases on a rotating basis and when it was their turn to present they chose cases on an ad hoc basis. As one coordinator reflected they could bring any case they felt was important.

3.5.2 Case Selection: Criteria

Table 3.6: Criteria for case selection (n=23)

SELECTION CRITERIA	NUMBER OF DEPARTMENTS n (%)
No written criteria available	17 (75)
Written criteria available	6 (25)

The majority of departments, 75%, did not have written criteria to guide case selection. The six who had criteria included the four departments that had guidelines for meetings, these also included case selection criteria. The other two departments had developed case selection criteria albeit not having overall guidelines for meetings. Unfortunately case selection criteria were not reviewed or compared to meeting objectives.

3.6 Meeting Attendance

3.6.1 Attendance Expectations at Meetings

Meeting coordinators were asked about attendance requirements to meetings, particularly to specify whether attendance is mandatory or optional for various categories of staff. They were also asked to specify which categories of staff were excluded from meetings, not welcome to attend meetings.

Table 3.7: Attendance expectations for medical practitioners within the department

ATTENDANCE EXPECTATION	FREQUENCY n* (%)
Heads of Department (n=18) .	
Mandatory	15(100%)
Consultants (n=16)	
Mandatory	15 (94%)
Optional	1 (6%)
Registrars (n=9)	
Mandatory	8 (89%)
Optional	1 (11%)
Medical Officers (n=21)	
Mandatory	21 (100%)
Community Service Medical Officers (n=16)	
Mandatory	15 (94%)
Optional	1 (6%)
Interns (n=14)	
Mandatory	13 (93%)
Optional	1 (7%)
Clinical Associates (n=7)	
Mandatory	4 (57%)
Optional	3 (43%)

**n varies per category of staff. Only a few hospitals at district level have HoDs (n: 15+3=18) 3 regional hospital departments did not have specialists and 1 district hospital had 1 specialists (n: 18 -3 +1=16); Central and tertiary hospitals have registrars but there was also 1 district hospital that had a registrar as part of an outreach program (n: 8+1=9)*

In the majority of departments, it was mandatory that heads of departments (100%), consultants (94%), medical officers (84%), community service medical officers (100%) and interns (93%) attended the meetings. However attendance for clinical associates was only mandatory in 57% (4 of 7) of meetings. One coordinator stated that clinical associates were responsible for ensuring that services continue while the meeting was on. Two coordinators expressed uncertainty about the role of clinical associates within the department and that

they were still trying to integrate them into services and thus far had not yet invited them to meetings.

Table 3.8: Attendance expectations of nursing staff to attend meetings (n=23)

ATTENDANCE EXPECTATION	FREQUENCY n (%)
Mandatory	5 (22%)
Optional	7 (30%)
Not welcome	11 (48%)

Forty eight percent of departments did not welcome nursing staff at their meetings, claiming that meetings were restricted to medical practitioners. Two of these departments reported that they had separate platforms that included nursing staff and this is where incidents from M&M meetings that included nursing care were addressed.

Table 3.9: Attendance expectations of allied professionals to attend meetings (n=23)

ATTENDANCE EXPECTATION	FREQUENCY n (%)
Optional	5 (22%)
Not welcome	18 (78%)

There were no meetings that had allied professionals attendance as mandatory and the majority, 78%, did not welcome allied professionals.

Table 3.10: Attendance expectation of external clinicians (n=23)

ATTENDANCE EXPECTATION	FREQUENCY n (%)
Mandatory	4 (17%)
Optional	6 (26%)
Not welcome	13 (57%)

Only in four of 23 meetings was it mandatory for external clinicians to attend. Three of these were at district level where members of the DCST had to attend and one obstetrics meeting always required a paediatric representative to comment on the outcomes of the neonate and to allow for planning of delivery of complicated cases. This was a requirement even though this hospital also had a perinatal meeting.

The 13 coordinators who did not welcome external clinicians stated that meetings were closed to external staff members and that allowing external clinicians to attend would be undermine confidentiality of meetings.

Table 3.11: Invitation of management representatives to attend meetings (n=23)

ATTENDANCE EXPECTATION	FREQUENCY n (%)
Mandatory	9 (39%)
Optional	11 (57%)
Not welcome	3 (4%)

Only nine departments made it mandatory for management to attend meetings. Three stated that meetings were not open to management representatives and the remaining eleven reported optional attendance. However up to six departments reported that they did not have a management representative at their meetings and a further eight departments only had management representatives at some of the meetings.

The reasons given for not inviting management were:

- The discussion would focus on health systems errors therefore limiting exploration of other factors that could have contributed to poor outcomes.
- Management attendance was not desirable as meetings were essentially for clinicians
- There were other platforms used to report challenges that were discussed during meetings to management

3.6.2 Meeting Attendance as Rated by Coordinator

Following the request for coordinators to outline expectations with regard to meeting attendance coordinators were requested to rate how often categories of staff actually attended meetings. When the questionnaires were administered coordinators could either stipulate that the group attended: often, sometimes, rarely or never. These four groups were then divided into good attendance (often and sometimes) and poor attendance (rarely and never).

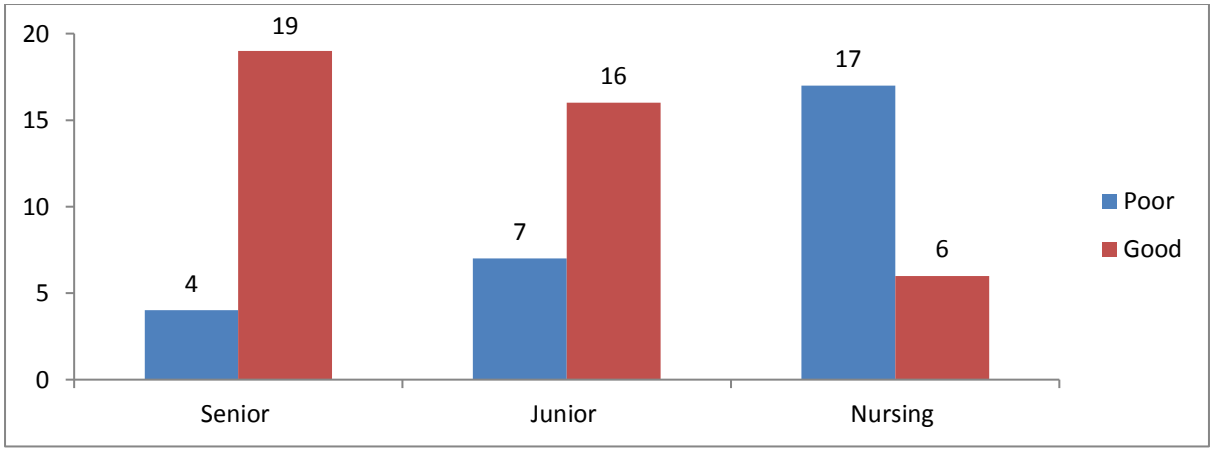

Figure 3.2: Attendance of various staff categories at meetings (n=23)

There is more poor attendance of meetings by junior clinicians compared to senior clinicians, with the number of departments that have poor attendance by junior clinicians being almost double those of poor junior clinician attendance. Furthermore there are more than double the meetings that have poor attendance of nursing staff compared to those with poor attendance by junior clinicians.

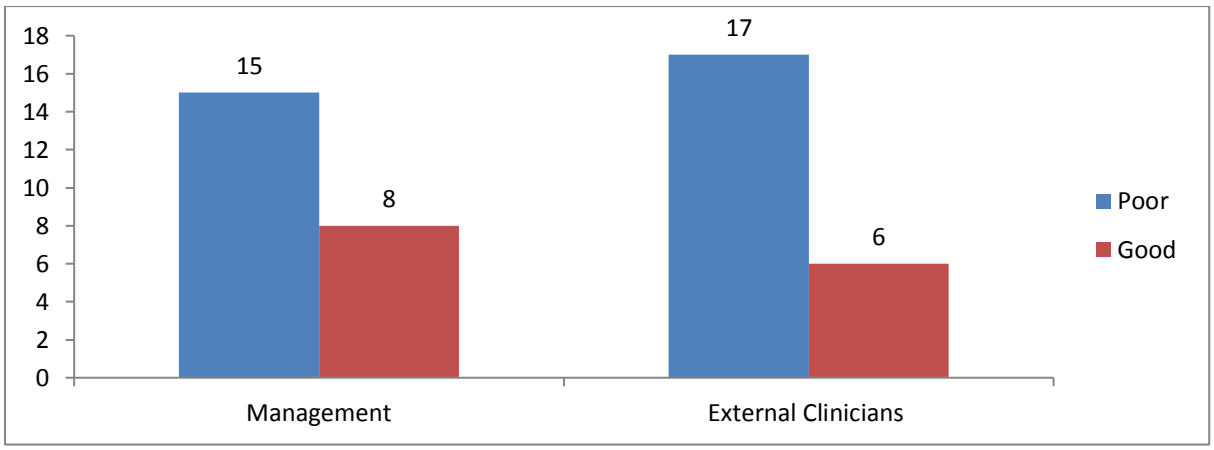

Figure 3.3: Attendance of management representatives and external clinicians (n=23)

There was also poor attendance of management and external clinician representatives, with most external representatives being the DCST at five district level hospitals and one regional hospital.

3.6.3 Barriers to meeting attendance

There were several barriers to attendance that were highlighted by respondents with the most common reason being competing interests:

- Thirty nine percent (9 of 23) of respondents stated that workload was overwhelming for clinicians and therefore limited the frequency of attendance.
- Remunerative work outside the public sector was perceived by one respondent to be a competing interest.
- Some meetings included staff from other institutions and the time required to travel resulted in sporadic attendance. Furthermore enforcing attendance of clinicians in other hospitals was not possible as they had a different line of reporting.

Thirty percent (7 of 23) respondents stated that they had successfully managed to incorporate meetings into departmental activities and there were no barriers to attendance.

3.7 Review of agenda

3.7.1 Pre-set agenda for meetings

Eight meetings were guided by an agenda drafted before the meeting while the remaining seventeen did not have a written agenda.

Table 3.12: Availability of a written agenda (n=25)

Written agenda	Meetings
Yes	8 (32%)
No	17 (68%)

The available agendas were assessed for the following:

- Review of data on performance
- Presentation and discussion of cases
- Follow up or progress report of previous action plans

Table 3.13: Review of agendas (n=8)

Agenda's Reviewed	Review of data on performance	Case presentation and analysis	Progress report of previous action plans
Agenda A	**Yes**	**No**	**Yes**
Agenda B	**Yes**	**Yes**	**Yes**
Agenda C	**Yes**	**No**	**Yes**
Agenda D	**Yes**	**Yes**	**No**
Agenda E	**Yes**	**No**	**Yes**
Agenda F	**Yes**	**Yes**	**Yes**
Agenda G	**Yes**	**Yes**	**No**
Agenda H	**Yes**	**Yes**	**Yes**

All eight meeting agendas included time allocated for reviewing the number of activities in the department such as admissions, deaths and other department specific functions. Three departments did not have specific time allocated for case presentation and discussion on their agenda. Six of the eight departments included a progress report on previous action plans as an agenda item.

3.8 Review of meeting proceedings

The section below outlines the above three agenda items according to what was observed when meetings were attended by the researcher.

3.8.1 Review of data on departmental performance

Twenty two of 25 departments in total reviewed data in meetings. Of these twenty two, only fourteen departments presented data that reflected the departments' performance, including the following:

- patients transferred in and out of the unit and reasons for transfer;
- iatrogenic injuries or complications;
- patients with increased risk of developing illness;
- critically ill patients
- procedures that were done.

The remaining 40% (8 of 20) departments limited their review to a few activities in the department such as the number of admissions and deaths without exploring any other aspects of their performance.

Furthermore, only four of the 22 departments had analysed the data prior to presenting it at the meeting and had made inferences or drawn conclusions about what the numbers meant in terms of performance compared to other departments or the trends within their department.

3.8.1 Case presentation and analysis

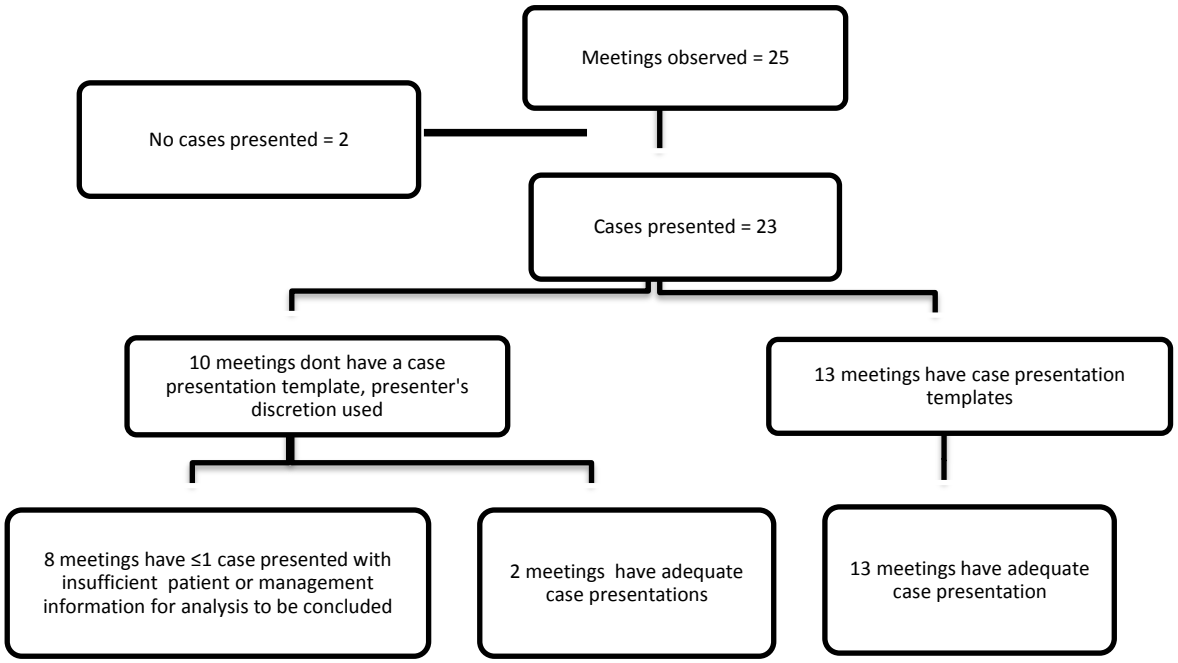

Figure 3.4: Review of case presentation (n=25)

Three aspects of case presentations were assessed:

- Availability of case presentation templates
- Adequacy of case information presented to facilitate discussion
- Whether cases were aligned to one of the four objectives of morbidity and mortality meetings.

In two meetings no cases were presented at all and only fifty seven percent (13 of 23) departments had case presentation templates. Case presentation in all thirteen departments with templates contained sufficient information to facilitate insightful discussion about the case. However eight departments that did not have templates had at least one case that was presented without sufficient information for the audience to make an assessment about error, learning points or the appropriateness of care that was delivered. It was therefore not possible to have insightful discussions about these cases.

A total of 48 cases from 23 meetings were assessed 73% (35 of 48) of cases were aligned to at least one of the four main objectives of M&M meetings. The remaining 27% (13 of 48) of cases that were reviewed were not about any of the four objectives of morbidity and mortality meetings. Mostly these were cases of academic interest and at times it was not clear why cases were presented as they were not followed by any discussion.

3.8.2 Action plan development, implementation and follow up (progress report)

Figure 3.5: Action plan development, delegation and follow up

As seen in figure 3.4 action plans were only developed in 14 of 25 observed meetings, only nine of the fourteen were these plans delegated to individuals or groups for implementation and six of the nine followed up on implementation of the action plans.

3.9 Record keeping practices

Fifteen respondents reported that Minutes of meetings were taken and 13 had electronic copies of these minutes. Minutes were circulated by 11 departments; all came from the pool of 13 who kept electronic minutes. All those who had electronic minutes circulated minutes to various members of staff, including management. Scribes could be categorised into three main groups: senior clinicians (11 of 15), junior clinicians (1 of 15) and administrative staff (3 of 15).

3.10 Facilitation of meeting

Two factors were considered when looking at the adequacy of facilitation: if the facilitator encouraged representative participation and established a safe environment for case discussion and learning.

3.10.1 Facilitator encourages representative participation

Table 3.14: Facilitator encourages representative participation of clinician groups in meetings (n=25)

Clinician Groups (participants)	Encouraged participation	Encouragement not required	Participation not encouraged
Junior Clinicians	3	6	16
Senior Clinicians	9	9	7
Total	**12**	**15**	**23**

Of the 25 facilitators, 36% (9 of 25) had good participation from junior doctors, with 24% (6 of 25) of these participants participating without prompting. In 12% (3 of 25) of meetings facilitators' actively encouraged the participation of junior clinicians whereas encouragement of participation from senior clinicians took place in 36% (9 of 25) of meetings.

3.10.2 Establishes a safe environment

Seventy six percent of meetings (19 of 25) seemed to be a safe environment for discussion without the facilitator having to intervene. Five meetings had a hostile environment and the facilitator allowed the meeting to continue in this manner. In one meeting, facilitator successfully managed to steer a meeting away from hostility by redirecting the discussion to root causes of the poor outcome of the case that was being discussed.

3.11 Analysis of Meetings according to components

Table 3.15: Distribution of meetings according to literature guided components of meetings

VARIABLE	CATEGORY	FREQUENCY N (%)
Perceptions of meeting purpose (n=23)	Aligned with literature	17 (74)
	Not aligned with literature	6 (26)
Scheduling (n=23)	Poor	None
	Average	1 (4)
	Good	22 (96)
Representative Attendance (n=23)	Poor	9 (39)
	Average	2 (9)
	Good	12 (52)
Adequate Record Keeping (n=25)	Poor	12 (48)
	Average	4 (16)
	Good	9 (36)
Adequate Agenda (n=25)	Poor	17 (68)
	Average	5 (20)
	Good	3 (12)
Adequate Facilitation (n=25)	Poor	2 (8)
	Average	11 (44)
	Good	12 (52)
Case Presentation Information (n=25)	No cases presented	2 (8)
	Insufficient information	8 (32)
	Sufficient Information	15 (60)

Table 3.15 above highlights the distribution of the various components of meetings, which are a combination of various observed and reported on variables. This combination of variables allows for comparison of meetings in the different levels of care as shown below: Comparison of Meeting Components by Level of Care.

The following meeting components were also added to the comparison by level of care below. All district coordinators reported that there were neither guidelines nor any case selection criteria that they used to prepare for and conduct meetings. There were no good case presentations in district hospitals, while 47% of cases in the other levels of care were good. However 93% of meeting coordinators at district level perceptions of the purpose of meetings were aligned to literature references, compared to only 67% of coordinators in the other levels of care. Attendance was also more representative, 75%, in district meetings compared to the other levels of care, 33%. More district hospitals had agendas for their meetings (86% vs 4%) compared to other levels of care and all district hospitals took minutes at their

meetings, which were electronic and circulated to staff members and the management team. While there was no poor facilitation of meetings in central, tertiary and regional hospitals

COMPARISON OF AGGREGATED VARIABLES BY LEVEL OF CARE

Table 3.17: Comparison of aggregated variables by level of care

VARIABLE	CATEGORY	FREQUENCY N (%)		FISCHER'S EXACT (P VALUE)
		CENTRAL/REGIONAL/TERTIARY	DISTRICT	
Policy or Meeting Guidelines	Present	4 (27%)	None	p = 0.257
	None	11 (73%)	8 (100%)	
Subtotal		15 (100%)	8 (100%)	
Case selection Criteria	Present	6 (40%)	None	p =0.058
	None	9 (60%)	8 (100%)	
Subtotal		15 (100%)	8 (100%)	
Perceptions of meeting purpose	Aligned with literature	10 (67%)	7 (88%)	p=0.369
	Not aligned with literature	5 (33%)	1 (12%)	
Subtotal		15 (100%)	8 (100%)	
Scheduling	Poor	None	None	p=1.00
	Average	1 (7%)	None	
	Good	14 (93%)	8 (100%)	
Subtotal		15 (100%)	8 (100%)	
Representative Attendance	Poor	10 (67%)	2 (25%)	p=0.07
	Average	5 (33%)	4 (50%)	
	Good	None	2 (25%)	
Subtotal		15 (100%)	8 (100%)	
Adequate Record Keeping	Poor	2 (29%)	None	p=0.07
	Average	3 (42%)	1(14%)	
	Good	2 (29%)	6(86%)	
Subtotal		7 (100%)	7 (100%)	
Adequate Agenda	Poor	None	None	p = 1.0
	Average	1 (50%)	4 (67%)	
	Good	1 (50%)	2 (33%)	
Subtotal		2 (100%)	6 (100%)	
Adequate Facilitation	Poor	None	2 (29%)	p =0.03
	Average	10 (56%)	1 (14%)	
	Good	8 (44%)	4 (57%)	
Subtotal		18 (100%)	7 (100%)	

The statistical measures shown in table 3.15 should therefore be interpreted with caution, particularly because numbers are few and there are a significant number of cells that do not have observations. Having said this however it is prudent to describe trends and highlight aspects that are not uniform between the two levels of care: specialised and non-specialised care.

There was no policy framework or guidelines for M&M meetings at district level and neither were there any case selection criteria that were being used at this level of care. However meetings at this level seemed to be more administratively organised as six of the seven meetings that were observed had agendas, in contrast to only two of eighteen with agendas at the more specialised levels of care. All meetings also kept records at district level while only seven of eighteen kept records at the specialised levels of care.

CHAPTER FOUR

4. DISCUSSION AND LIMITATIONS

This chapter discusses limitations of the study as well as results from the research process in light of existing literature on the preparation and execution of M&M meetings.

4.1 Discussion

There were only two departments (both at district level) that did not have M&M meetings. Three departments (including two perinatal meetings) had only recently started having meetings and coordinators stated that they were started in order to ensure their compliance with the National Core Standards. The perinatal M&M meetings were started under the instruction and guidance of the DCST, partly to ensure compliance with National Core Standards criteria but also to fulfil their role to strengthen clinical governance within district hospitals and PHC facilities.

Overall, participation in the study was good. Twenty three questionnaires were administered. Refusal to participate was low, with only one meeting coordinator at a regional hospital (Hospital E) refusing to participate. Although three coordinators cancelled appointments for questionnaire administration three times, this was not seen as a refusal to participate as they had already approved meeting observation. Therefore questionnaire administration cancellations may have been due to other competing interests.

Four meetings were cancelled three times during the study period. Three of these four meetings were in one hospital (Hospital D). These cancellations may be a reflection of the organisational culture with regards to quality improvement. Sustainable quality improvement hinges on the need to capacitate those who work in the system to drive and facilitate change, central to this may lie the need for organisational transformation.(41) The culture of the organisation needs to be encompassing of an environment that encourages the identification of error, its causes and remedial action for improvement. (42)

The fourth meeting that was cancelled three times was at a district hospital. The coordinator stated that workload led to poor attendance and meeting cancellation. South African health care workers do have a heavy workload. The doctor to patient ratio in South Africa is very low even in comparison to other countries of similar economic profile and development as shown in the Human Sciences Research Council publication titled: "Doctors in the public service: TOO FEW FOR TOO MANY".(43) However, it is essential that medical practitioners see the benefit of balancing service delivery and the responsibility to improve the quality of services they deliver. Improving the quality of care should be given equal prominence to the delivery of services.

There were two departments at district hospitals that did not hold M&M meetings. One of these departments was in Hospital H and the coordinator expressed that in order for meetings to progress they would need more input in terms of the structure of meetings, this would primarily serve to distinguish these meetings from their current platform, daily doctors meetings. This highlights the need for medical practitioners to be capacitated with skills so they can be 'capable improvers' of the systems they work in. (19)

Seventy four percent of coordinators showed a comprehensive understanding of the purpose of meetings, touching on aspects of error identification, learning and quality improvement. Overall there seemed to be less agreement with the purpose of meetings being for identification of error, with only 70% of coordinators in agreement. This is in contrast to 90% agreement for the other two objectives: learning and teaching opportunity; and improving the standard of care. The tendency to divert meetings from being about the identification of error is in keeping with findings from an American survey of 295 M&M meetings in internal medicine departments.

In the aforementioned survey meetings were reported to have a heterogeneous focus, the role of meetings in identification of medical error could not be firmly established. Meetings tended to have an educational focus, with cases mostly being selected for their teaching

value. However, these findings differed from surgical M&M meetings, with surgical meetings being more focussed on the identification of error and learning from the error. This difference was assumed to be due to the lack of delineation of goals and objectives for internal medicine M&M meetings, while there were explicit goals and objectives for surgical M&M meetings.(28)(46) When placed in context of the meetings reviewed in Gauteng province it is clear that there is a poor understanding of the role that these meetings play as instruments of quality improvement and clinical governance. This misperception will indeed prevail unless definitive goals and objectives are set for meetings similar to what has been achieved by the American College of Surgeons. The results of this intervention is highlighted by the findings of the survey mentioned, furthermore it is not possible to ensure that people effectively execute a concept that they do not understand. This is reflected by departments that conduct meetings merely to comply with the National Core Standards, these meetings tend to not meet the primary objectives of M&M meetings.

In conjunction with assessing the perception of the purpose of meetings, the researcher also wanted to determine the importance of meetings in the various departments. This was done by looking at how often meetings were cancelled. Some departments had cancelled more than thirty percent of meetings in the previous twelve months. This shows that the role of meetings in some departments was not clearly understood and therefore other departmental activities were prioritised. Furthermore in Gauteng province there is a perception that quality assurance is the responsibility of nurses, evidenced by most hospital quality assurance programs being nurse driven. With the physicians role not being highlighted an impression that they can continue to deliver services in the absence of measures being taken to improve quality persists.

Classen and Kilbridge highlight the role of physicians in improving patient safety by showing that physicians are central in the designing of safe processes. (44) The ‘seeds of fundamental improvement in health care systems lie within the reach of physicians’(p290) (45)and therefore forfeiting this opportunity has far reaching implications for service delivery. This however seems to be a deep rooted problem which may stem from the gap in undergraduate and post graduate training of physicians in the country. While most curricula focus on imparting knowledge on clinical conditions and building up the relevant clinical skills to

diagnose and manage these conditions there is no emphasis on the importance of quality improvement. These skills are not explicitly taught and neither are they objectively measured. While learners may have to attend M&M meetings and participate, there are no standardised objectives that are imparted and demonstrated during these meetings. On the contrary it is likely to find that different departments that these learners are exposed to have different interpretations and objectives of meetings as shown in the findings. Some learners even walk away with the impression that they should be conducted in order to ensure compliance with National Core Standards. These are the conflicting and inaccurate perceptions that are entrenched into them as they go into clinical practice.

Furthermore Classen and Kilbridge have also highlighted the lack of awareness and leadership skills amongst medical practitioners with regards to their role in changing the system of care. This is also result of the way in which medical practitioners are trained, the emphasis is on the individual's skills. Furthermore as junior practitioners most were exposed to individual blame for error and thus avoid confronting and learning from error. As such medical practitioners do not feel that they are 'capable improvers' (p290) (45) of service delivery.

In terms of meeting preparation, meetings were being coordinated and chaired by the correct people and scheduled appropriately. The biggest gaps were that attendance at the meetings was not representative, case selection was not appropriate and most meetings did not have an agenda.

The designation and experience of the meeting coordinator and chair contributes to the effectiveness of meetings. In this study, the meeting coordinators also chaired the meetings in all the departments. The coordinators were senior staff members with a balance of authority and expertise in order to facilitate a lively, constructive debate in a non-hostile and educational environment. Ideally coordinators should also have a substantial amount of experience that they can draw from, recount and personalise their error while reflecting on cases. If not able to draw on their own experience they should be able to encourage senior clinicians to do so. (31) All the coordinators who the questionnaire was administered to had at least ten years of experience in clinical practice. Seventy eight percent of coordinators were

specialists in their field, which meant that they also had academic expertise in addition to their years in clinical practice. In district hospitals 88% of coordinators were in management positions which reflect a level of commitment to using M&M meetings as a quality improvement tool.

In addition to the correct coordinators being in place, scheduling of most meetings was in keeping with the National Core Standards criteria of monthly meetings across all levels of care. However, when comparing with the number of patients that were presented when data was reviewed, it became apparent that most of the departments that held monthly meetings needed to hold meetings more frequently. Weekly meetings would ensure that staff members are able to recall details of the cases that are presented and it would also mean that fewer cases are presented per meeting and therefore more discussion time could be allocated per case.(27)(21) While it may seem counterintuitive to increase the number of meetings in a human resource scarce setting, health systems error identified and rectified from the review of cases are likely to increase efficiency, thereby decreasing workload.

The other scheduling parameters meetings were also appropriate. Meetings were scheduled in advance and held in consistent venues, which has been shown to increase attendance. (13)(25) As workload was cited as the most common reason for poor attendance and meeting cancellation, changing meetings to early morning encourages attendance and indicate to staff members that meetings are an important departmental activity. (47)

Although meetings were scheduled in a manner that encourages attendance, meeting attendance was still not representative of all staff categories required for an effective meeting, one that has all the right people to facilitate change. (32) For this reason it is important that there is a multi-disciplinary representation at meetings. The findings show that attendance increases when it is mandatory for staff members to attend meetings. Up to 61% of meetings never have nursing representation while 48% of coordinators explicitly expressed that nursing staff were not welcome to attend M&M meetings. This is a result of the view that meetings should not be opened up to other professionals as it may compromise confidentiality. It is important that meetings are attended by the entire team ranging from the heads of department to interns or students where available. (31)

Including allied professionals is important. Most adverse events are a result of multiple failures at the interface of complex medical systems and are therefore best resolved by an inclusive multidisciplinary approach. (32)(33)(48) therefore meetings should be open to all medical professionals who are responsible for patient care. Encouraging external clinicians to attend meetings offer a more objective analysis of cases, breaking the cycle of continuous self-assessment.(13) However up to 57% of coordinators expressed that they do not welcome clinicians from outside of their department to attend. This reluctance to include other health professionals and in particular external clinicians may stem from a fear that all cases are discussed openly and the confidentiality of meetings may be compromised. However this can be avoided by not identifying the patient being discussed, at most the patients initials can be used during the meeting. This will ensure that there is no way to trace the patient and all attendees should be aware of the objectives of the meeting. If negligence is identified or the case is a serious adverse event then these cases need to be followed up on different forums.

Up to 65% of meetings report poor attendance by management. Thirteen percent of coordinators stated that they did not welcome management representatives to their M&M meetings. This is quite unfortunate as management representatives play an important role in closing the gap especially when it comes to health systems factors and the direct impact of these errors on patient outcomes may serve to galvanise action amongst the management team. (36)(37) Management representatives are not seen as part of the team as also perform regulatory functions and resistance to their attendance was on the continuum of confidentiality. Furthermore some management representatives may view M&M meetings as clinician's functions and not realise their role during meetings.

Representative attendance can only facilitate change if appropriate cases that are aligned to meeting objectives are selected for discussion. The appropriateness of cases was assessed by determining whether there was alignment with the four objectives of meetings. Twenty seven percent of cases were not about the identification of error or improving the standard of care. A few cases were presented because they were interesting: these include rare conditions or other phenomena of academic interest. However, it was not clear why other cases were presented and they were not followed by any discussion or analysis after being presented.

This lack of discussion around some cases seemed to be due to time constraints, as some meetings consisted of numerous case presentations from various units. This is contrary to recommendations by Aboumatar et al who specify that in order to ensure that junior staff members learn to investigate mistakes the number of cases that are presented at M&M meetings need to be limited.(20)

This deviation of cases from being about the identification of error may be due to the lack of agreement that the purpose of meetings is error identification. According to Dholakia and Reavis 'the basis of M&M conference should be designed to identify medical error in order to learn from them to improve medical practice'. (p163) If indeed the aim of these meetings is 'education by analysis of error' (p712)(46), cases that were selected were certainly not in keeping with this aim. This finding is consistent with studies that have shown that meetings that do not have explicit goals and objectives are more likely to select cases that do not reflect the main aim of meetings. (28)(19)

The case selection process is important and a good selection process is systematic and transparent. The lack of a transparent and systematic approach leads to poor understanding of the underlying factors that led to poor or unexpected outcomes(22) (49) Best practice with regards to case preparation for meetings was identified in a paediatric department. This department was using a ChIP template for case preparation and presentation. A registrar or medical officer in this department would be tasked with case identification and presentation for the week. In consultation with various specialists and applying pre-set criteria, this medical practitioner would identify a case and review it using the template. A planning session between the coordinator and the presenter is then scheduled. Together the meeting coordinator and the medical practitioner discuss and refine the case presentation and identify areas for discussion, classifying factors as modifiable or non-modifiable.

This is in line with most recommendations which state that each medical practitioner has to be involved in case selection and the discussion with the coordinator assists them to understand the case selection process and serves as training for identification of error. (31) The use of a framework and a case review form brings a level of standardisation to case

reviews which legitimises the process and gives confidence to both clinicians and management teams. (25)

This case selection process makes M&M meetings a useful tool for error identification, teaching and improving quality within that department. However it also highlights that adequate preparation for M&M meetings is time consuming and it requires motivation on the part of the coordinator and the presenters. (50) This is worth mentioning as all coordinators reflected that they were not given any time to execute their responsibilities as M&M meeting coordinators.

All meetings that had a case presentation template always presented sufficient information to facilitate insightful discussion of the case. The template guides the presenter on what to include in the presentation and creates an opportunity for the presenter to engage the attending clinician, nursing staff or allied professionals if there are any gaps in the clinical notes. There were two meetings that did not have case presentations as part of their M&M meetings. These meetings mainly did a quantitative review of activities within their department and this was followed by problem identification within the department since the last meeting, not all identified problems were linked to a particular case.

The final part of meeting preparation that will be discussed is the department's effort to ensure that the meeting covers aspects that are important for learning and implementation of change as evidenced by the availability of an agenda for meetings. Setting an agenda provides a focus and outline of meetings and, more importantly it can be used as a checklist to ensure that all the information is covered. (51) Only eight of the 25 meetings that were observed had agendas. Most of the meetings that had agendas were at a district level and this was probably because this level of care involved management in their meetings and therefore opening the meeting to being a quality improvement tool.

Furthermore management representatives are more accustomed to developing agendas for meetings. Meetings have historically been limited to medical practitioners. These meetings focussed primarily on cases that were 'interesting and instructive' (p1079)(36) disregarding the nature and source of poor outcomes. (36)(52). Meetings would therefore not require an

agenda as the focus would be the presentation of the instructive case by a senior. As meetings at specialised levels of care have been in place for a long time they are more likely to follow this historical format of M&M meetings.

The perception of meeting purpose and importance together with the preparation for meetings largely informed how meetings were carried out. As the correct people were coordinating meetings they managed to facilitate meetings appropriately. However, meetings clearly had the wrong focus and the inadequacy of the preparation process was evident. Cases that were presented were not aligned to meeting objectives; a notable proportion of cases that were presented did not include sufficient information to facilitate the identification of error and insightful discussion. More importantly, more than forty percent (11 of 25) of meetings did not develop remedial action plans for factors that were identified to have contributed to poor outcomes or error. Even when action plans were developed not all of them were delegated for implementation and there was no follow up done to see if changes were being put in place.

Without closing the loop in terms of developing plans for remedial action and ensuring that the plans are implemented, meetings are ineffective. Action plan development is central to the success of M&M meetings and strategies for developing these plans should be part of M&M meetings. (50) (52) Rabizedah et al even recommend that, periodically, a meeting should be dedicated to reviewing all the changes and progress made on plans that were developed in meetings.(36)

This highlights the importance of keeping records of M&M meetings. (52) There was no record keeping in ten of the 25 meetings that were observed. Only eleven of the 15 meetings where minutes were taken circulated minutes to staff members who attended meetings and the management team. None of the departments which did not keep electronic minutes circulated them to staff. The development of case summary documents that include recommendations for follow up, delegates tasks with time lines lead to a reduction in the recurrence of similar events. (22) The recording of action plans increases the likelihood that action will be undertaken.

Furthermore, a record of the meetings assists with the formalisation of 'organisational memory' of incidents that occur infrequently and enable easy identification of themes over time. (25) Record keeping should be delegated to a senior member of staff with insight into discussions. (19) However, four of the fifteen scribes were junior and administrative staff members. The fear of incrimination seems to dominate M&M meetings and this may be at the core of the lack of record keeping, particularly that records may be used for litigation purposes. However, as discussed previously patients need not be identified during the discussion and their details should certainly not be recorded as part of the official minutes. Furthermore while the record can reflect a brief summary of the patient's condition, the record should focus on the type of error that was identified, how it will be corrected and who has been given the responsibility to resolve the matter in order to facilitate continuous improvement and learning.

The quantitative review of activities within the department was poorly done. Including a quantitative review of performance as part of the M&M meeting augments the quality improvement aspect of the meeting. However it should not be the only focus of the meetings as in the two meetings were no cases were reviewed.

In order for the review of data to reflect the performance of the department, several activities and outcomes will need to be reviewed and analysed. This can be done by looking at trends within the department over a period of time, changes that have been made can also be plotted against this data in order to explore if indeed they resulted in any change in outcomes. (30) In addition to this, data can be used to benchmark performance with local and international standards. (30) (53)

Twenty two of twenty five meetings that were observed included a quantitative review of data. However, only four departments analysed this data in a manner that reflected performance. In the other eighteen departments information was not summarised or analysed. There was also no indication if the data reflected an improvement or deterioration in the performance of the department. Therefore the role that a quantitative review of performance can play in meetings was not realised in these eighteen departments. This can

probably be related to the fact that meetings do not have explicit goals and good practices are introduced or adopted over the years that M&M meetings have been held in various departments. However, without a focus for these practices, merely presenting data and not analysing it is easier.

Although meetings were chaired by the most appropriate person in terms of seniority and expertise, facilitation skills and an understanding of the objectives of meetings also affect how well the meetings are facilitated. .

Two aspects of facilitation were reviewed: establishes a safe environment and encourages representative participation. Only 52% of facilitators demonstrated a balance of these aspects and therefore managed to create the supportive and educational environment required for an effective meeting. (31)(19) In five of the meetings the overall ambience was persecutory. A persecutory tone in meetings is a result of assigning individual blame and the intentional shaming of individuals(54). This hostility leads to maladaptive defensive mechanisms amongst staff members such as non-attendance, withholding of information that may result 'incrimination and recrimination' (p18)(19) or a negative attitude towards meetings. (50)(31) A proportion of the meetings that were not hostile did not actually discuss cases that were about the identification of error, therefore there was much less reason for conflict during meetings.

It is also possible that, as junior participants were not active participants in 64% of meetings, and neither were they encouraged to participate by the facilitator. Junior staff members, particularly those in training positions (registrars) should been encouraged to be active learners during meetings. (49) While hostile dialogue between of staff members is not encouraged, the meeting should have audience interaction and discussion should not merely be between the presenter and the chair. Audience interaction during meetings has been shown to improve trainee's perceived educational value in M&M meetings and confidence in problem identification and management. (55)(47)(25) In order to ensure that facilitators increase interaction at meetings Prince et, al have made five suggestions (p272)(55):

a.) *Whenever possible, direct level-appropriate questions at specific audience members.*
b.) *Draw as many residents into the discussion as you can on each case.*
c.) *Call on attending whose expertise and experience will enhance the discussion*
d.) *When a faculty member asks a question to the presenter, use questioning and explaining to ensure that the audience understands the significance of the question. When in doubt, spell it out.*
e.) *Encourage residents to participate as co-examiners in the critical review process. You can even ask for questions.*

Most junior clinicians fail to see the value of M&M meetings as case selection processes are not transparent and there is an underlying perception that meetings are held but nothing ever changes. (52) This results in them disengaging from meetings. Bechtold, et al were able to show that the attitudes of junior staff changed when they put in place a system for case selection and analysis; identified gaps in quality of care and recommended action plans at meetings.(52)

4.2 Limitations

This study is a review of processes; it establishes which practices were good in comparison to literature recommendations for establishing an effective M&M meeting. The probing of clinicians' perception via the administered questionnaire and the meeting observations allowed for the researcher to gain good insight into factors that need to be changed to ensure that meetings are indeed held or improved from their current status.

- However the study does not assess the impact that M&M meetings have on health outcomes was beyond the scope of the study and as such should be considered as an area of future research.

- There is no local literature or that originating from low and middle income countries to draw from in order to inform the study. Data collection tools were therefore designed based on literature that may not be entirely relevant to the study setting. In order to minimise the impact this would have on the study, the few available local guidelines were also reviewed in order to ensure that the norms that observed practices were benchmarked against were not entirely irrelevant.

- A trade off had to be made when determining data collection methods. This was in terms of obtaining an adequate sample size for statistical inferences to be made and collecting data in a manner that would result in depth insight into the processes of M&M meetings in Gauteng Province. Other methods like sending questionnaires to coordinators or even the management team were considered as they would be less time consuming and enable the researcher to have a larger sample. However, in depth insight into process was chosen, with detailed questionnaires and meetings being observed.

- Permission to conduct the study was requested from fifteen hospitals. As the study was not conducted in five of these hospitals, this may have resulted in a biased sample. There were two hospitals that refused to participate in the research process. The response that was given to the researcher by the contact person was that the management team had taken the request under consideration but did not approve the request. There are several reasons that could have informed the decision not to participate. The two hospitals may not have welcomed the research process as it may have exposed poor practices with regards to M&M meetings. The reasons for the other three hospitals not participating are less likely to have resulted in a biased sample as their reasons were mainly administrative.

- Questionnaires collected data from a key informant who was also the person responsible for coordinating meetings. This may have led to bias that is associated with self-reporting, particularly attribution of negative aspects of their meetings to external influences. Furthermore coordinators were supplied with the study protocol prior to questionnaires being administered and may have therefore reported what they may have perceived the researcher is looking for.

- The researcher attended and observed meetings and the coordinator and attendees were aware of the researcher's visit even before the meeting. This may have resulted in a Hawthorne effect. This may not only have been during the meeting but also when

preparing cases prior to the meeting. During the pre-test there was one meeting in which activities seemed somewhat orchestrated for the researcher's benefit.

- On exploring barriers to record keeping during the study conducted at CHBAH, key informants reported that they were apprehensive about taking minutes for fear that they may be used against them for litigation purposes. Similarly, confidentiality was also brought up when enquiring about extending the invitation for meetings to external clinicians. The presence of the researcher may have been considered a threat and content discussed during meetings modified accordingly.

- Meeting observation and rating by the researcher was prone to observer bias. Although the tools were designed to minimise this, and the researcher observed all meetings herself, it cannot be totally disregarded.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Morbidity and mortality meetings are taking place in hospitals in Gauteng, although they seem not to being used as tool for quality improvement and clinical governance. This has resulted in the effectiveness of the meetings being compromised; furthermore meetings are taking place in a policy vacuum. While there is an expectation as part of the National Core Standards for meetings to be held there is no clarity of the objectives of these meetings nor are there suitable guidelines on how meetings should be conducted. This policy vacuum is demonstrated in most components of the meetings that were assessed as highlighted below.

Meeting preparation is coordinated by the correct people, those who are senior, with adequate clinical practice experience and specialisation in their field. At district level management representatives are taking leadership of meetings, which is good for meetings as quality improvement tools. Meetings are being scheduled appropriately as per the National Core Standards. However, this may not be frequent enough for the patient loads that our health system faces. There is limited attendance from by various staff categories central/tertiary and regional hospitals and this detracts from the effectiveness of meetings as there is no one directly responsible for health systems change present at meetings when these factors are linked to poor outcomes.

There is also poor attendance from junior clinicians which limits the learning objective, as those in attendance – seniors, will benefit the least from this learning opportunity. Nursing staff attendance is poor in most meetings and they are the staff category that is most in contact with patients. Allied professionals are rarely invited to meetings and are not welcome to attend most meetings. This undermines the notion that error in health care is often complex and multifaceted, with multidisciplinary aspects contributing to its occurrence. This contributes to the lack of change introduced by this tool as other disciplines are not directly aware of the impact that their actions may have on patient outcomes. The unwillingness to

include external clinicians by most departments, robs meetings of an outsiders perspective that may be more objective and the sharing of best practices.

Preparation for meetings is generally poor with the case selection process not being clearly defined, the deficit of case selection criteria and case presentation templates. Furthermore meetings do not have an agenda and the direct result of this is that activities such as action plan development, delegation and follow up on implementation do not take place at meetings. This renders meetings ineffective as quality improvement tools.

Inadequate preparation and the perception that meetings are not primarily about the identification of error is evident in how meetings are conducted. Cases that are presented are not in line with meeting objectives, on accession cases presentation does not even include sufficient information for the case to be analysed, and discussed insightfully. As already stated meetings are not concluded with the development of action plans, which means even those issues that are identified are not addressed. Finally there are no records kept of meetings so there is no organisational memory about what is discussed at meetings.

Except for having an agenda and case presentation templates there are no other factors that can be identified to be directly contributing to certain meetings performing better than others on certain aspects. The heterogeneity of meetings is a reflection that different coordinators have inherited or adopted certain practices in the absence of a comprehensive policy framework or guidelines for the purpose of M&M meetings, how they should be prepared for and conducted.

Even the few departments that have guidelines they do not follow them in their entirety, rather selecting aspects and discarding others. This indicates that there is a need for guidelines to be developed with certain aspects being mandatory for implementation.

5.2 Recommendations

5.2.1 Assertion of M&M Meetings as tools for Quality Improvement and Clinical Governance

The role of M&M meetings as a tool for improving the standard of care being delivered and as an essential part of clinical audits needs to be affirmed. This can be best realised by inclusion of meeting objectives and guidelines being included as part of the National Core Standard that requires that monthly meetings are held within institutions.

5.2.2 Inclusion of M&M Meetings into GDoH Quality Assurance Policy

Morbidity and mortality meetings need to be officially recognised as a quality improvement tool in Gauteng Province. It would be prudent to include meetings into the provincial quality assurance policy as this will set them within the context of the meetings broader goal.

5.2.3 Gauteng Department of Health Guidelines Development

In view of the findings which reflected heterogeneity of purpose, preparation and execution of M&M meetings in Gauteng Province, it is imperative that the province develops guidelines that will regulate and standardise the aforementioned aspects of meetings. A consultative approach should be taken, with the inclusion of the following key stakeholders: quality assurance personnel at provincial and institutional level; District Clinical Specialist Teams; management representatives from institutions and clinician representatives at all levels of care. Guidelines should be balanced between prescriptive non-negotiable elements as well as developmental elements, which various institutions can tailor accordingly.

Starting off with a definition and setting objectives for M&M meetings within Gauteng Province, guidelines should be informed by literature, re-enforcing good practices that were noted during the research period and amending those aspects that were poorly done.

5.2.4 Training on the role of health care professionals in quality improvement

Training on the role of health care workers in quality improvement should be included in all medical science training at undergraduate and postgraduate levels. Health care workers should be capacitated to reflect on their individual practice, the practice of others and the health system that they function in, in order to identify ways in which service delivery can be improved. They also need to be empowered through knowing the channels to report incidents and ways to advocate for change within their institution.

5.2.5 Measures at institutional level

While provincial guidelines are essential it is also necessary for institutions to develop standard operating procedures (SOP) that will dictate how guidelines are implemented. These should be based on provincial guidelines but also informed by institution specific situational analysis with regards to M&M meetings and other institution specific factors including the level of care. Unlike provincial guidelines which should not change often, these SOPs should be updated regularly as the state of meetings and quality of care improves within the institution. For example where provincial guidelines may state that there should be a system for case selection and that criteria aligned to meeting objectives should be defined, SOPs will delineate a suitable system for the institution and define case selection criteria

In order to highlight that meetings are an important departmental activity and should not be compromised for other departmental activities they should be included in managers and HoD's performance agreements.

5.2.6 Auditing of meetings

It is clear that it is not sufficient to ensure that meetings are taking place as this does not guarantee that meetings that are held are effective. Therefore the National Core Standards criteria for meetings should be expanded to include elements that are pertinent for meetings to be effective.

However it is more important that internal quality of care assessments also include M&M meetings, assessing more than inputs and processes of meetings but rather using institutional data and records of meetings to outline outputs and outcomes of meetings.

The realisation of most of these recommendations will ensure that M&M meetings in Gauteng province serve their purpose as quality improvement and clinical governance tools.

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APPENDIX A: Hospital Categories and Districts in Gauteng Province

Hospital Category	Hospital Name	District
Central	Charlotte Maxeke Johannesburg Academic Hospital	Jhb Metro
	Chris Hani Baragwanath Academic Hospital	Jhb Metro
	George Mukhari Academic Hospital	Tshwane
	Steve Biko Academic Hospital	Tshwane
Tertiary	Tembisa Hospital	Ekurhuleni
	Helen Joseph Hospital	Jhb Metro
	Kalafong Hospital	Tshwane
Regional	Pholosong Hospital	Ekurhuleni
	Far East Rand Hospital	Ekurhuleni
	Tambo Memorial Hospital	Ekurhuleni
	Natalspruit Hospital	Ekurhuleni
	Raheema Moosa Hospital	Jhb Metro
	Edenvale Hospital	Jhb Metro
	Sebokeng Hospital	Emfuleni
	Mamelodi Hospital	Tshwane
	Leratong Hospital	Westrand
District	Bertha Gxowa (Medium)	Ekurhuleni
	Jabulani Hospital (Large)	Jhb Metro
	Southrand Hospital (Medium)	Jhb Metro
	Kopanong Hospital (small)	Sedibeng
	Heidelburg Hospital (Small)	Sedibeng
	Pretoria West Hospital (Medium)	Tshwane
	Tshwane District (Medium)	Tshwane
	Jubilee Hospital (Large)	Tshwane
	Odi Hospital (Medium)	Tshwane
	Carletonville Hospital (Medium)	Westrand
	Yusuf Dadoo (Medium)	Westrand

APPENDIX B: Ethics Clearance Certificate

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M130605

NAME: (Principal Investigator)	Dr Takalani Azwidihwi Nthangeni
DEPARTMENT:	Community Health/ School of Public Health Charlotte Maxeke Johannesburg Academic
PROJECT TITLE:	A Review of Morbidity and Mortality Meetings in Gauteng Province
DATE CONSIDERED:	28/06/2013
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Julia Moorman
APPROVED BY:	Professor PE Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 02/07/2014

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Secretary in Room 10004, 10th floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**.

Principal Investigator Signature M130605Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX C: GDoH Provincial Protocol Review Committee Approval

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

Researcher's Name (Principal investigator)	Azwidihwi Nthangeni Takalani
Organization / Institution	Department of Community Health, School of Public Health, University of Witwatersrand
Research Title	A Cross Sectional Process Evaluation of Morbidity and Mortality Meetings in Gauteng Province
Protocol number	P030913
Outcome	**Approved**
Date resubmitted	N/A
Date of second review	N/A
Final outcome	N/A
Date of final outcome	N/A

It is a pleasure to inform that the Gauteng Health Department has approved your study on "A Cross Sectional Process Evaluation of Morbidity and Mortality Meetings in Gauteng Province" (P030913) .

The Provincial Protocol Review Committee kindly requests that you to submit a report after completion of your study and present your findings to the Gauteng Health Department.

Approves / not approves

Dr Bridget Ikalafeng
Provincial Protocol Review Committee (PPRC), Chairperson

Date: 01/10/2013

APPENDIX D: Questionnaire

Data Collection Tool 1: Morbidity and Mortality Meeting Questionnaire

1) Background Information

Date of Questionnaire Administration:				
Name of Institution				
Category of Hospital	Central	Regional	District	MOU
Department:	Obstetrics	Paediatrics	Medicine	Surgery
Number of beds				
Staff numbers per category				
Consultants		Registrars		
Medical Officers		Community Service Doctors		
Interns		Clinical associates		

2) Key Informant's Profile:

Age		Male		Female	
Qualifications					
Year of Qualifications					
Designation	HOD	Consultant	Registrar	Med Officer	
	Other, specify:				
Years of clinical practice in total					
Years of practice in this institution					
Are you the designated M&M Coordinator	Yes	No			
• If yes, how long have you been coordinating M&M meetings?					
• Who coordinated meetings before you?					

• Why was this task designated to you?				
• If no, reason for questionnaire administration with you & not coordinator				
Do you have official work time dedicated to playing this role?			Yes	No
How long does it take you to prepare for a meeting?				
How would you rate the preparation?				
1.Very Easy	2.Easy	3.Neutral	4.Difficult	5.Very Difficult
• If answered 4/5 what would make this task easier?				

Is there a designated meeting to discuss morbidity and mortalities in this department?

Yes	No

If Not:

i) Which platform do you use to discuss morbidity and mortalities?

_____
_____
_____
_____

ii) What is the main purpose of this meeting?

_____
_____
_____
_____
_____
_____

iii) Please give a brief outline of this meeting's agenda

_____
_____
_____
_____
_____
_____
_____
_____

iv) Why do you not have designated M&M meetings?

_____
_____
_____
_____
_____
_____
_____
_____

v) What needs to be done so the department can start having meetings?

_____
_____
_____
_____
_____
_____
_____
_____

Stop here if no designated M&M meeting

3) Scheduling of Meetings

How often are meetings scheduled?	Daily	Weekly	Fortnightly	Monthly
• Other, specify:				
Are meetings held during working hours?	Yes		No	
How often are meetings held in the same venue	Never	Rarely	Sometimes	Often
Are the dates & times for meetings pre-set?	Yes – set time & day			
	Yes-as part of monthly/annual plan			
	Convenience– according to staff/venue availability prior to each meeting			
• Other, specify:				
When did you start scheduling meetings as above?	< 6 months			
	6 – 12 months			
	1 year – 5 years			
	>5 years			
How were meetings scheduled before: (If scheduling practice has not changed in past 5 years then omit this section)				
How often were meetings scheduled?	Daily	Weekly	Fortnightly	Monthly
• Other, specify:				
Were meetings during work hours?	Yes		No	
Were dates & times for meetings pre-set?	Yes – set time & day			
	Yes-as part of monthly/annual plan			
	Convenience– according to staff/venue availability prior to each meeting			
• Other, specify:				
Why did you change scheduling practices?				
In your opinion what has been the impact of the above change with regards to the following:				
• Attendance:				

• Meeting process:
• Immediate health outcomes:

4) Attendance

a.) Do the following categories of staff attend your meetings and is it mandatory for them to attend?

Staff Categories	Attendance Requirements			Attendance Patterns			
	Mandatory	Invited	Not Invited	Often	Sometimes	Rarely	Never
HOD							
Consultants (Internal)							
Consultants (Other dept/Hospital)							
Registrars							
Medical Officers							
COSMO							
Interns							
Clinical Associates							
Nursing Staff							
Allied							
Management							

b.) Does the department keep an attendance register?

Yes	No

c.) What measures are in place to ensure/encourage attendance:

Formal Reminders (email, sms, phonecall, etc)	Yes	No
Informal Reminders (e.g. ad hoc verbal,)	Yes	No
Staff excused from all other responsibilities for duration of meeting *(includes on call team –unless attending to an emergency)*	Yes	No
Follow -up on poor attendance as per attendance register	Yes	No
Incentives (e.g. lunch, snacks, etc)	Yes	No
Other, specify:		

d.) What (in your opinion) are some of the barriers to attendance?

_____
_____
_____

e.) What is your opinion on management attendance?

They should attend M&M meetings	Yes	No

Qualify response:

_____
_____
_____

5) Cancellations

a.) How regularly meetings have been cancelled in the last 12 months

Never (none)	
Rarely (< 10%)	
Sometimes (10-30%)	
Often (>30%)	

b.) What were the reasons for cancelling the last 2 meetings?

_____
_____
_____

6) Meeting Process

a) Who chairs the meetings?

Head of department	
Senior Clinician	
Other, specify	

b) What are the roles and responsibilities of the chair?

_____
_____
_____

c) Do you have a pre-set agenda?

Yes	No

If so, provide or outline agenda

_____
_____
_____

d) How long is an average meeting

_____
_____
_____

7) Case Selection Process

a) Mortalities

Do you review all deaths	Yes	No
Other, specify?		
Outline case selection process		
Do you have criteria that you use in the selection process?	Yes	No
• If so, what are the criteria?		
• Are these criteria documented in writing?	Yes	No
Who is primarily responsible for case identification?		
Are all the identified cases presented?	Yes	No
• If not, who chooses the identified cases that are presented?		

When are cases identified?	Ward rounds	
	Unit meetings	
	Prior to meeting	

b) Morbidities

Do you review all deaths	Yes	No
Other, specify?		

Outline case selection process			
Do you have criteria that you use in the selection process?		Yes	No
• If so, what are the criteria?			
• Are these criteria documented in writing?		Yes	No
Who is primarily responsible for case identification?			
Are all the identified cases presented?		Yes	No
• If not, who chooses the identified cases that are presented?			
When are cases identified?	Ward rounds		
	Unit meetings		
	Prior to meeting		

8) Serious Adverse Events

Are there any classified serious adverse events (SAE)	Yes	No
Other, specify		
Do you discuss these events at your M&M meetings?	Yes	No
Other, specify		
Is there a separate platform for discussing SAEs?	Yes	No
Other, specify		

9) Case presentations

a) Do you have guidelines for how cases should be presented and what information should be included in presentations?

If so please provide or outline template

_____
_____
_____

b) Do you have guidelines on who should present cases

Yes	No

c) Who (designation) usually present cases?

	N/A	Never	Rarely	Sometimes	Often
Consultant					
Registrar					
Medical Officer					
COSMO					
Interns					
Students					

d) If one category of staff is designated to present most of the cases please give reasons for this?

_____
_____
_____
_____

e) Do you have any guidelines on how cases should be analysed?

If so, please outline or provide guidelines

_____
_____
_____
_____

10) Record Keeping

Are minutes of the discussion taken during meetings?				Yes	No
• Other, specify					
• If so who is designated to take minutes				Consultant	
Registrar		COSMO		Medical Officer	
Interns		Students		Other, specify	
Are minutes electronic?				Yes	No
• Other, specify					
Are minutes circulated after the meeting?				Yes	No
• Other, specify					
Are action plans recorded?				Yes	No
• Other, specify					
Are resolutions recorded?				Yes	No

• Other, specify		
Are action plans tasked to a specific person?	Yes	No
• Other, specify		
Is there a template for taking minutes?	Yes	No
• Other, specify		
Are reports submitted to a central committee or the management team?	Often	
	Sometimes	
	Rarely	
	Never	

11) Purpose of meetings

a) What, in your opinion is the primary purpose (s) of an M&M meeting?

Do not read out the below use as template to record responses	
Identifying clinical management error	
Identifying health systems errors	
Learning or teaching opportunity	
Improving standard of patient care and management	

Record other responses not captured in the above table:

_____
_____
_____
_____
_____
_____

b) Which aspects of this department's meetings do you think could be improved? - Give reasons for each identified area.

_____
_____
_____
_____
_____
_____

***c)* What in your opinion are some of the barriers to holding meetings more frequently?**

**only for departments who have meetings less frequently than weekly/fortnightly*

_____
_____
_____

d) What are some of the challenges/barriers you face in preparing for and conducting meetings?

Preparation barriers

_____
_____
_____

Execution barriers

_____
_____
_____

12) Guidelines for Meetings

Do you have departmental guidelines/policy for M&M meetings	Yes	No
• If so are they written guidelines	Yes	No
• If so, please provide copy	Provided	Not provided
Do you have institutional guidelines/policy for M&M meetings	Yes	No
• If so are they written guidelines	Yes	No
• If so, please provide copy	Provided	Not provided

When was your previous meeting?	Date:	Time:
What is the time and date of the next meetings?	Date:	Time:

Request to attend next meeting as per schedule

APPENDIX E: Observation Guide Tool

Data Collection Tool: Observation Guide Tool

Study ID: ___ ____ ___/___ ___-M___ ___ **Date: ____ ___/___ ___ ___/2014**

1) Scheduling of meeting

Time meeting scheduled for			
Did meeting take place?		Yes	No
• If not, state reason given for cancellation			
Time meeting started			
• If meeting started late state reason (if offered)			
Venue	**In department**	**In institution**	**Not in institution**
• Is it the venue stated in questionnaire?		Yes	No
• If no, state reason (if offered)			
Designation of chair			
Is it the same designation as stated in questionnaire?		Yes	No
• If no, state reason given for change			
Number of attendees at beginning of meeting		**Number of attendees at end of meeting**	

Circulate attendance register

	Case Presentation						
Designation of presenter *(make dropdown list)*	Consultant	Registrar	Medical Officer	COSMO	Intern	Student	Other, specify
Reason for this case being chosen for presentation Select one or more of the below, if other is selected then outline the reason *(make check box options)* • All mortalities as per protocol • Unexpected outcome as assessed by attending clinicians/unit • Serious Adverse Event • Case identified at meeting (stats review/summary) for detailed discussion • Other explain							
Is sufficient information presented(or offered by other staff member) at meeting to facilitate discussion of case • Patient vitals outlined *(likert 1-5 & N/A)* o Weighting for critical points vs. other • Clinical management undertaken (in the dept) outlined clearly: *(likert 1-5 & N/A)* o Treatment given: medication, oxygen (what, how much, when) o Procedures undertaken (what, when, patient condition prior to and before) o Comment on if instructions were carried out (ordered at & given at) o Outcome after each step known (Yes/No/N/A)							

Case Analysis (1)					
Insightful discussion/ probe into clinical management of case	**1**	**2**	**3**	**4**	**5**
Identifying health systems errors	**1**	**2**	**3**	**4**	**5**
Identifying clinical management error	**1**	**2**	**3**	**4**	**5**
Was error explicitly identified?	**1**	**2**	**3**	**4**	**5**
Improving std of patient care	**1**	**2**	**3**	**4**	**5**
Identification learning points	**1**	**2**	**3**	**4**	**5**
Highlight missed opportunities: **(make a dropdown option with HS error/Clin Man error/Error explicitly identified/Identification of learning points and add specify after each)**					

Case Analysis (2)			
Is there a specific approach used to facilitate case discussions?	**Y**	**N**	**N/A**
If so outline approach: 5 why's,			
Were specific action plans made for this case?	**Y**	**N**	**N/A**
Were actions designated to a specific person?	**Y**	**N**	**N/A**
Were action plans assigned a time frame for completion/ progress report			
Were specific recommendations made?	**Y**	**N**	**N/A**

Meeting Structure
Welcome *(Yes/No/N/A)*
Progress report on previous action plans *(Yes/No/N/A; if N/A explain)*
Statistics Review (Yes/No/N/A; if N/A explain) If yes, were the following covered: Deaths; Adverse events; Morbidities/complications; Admissions; Referrals; complaints; other *(checklist)* If yes, is it a critical review of performance *(Yes/No)*
Highlighting of action plans *(Yes/No/N/A)*
Highlighting of recommendations for future practice *(Yes/No/N/A)*

Learning Platform

Rate the following group's input as follows *(dropdown box with: Poor; Fairly poor; Average; Good; Very good; N/A)*
Senior clinicians; External clinicians; Junior doctors; Support staff; Students

Facilitation rating

Rate each of the following *(likert 1-5 & N/A)*
Meeting keeps to agenda
Chair encourages participation from other senior clinicians
Chair encourages participation from other junior clinicians
Chair restricts monologues
Chair does not allow criticism / blame games
Chair does not allow staff members to address each other directly dialoguing
Chair keeps discussion focused on root causes of errors

Disruptions

of people who arrive late, # of people who leave early (make 15 min time intervals with tally counts)

# of people who answer calls

Record Keeping

Are minutes being taken?

What is the designation of scribe?

APPENDIX F: Plagiarism Declaration

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I Azwidihwi Nthangeni Takalani (Student number: 586920) am a student

registered for the degree of Master in Medicine: Community Health in the academic year 2015.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

Signature: _____ Date: _____

APPENDIX G: Summary of M&M meeting purpose, preparation and execution in Gauteng Province, 2014

Table 3.16: Summary of M&M meeting purpose, preparation and execution in Gauteng Province 2014

Hospital	Department	Appropriate Facilitator	M&M Purpose	Scheduling	Meeting Cancellations	Representative Attendance	Adequate Agenda	Develop Action Plans	Case Presentation	Facilitation	Record Keeping	Policy
Hospital A	O&G	Snr. Clinician	Aligned	Good	Sometimes	Average	None	No attempt	Good	Average	Poor	Yes
	Medicine	Snr. Clinician	Aligned	Good	Never	Poor	None	No attempt	Good	Good	None	None
	Paediatrics	Snr. Clinician	Not Aligned	Average	Sometimes	Poor	None	No attempt	Average	Good	None	None
Hospital B	O&G	HoD	Aligned	Good	Never	Poor	None	No attempt	Good	Average	Poor	Yes
	Surgery	HoD	Not Aligned	Good	Never	Average	None	No attempt	Good	Average	None	None
	Medicine	Snr Clinician	Aligned	Good	Never	Poor	None	No attempt	Average	Average	None	None
	Paediatrics	Snr Clinician	Aligned	Good	Rarely	Poor	None	Yes	Good	Good	None	Yes
Hospital C	O&G	HoD	Not Aligned	Good	Never	Poor	Good	Yes	Good	Good	Good	None
	Surgery	HoD	Aligned	Good	Rarely	Poor	None	No attempt	None	Good	Poor	None
	Medicine	HoD	Not Aligned	Good	Often	Poor	None	No attempt	Poor	Good	Average	None
	Paediatrics	HoD	Not Aligned	Good	Never	Average	Average	No attempt	Average	Average	Poor	Yes
Hospital D	O&G	HoD	Aligned	Good	Often	Average	None	Yes	Poor	Good	Good	None
Hospital E	Medicine	HoD	Aligned	Good	Rarely	Poor	None	No attempt	Poor	Average	None	None
Hospital F	Combined	Manager	Aligned	Good	Never	Poor	Good	Yes	Poor	Good	Average	None
Hospital G	Perinatal	Snr Clinician	Aligned	Good	Rarely	Average	Average	Yes	Average	Good	Good	None
	Combined	Manager	Aligned	Good	Never	Good	Average	Yes	Poor	Average	Good	None
Hospital H	Perinatal	Snr Clinician	Aligned	Good	Rarely	Average	Average	Yes	None	Poor	Good	None
Hospital I	Perinatal	Manager	Aligned	Good	Never	Average	Average	Yes	Poor	Poor	Good	None
Hospital J	Perinatal	Snr Clinician	Aligned	Good	Rarely	Poor	Good	Yes	Average	Good	Good	None
	Combined	Snr Clinician	Aligned	Good	Sometimes	Good	None	Yes	Poor	Good	Good	None