

# Royal Australasian College of Surgeons Research, Audit and Academic Surgery

Guideline reference document for conducting effective  
Morbidity and Mortality meetings for Improved  
Patient Care

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## Foreword

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Morbidity and Mortality (M&M) meetings are a common and important component of surgical practice.<sup>(1-4)</sup> Although M&M meetings are something we all do, they are not necessarily something we always do well. In the absence of clear guidance, the Royal Australasian College of Surgeons (RACS) has received requests from its Fellows to help define the role and structure of M&M meetings. In response, RACS has developed this guideline reference document.

In drafting the recommendations in this document, RACS understands that M&M meetings are conducted in different settings, with varying resources. As such, there is no one-size-fits-all approach.

In this document we define what constitutes an M&M meeting; highlight the importance of M&M meetings to surgical education and for improving clinical practice; and, identify the factors that enable or inhibit the effective conduct of M&M meetings. Ultimately, the guidance presented here should be applied to suit different clinical contexts.

Through the application of this guideline reference document to Australian and New Zealand surgical departments, we hope to ensure that the valuable time spent on M&M meetings benefits our continuing professional development, and ultimately improves the quality and safety of outcomes for our patients.

In the end, quality performance, both clinical and behavioural, should lead to the best outcomes.

Signed,

Guideline Working Group

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## 1. How robust is your M&M meeting format?

As a result of this evidence-based review, the following matrix has been developed to promote the enabling characteristics M&M meetings. This matrix offers readers the opportunity to reflect on their own local M&M meeting processes, and provides guidance on what constitutes a Bronze, Silver, and Gold standard meeting.

|   | Bronze | Silver | Gold |
|---|--------|--------|------|
| <b>Format</b>   |        |        |      |
| Structured case identification  | ✓      | ✓      | ✓    |
| Consistent, structured meeting format   | ✓      | ✓      | ✓    |
| Regular meeting occurrence and duration   | ✓      | ✓      | ✓    |
| Written terms of reference  | ✓      | ✓      | ✓    |
| Prior dissemination of meeting agenda and cases to be presented                                 |        | ✓      | ✓    |
| Inter-profession and multidisciplinary involvement  |        | ✓      | ✓    |
| Appointment of specific M&M meeting personnel to manage administration and completeness of data |        | ✓      | ✓    |
| Self-nomination of cases  |        |        | ✓    |
| <b>Conduct</b>  |        |        |      |
| Consistent, structured case presentation  | ✓      | ✓      | ✓    |
| Safe, blame-free environment  | ✓      | ✓      | ✓    |
| Systems-focus   | ✓      | ✓      | ✓    |
| Review of close-calls as well as formal M&M cases   |        |        | ✓    |
| <b>Outcomes</b>   |        |        |      |
| Assigning a timeline (where necessary) to recommendations for improvement                       | ✓      | ✓      | ✓    |
| Assigning an individual/group to carry out recommendations for improvement                      |        | ✓      | ✓    |
| Detailed record keeping   |        | ✓      | ✓    |
| Audit of M&M meeting procedures   |        |        | ✓    |
| Follow-up on implementation of recommendations for improvement                                  |        |        | ✓    |
| Ensuring recommendations for individual/systems improvement are made for each case              |        |        | ✓    |

## 2. Introduction

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Morbidity and mortality (M&M) meetings, also referred to as clinical review meetings, are a necessary component of contemporary surgical practice. Despite this, there is currently a lack of evidence-based guidance on how they should be conducted.(5, 6) As a result, models of M&M meetings reported in the literature contain considerable variation in terms of structure, processes and outcomes.(7-14)

In 2014, the Clinical Excellence Commission (CEC) published a guideline for the conduct and reporting of M&M meetings. This comprehensive guideline outlines the key principles and features of M&M meetings in all settings; however, this is in accordance with New South Wales State health policies and legislation. The current document has been prepared to inform best practice for M&M meetings in Australian and New Zealand surgical departments more broadly.

## 3. Scope and objectives

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The objective of this document is to provide actionable, evidence-based recommendations to surgeons on how to conduct M&M meetings. In doing so, the aim is to contribute to the continual improvement of surgical patient outcomes, and the continued professional development of surgical staff.

The recommendations in this document have been informed by the existing CEC guidelines(15), as well as the Guideline Working Group, and a literature review that sought to answer three key research questions:

1. What is the efficacy of morbidity and mortality meetings at improving patient outcomes?
2. What factors enable the effective conduct of morbidity and mortality meetings?
3. What factors inhibit the effective conduct of morbidity and mortality meetings?

## 4. What is an M&M meeting?

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An M&M meeting is a regular conference held by medical services in hospitals which involves a peer review discussion of issues that occurred during the care of patients, resulting in a complication or death. The primary purpose of an M&M meeting is to allow learning from issues by modifying judgment and clinical decision making, to prevent the repetition of these events, and to improve patient care.

Importantly, the structure and duration of M&M meetings differ between healthcare systems (e.g. USA versus Australia) and within healthcare systems. However, M&M meetings consistently provide surgeons with a forum to confidently discuss medical complications and adverse events in a non-punitive environment, to improve patient safety.(13, 16, 17)

There is debate around whether M&M meetings are fundamentally distinct from other educational and quality assurance interventions, such as surgical audit, peer-review and incident reporting systems.(18, 19) Authors have argued that quality assurance processes

should specifically focus on systems improvement, while M&M meetings should be targeted towards clinical performance improvement.(14, 19) However, there is a growing body of literature to suggest that M&M meetings can be effective tools for highlighting both systems errors and technical/clinical causes of adverse events and mortality.(20-23) The RACS suggests that M&M meetings, surgical audit, and peer-review play an interconnected role in improving learning and changing clinical practice.(24)

## **5. Benefits of an M&M meeting.**

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There is compelling evidence that M&M meetings lead to meaningful improvement in patient safety. Antonacci et al (2009) reported a 40 per cent reduction in gross mortality over 3 years following the implementation of a mandatory M&M review process, combined with a surgeon 'report card' tool that allowed individual surgeons to reflect on their performance.(20) Another study reported a significant reduction in anastomotic leak (5.7% vs 2.8%, P=0.05) following the implementation of a structured M&M review process.(25)

M&M meetings are also helpful for identifying changes to clinical practice and systems.(5, 21, 22, 26, 27) M&M meetings have been shown to be a useful and effective tool for identifying areas for systems improvement, noting that recommended changes identified in the M&M meeting must be actively initiated and followed-up, for example, through changes to local practice protocols and guidelines and improved clinical practice.(28)

In addition to patient safety, M&M meetings are valuable tools for surgical education. Surveys consistently report that surgical and medical staff view structured M&M meetings to be valuable educational tools.(21, 29, 30)

## 6. How should an M&M meeting be run?

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### 6.1 Appropriate format of M&M meetings

Meeting format refers to the administration and structure of an M&M meeting. This includes the scope and goals of the meetings, the way in which they are structured (i.e. frequency, location and attendees) and prepared for (i.e. who is responsible for selecting and reviewing cases). **Administrative characteristics of effectively run M&M meetings include:**

1. A **written charter or terms of reference**, to clearly define the goals of the meeting.(28, 31, 32)
2. A **structured meeting format**, to assist in keeping discussions focussed on important issues, and to ensure the quality, consistency and rigor of case presentations.(13, 21, 30) The Situation, Background, Assessment, Recommendation (SBAR) model is a useful tool to improve the quality and consistency of case presentations by surgeons of all skill levels.(13)
3. A **structured process for case identification**, to improve quality and consistency of reporting of complications to the M&M review process, and ensure case mix is diverse for the educational benefit of participants.(33, 34)
4. An **agenda distributed prior the meeting**, to encourage participation by allowing staff to familiarise themselves with the cases and issues before the meeting.(31, 35, 36)
5. **Multidisciplinary involvement**, for staff that could benefit from the cases being presented. The entire team involved in the care of a patient that experienced an adverse event can benefit from the discussions at M&M meetings.(21, 32)
6. A **regular schedule**. Shorter, more frequent (thus timely) M&M meetings are more engaging, require less preparation, and are easier to fit into busy schedules.(37)
7. Appointment of **dedicated M&M personnel**, e.g. departmental M&M coordinators, to take responsibility for the meeting schedule, content and attendance for a defined period.(37)
8. Use of **appropriate tools and software**, which may include the use of pre-defined proformas for M&M reporting (33), electronic record keeping, case presentation and follow-up of initiatives(35, 38) as well as the use of tele-/video-/web-based conferencing to overcome geographical challenges and time restrictions (39-41).
9. **Self-nomination of cases**, including anonymously, which has been shown to increase the number of safety reports reviewed at an institution.(37)

## 6.2 Appropriate conduct during M&M meetings

The conduct of the meeting refers to the way in which the meeting is carried out, such as who presents cases and how discussion and recommendations are facilitated. **Characteristics of effectively run M&M meetings include:**

1. A **structured case presentation format**, to ensure that case discussions are thoroughly prepared, and kept to a strict time limit.(5, 35, 36)
2. A **focus on systems not individuals**, or a central theme, is a useful strategy for identifying areas for improvement in patient care and to facilitate more in-depth and constructive discussion of patient adverse events and medical errors.(27, 36, 38)
3. A **review of near-misses and close-calls**, in order to identify and implement policy changes to prevent future error and harms before they occur.(37)
4. A **safe, blame-free environment**, to ensure participants respond well. That is when M&M meetings have an emphasis on learning not culpability, they enable dialogue about decisions and outcomes and look for systems error rather than personal error.(18)

## 6.3 Appropriate outcomes of M&M meetings

The outcome of an M&M meeting describes the way in which recommendations for improvements are implemented and followed up. **Outcome characteristics of effectively run M&M meetings include:**

1. **Recommendations for individual/systems improvement made for each case.**(21)
2. A **timeline and follow-up on recommendations** for improvement, in order to ensure recommendations identified at M&M meetings are adequately implemented.(5, 38)
3. A **dedicated individual/group to implement recommendations for improvement**, and provide regular updates on the progression of their tasks.(38)
4. **Detailed records of M&M outcomes**, to allow for review and meaningful follow-up of recommended changes to local practice.(36)



## 7. Key challenges to running effective M&M meetings

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A number of challenges need to be overcome in order for M&M meetings to meet their desired outcomes, including:

1. **Logistical issues.** Key personnel are often absent from M&M meetings due to logistical issues related to other obligations, or the timing or location of the M&M meeting.(31) Video conferencing can be used to help ameliorate some of these issues, and may be particularly helpful in rural settings. However, this requires dedicated infrastructure and resources to conduct effectively.(18, 39, 40) Other alternatives include advanced scheduling of M&M Meetings, 6-12 months in advance, to allow time to overcome scheduling conflicts.(15)
2. **A lack of understanding around the process.** Staff should receive formal training in quality improvement methods, in order to ensure the intended aims, processes, and outcomes of M&M meetings are understood by all those involved.(42)
3. **Poor beliefs about the process.** Surgical trainees may view M&M meetings negatively if they have not previously presented or submitted an adverse event to an M&M meeting, or if the meeting:
  - is not organised adequately;
  - does not follow a structured format;
  - does not include follow-up of suggested changes to local practice;
  - does not provide information before the meeting;
  - does not provide a fair assessment of the individual(s) involved in the reported issue, or
  - is not conducted in a blame-free environment.

This guideline has provided many recommendations to address these challenges, and suggests hospitals encourage surgical trainees to become actively involved in the M&M process in order to stimulate engagement.(29, 31, 35)

4. **Heterogeneity in case presentation** and evaluation. Peer-review, even after comprehensive discussion in a format such as an M&M meeting, is often heterogeneous. Structured formats are an effective way of ensuring the quality of case presentation is consistent, and can help guide discussions.(35, 43) However, it is important that standard templates do not systematically exclude particular viewpoints. Using a dedicated facilitator to mediate discussions can help ensure discussions follow a defined structure, while encouraging the input from attending staff.
5. **Lack of attendance.** Often multidisciplinary team members that may benefit from attendance aren't there. Consideration should be given to factors that facilitate attendance such as an attendance register, CPD requirements, protected time, no scheduled surgery on M&M days. It is strongly advocated that all surgeons directly responsible for patient care and teaching be present at all M&M meetings unless illness will not allow. The decision making afforded by attendance and discussion is effective for improving care delivery and clarifying best practice.

6. **Medico-legal concerns.** The documentation presented and resultant from M&M meetings should be considered within the medico-legal environment in which all healthcare exists; however, this should not preclude the accurate and effective learning presented in these meetings. As quality improvement activities, the meetings may be privileged depending on the jurisdiction.

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## Appendix A: Guideline authors

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This guideline was developed by an experienced scientific literature review team, with input and consultation from a Guideline Working Committee. The role of the Scientific Literature Review Team was to collect and appraise the scientific evidence used to develop the guideline, draft the guideline, and finalise the guideline. The Guideline Working Committee provided input into the scope of the guideline, reviewed and provided input into the content of the draft guideline, and provided approval of the final guideline.

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### Competing Interests

None reported.

## Appendix B: Guideline Development Method

The recommendations presented in this guideline were formulated based on the results of a rapid systematic literature review. The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines,(44) and the guideline has been reported in accordance with a modified version of the AGREE-II tool for guideline development.(45)

### Literature search strategy

A systematic literature search of three biomedical databases (Medline, The Cochrane Library, NHS Centre for Reviews and Dissemination) and clinical practice guideline (CPG) clearinghouses was conducted to identify relevant literature. The formal search results were supplemented with grey literature, identified through a targeted internet search of key medical specialist colleges and hospitals websites. Searches were date limited from May 2009 to September 2016, due to the availability of an existing review.(6) No other methodological filters were applied to searches.

**Table 1 Search terms used to identify relevant literature**

| Search | Search Terms (combined with OR)   |
|--------|---|
| #1     | (Morbidity AND Mortality) OR Mortality-morbidity OR Morbidity-mortality OR Morbidity/mortality OR Mortality/morbidity OR Harm |
| #2     | Review* OR Conference* OR Meeting*  |
| #3     | Hospital OR surgery OR surgical   |
| #4     | Quality OR improvement* OR learning OR challenge* OR safety OR complication* OR QA OR error OR adverse                        |
| #5     | #1 AND #2 AND #3 AND #4   |

### Study selection

Inclusion criteria were based on the relevance of the setting, intervention, comparator, outcomes (PICO) (Table 2). One reviewer screened all search results by title and abstract and two reviewers selected articles for full-text review from a shortlist of potentially relevant articles. Figure 1 describes the study selection process.

**Table 2 Study inclusion criteria**

|              |   |
|--------------|---|
| Setting      | Hospital surgical departments   |
| Intervention | Morbidity and mortality review meetings   |
| Comparator   | No morbidity and mortality review meetings  |
| Outcomes     | Primary: Clinical benefits, education outcomes, systems/process outcomes<br>Secondary: Clinician preferences, acceptability, feasibility, quality of M&M presentations                                  |
| Study design | SR, MA, RCT, non-randomised comparative study, single arm case series<br>Evidence-based CPGs that provided criteria for or recommendations on the effective conduct of morbidity and mortality meetings |

CPG = clinical practice guideline. MA = meta-analysis. RCT = randomised-controlled trial. SR = systematic review.

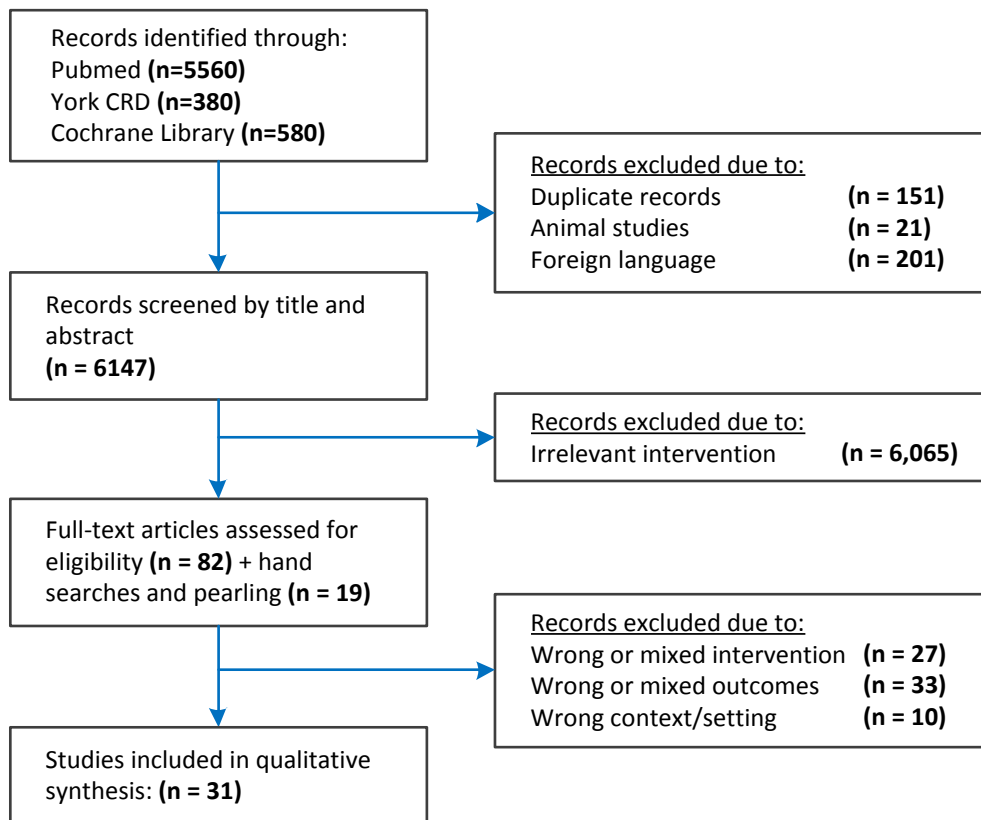


Figure 1: PRISMA flow diagram for study section

## Data selection and extraction

Data were extracted by one reviewer using a standardised data extraction template that was checked by a second reviewer for accuracy.

## Quality appraisal of included studies

The methodological quality of the included literature reviews was reevaluated using the 11-item Assessment of Multiple Systematic Reviews (AMSTAR) checklist.<sup>(46)</sup> The domains assessed by AMSTAR include design, study selection and data extraction, literature searching, study characteristics, quality assessment, methods used to combine findings, publication bias and conflict of interest.<sup>(46)</sup>

Randomised controlled trial (RCT) evidence was appraised using the Downs and Black instrument.<sup>(47)</sup> This checklist assesses the quality of reporting, as well as internal and external validity and sample size power. Internal validity refers to the effects of confounding and bias, and external validity refers to the representativeness and generalizability of the findings to the population from which the study subjects were derived. Due to the varied outcomes reported in the literature, non-randomised trials, including before and after intervention studies, and case series studies were not critically appraised.



## **Data synthesis**

Due to the paucity of quantitative data examining the impact of M&M meetings on patient outcomes, quantitative synthesis was not possible. Study characteristics and results were summarised narratively per research question.

## **Stakeholder engagement**

An initial literature review was conducted, the results synthesized into a report. This report was circulated to the above working group for feedback. Where applicable this feedback was adopted into this review. Approval was then sought, and granted, by the RACS Directors committee.

Following this approval, results from this report were translated into this guideline development document. Several of the comments from the original working group feedback round were also applicable to the draft version of this document. A draft version of this document was circulated to working group for feedback. Where applicable this feedback was adopted.

## Appendix D – Example proforma

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An example proforma, developed by the NSW Clinical Excellence Commission is available here: [http://www.cec.health.nsw.gov.au/\\_data/assets/pdf\\_file/0018/352215/clinical-review-m-and-m-oct-2016.pdf](http://www.cec.health.nsw.gov.au/_data/assets/pdf_file/0018/352215/clinical-review-m-and-m-oct-2016.pdf)