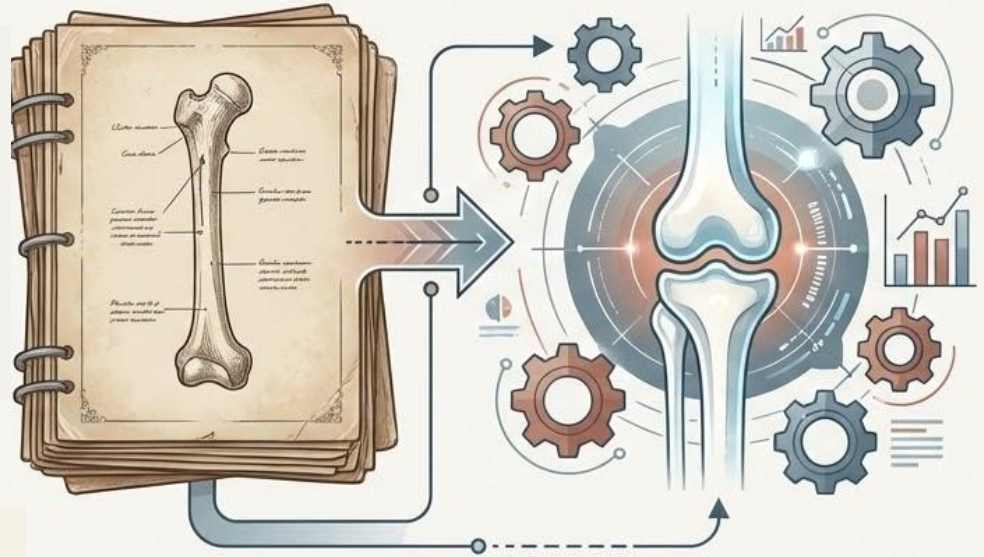


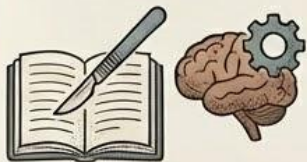
M&M: From Tradition to Impact

Purpose, Evidence-Based Principles,
and Practical Recommendations for
Systemic Improvement

John Walsh, DO



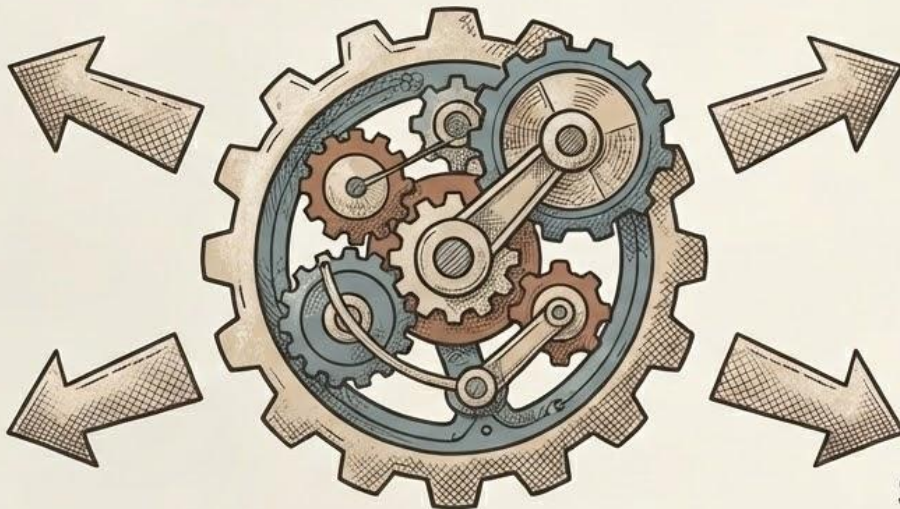
Purpose, Evidenced-Based Principles, and Practical Recommendations



Enhance resident
education & surgical
judgment



Identify preventable
errors and system failures



Drive measurable
improvements in
patient outcomes



Strengthen safety culture
across perioperative teams



Next Steps:

Schedule implementation kickoff
meeting with key stakeholders

Current State: The M&M Challenge

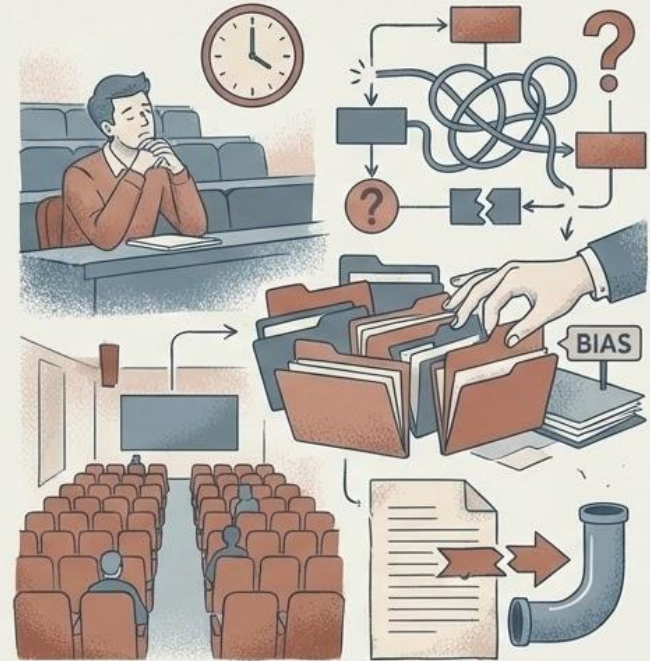
- 96% of responding academic surgery departments held a departmental M&M conference; only 44% had written case-reporting guidelines. [1]
- In an observational study of 59 conferences, a structured cause-analysis method was used in only 5%. [2]
- At one center, traditional M&M reported 6.4% morbidity versus 28.9% identified through ACS NSQIP. [3]
- National quality programs were common, but they were rarely integrated with the departmental M&M process. [1]

5



Five Critical Problems

- ⚙️ **Educational Value:** Passive learning, long presentations, limited discussion
- ⚙️ **Error Analysis:** Lack of systematic root-cause methodology
- ⚙️ **Case Selection:** Ad hoc choices, recall bias, missed patterns
- ⚙️ **Attendance:** Variable faculty participation, limited reach
- ⚙️ **Dissemination:** No closed-loop QI linkage or follow-up



Evidence from Literature

- A narrative systematic review included 21 studies of interventions intended to improve surgical M&M conferences. [4]
- A perioperative team-based review found seven eligible studies; educational, safety, and quality-improvement outcomes were heterogeneous. [5]
- Successful models repeatedly used deliberate case selection, structured presentation, formal facilitation, and documented follow-through. [4,5]
- Adding registry and EHR sources increased case capture; 31% of presented cases would otherwise have been omitted in one prospective evaluation. [6]
- Interdisciplinary postconference task forces generated system-improvement projects in 73% of cases, with most implemented or underway. [7]



Outcome evidence

Structured follow-through is consistently recommended, but comparative evidence for patient outcomes remains limited.

Seven-Element Transformation Framework

- ⚙️ **Explicit Dual Goals:** Define education + patient safety
- ⚙️ **Structured Presentations:** Add team-based involvement
- ⚙️ **Structured Presentations:** Implement templates (SBAR)
- ⚙️ **Impact Measurement:** Measure with process and outcome metrics
- ⚙️ **Data-Driven Case Identification:** Standardize using registry data
- ⚙️ **Multidisciplinary Approach:** Establish formal roles and psychological safety
- ⚙️ **Closed-Loop QI Pathway:** M&M → QI action → audit & feedback

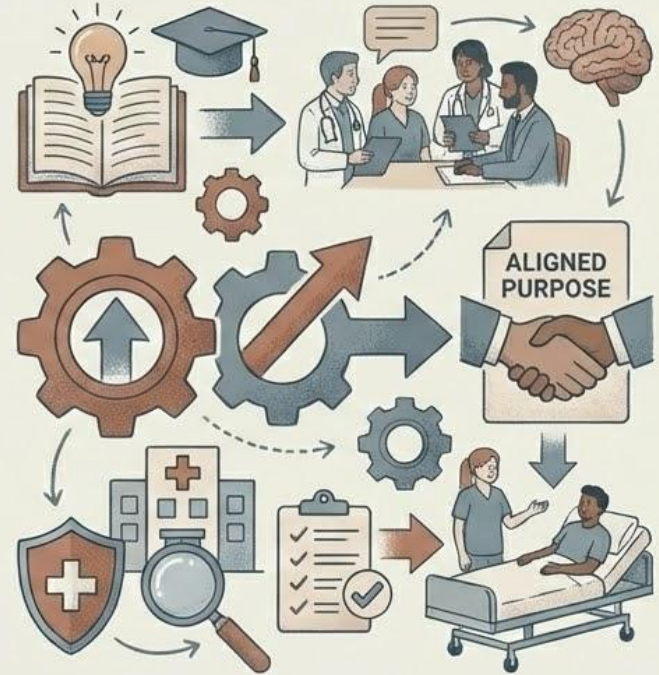


Element 1: Define Explicit Dual Goals

Move beyond “interesting case review” to aligned purpose:

- ⚙️ **Education Mission**
Advance knowledge, skills, and decision-making across all learner levels
- ⚙️ **Patient Safety Mission**
Identify system failures and drive measurable improvements

Action: Write departmental statement; align with institutional safety office; communicate to all staff



Element 2: Data-Driven Case Selection

Use registry triggers to identify high-yield cases:



Automatic triggers:

30-day mortality, unplanned return to OR, SSI, unexpected ICU transfer, VTE



Outlier metrics:

High LOS for specific procedures (hip fracture, arthroplasty, complex trauma)



System failures:

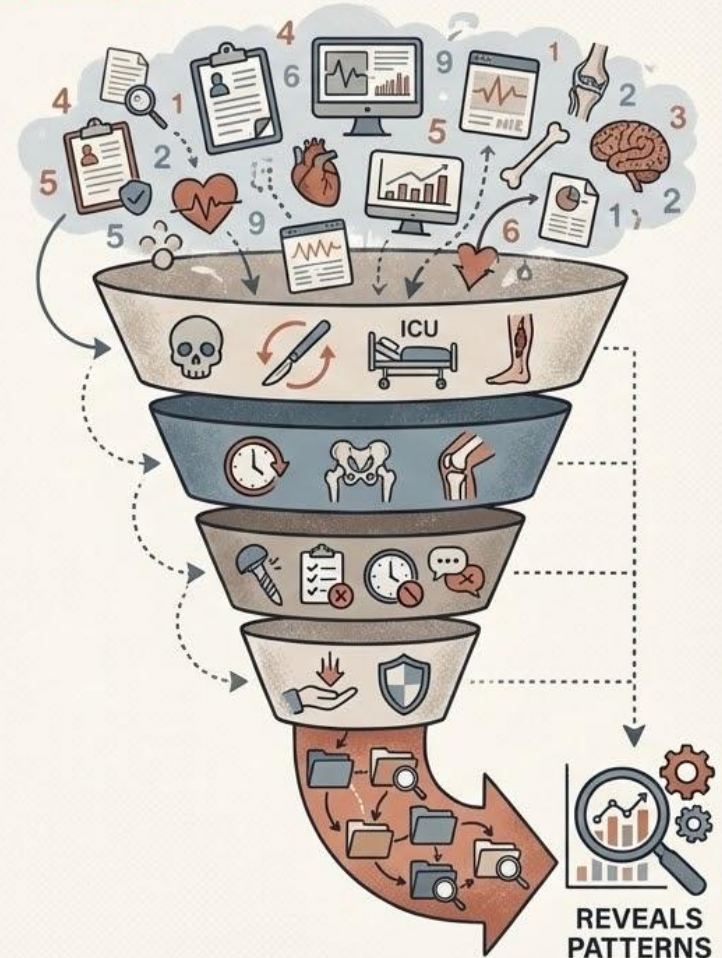
Wrong implant, missed DVT prophylaxis, OR delays, communication breakdowns



Near-misses:

Caught errors, prevented harm (often most educational)

Result: Captures 4–5x more morbidity than subjective selection; reveals patterns



Element 3: Structured Presentation (SBAR)

Replace ad hoc storytelling with discipline:



S — Situation

Patient demographics, index event
(max 2 min)



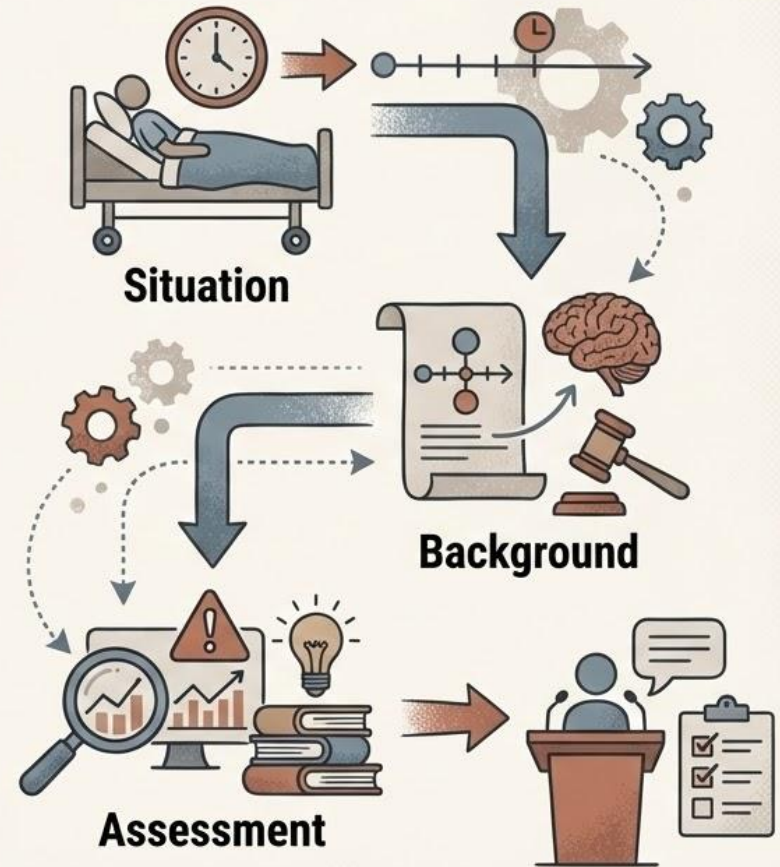
B — Background

Clinical timeline, key decisions
(max 5 min)



A — Assessment

Adverse event classification, brief
literature review (max 5 min)



Element 4: Multidisciplinary Team-Based Model



Core:

Orthopaedic surgeons (faculty + residents), trauma/joint service leads



Integrated (for relevant cases):

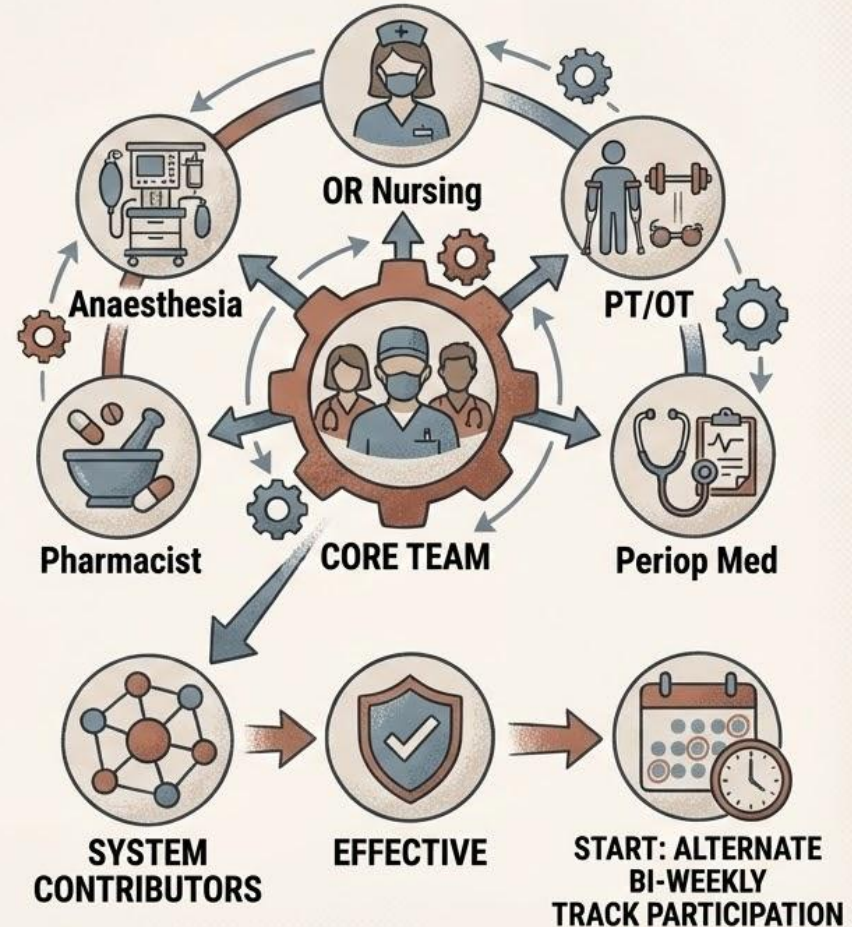
Anaesthesia, OR nursing, PT/OT, perioperative medicine, pharmacist



Value: Reveals system-level contributors; 55% perceived as more effective than solo surgical M&M



Start: Alternate bi-weekly “core + perioperative” format; track attendance and participation



Element 5: Formal Facilitation & Psychological Safety

Designate trained moderator to set culture:



Moderator Role

- Open with "just culture" framing
- Facilitate, don't blame
- Direct questions to broaden input
- Summarize key takeaways

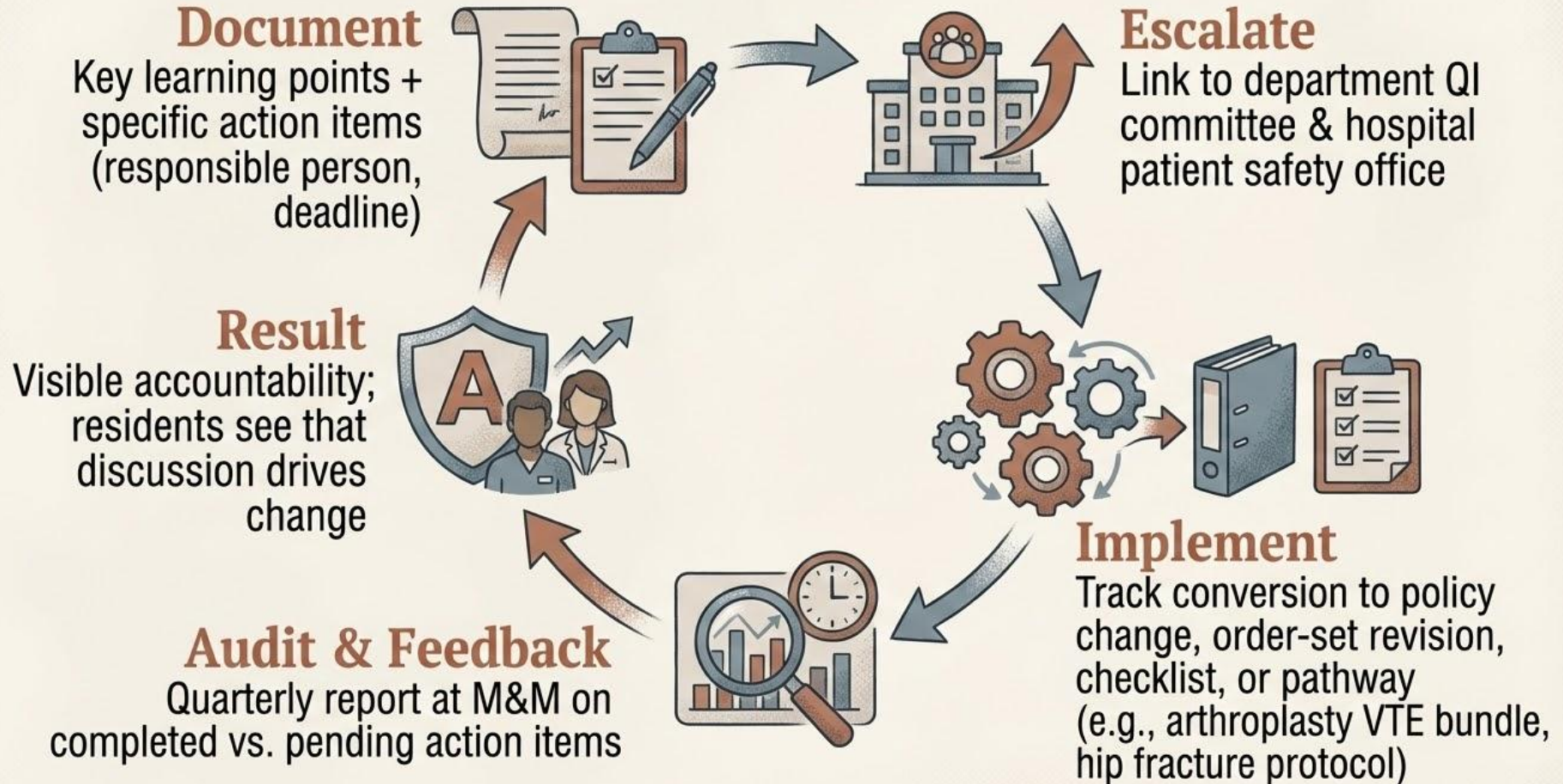


Psychological Safety

- Confidentiality assured
- Focus on systems, not individual blame
- All viewpoints welcomed
- Learning priority over criticism



Element 6: Closed-Loop QI Pathway



Element 7: Measurement & Continuous Improvement



Process Metrics



- Monthly attendance rate



- Cases discussed



- % with action items



- Completion rate

Outcome Metrics

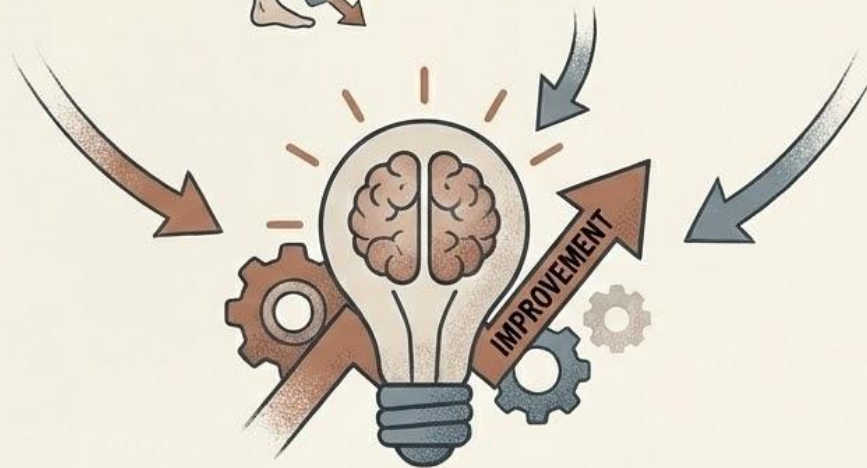


- Unplanned return to OR %
- SSI rates by service
- VTE incidence
- 30-day mortality

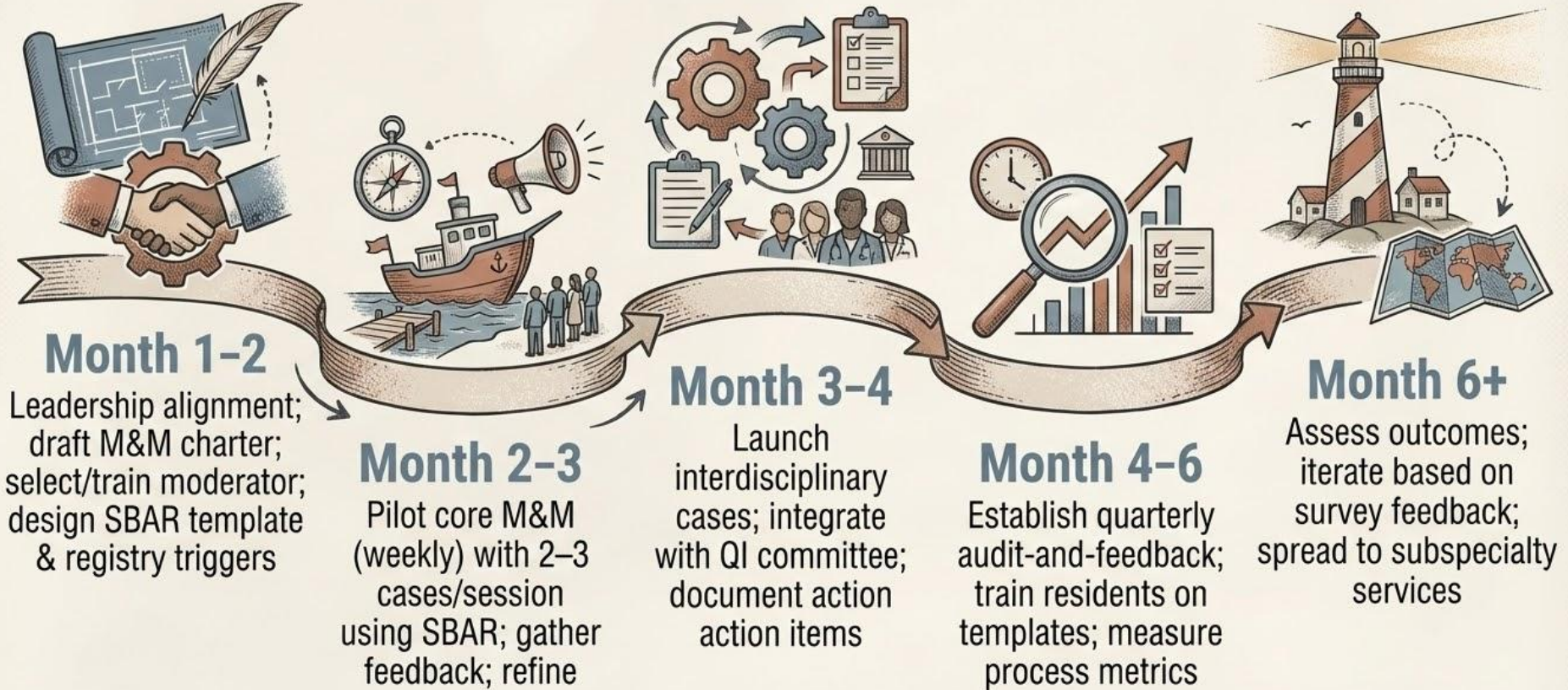
Survey



Annual brief feedback from residents & faculty on psychological safety, educational value, QI impact



Implementation Roadmap: 6-Month Phased Rollout



Early Success Indicators (Months 1–3)



Quick Wins



>90% faculty attendance



100% SBAR compliance



All cases linked to literature



Positive resident feedback

6-Month Targets



≥90% action items documented



>50% action items implemented to build the after tower



Perceived learning ↑ 30%



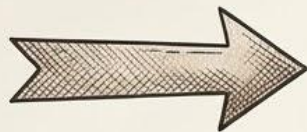
Perceived safety ↑ 25%

Anticipating Barriers & Solutions

Barriers



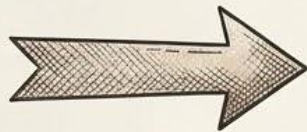
Faculty resistance to change / skepticism



Solutions

Share evidence; highlight quick wins
invite champions as co-leaders

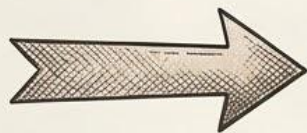
Time constraints / competing OR schedules



Protect M&M time;
consider 7 AM start;
offer hybrid/teleconference

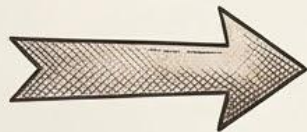


Difficulty accessing registry data



Work with IT/QI office;
automate monthly case lists

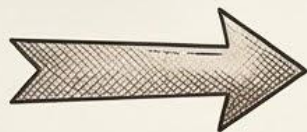
Residents unprepared for structured format



Provide template early; mock presentations in PGY-1 bootcamp



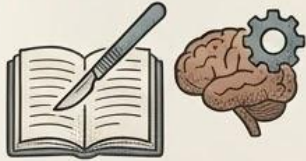
Action items not tracked



Assign owner; integrate into department dashboard;
quarterly audit

Transform M&M into a Patient Safety Engine

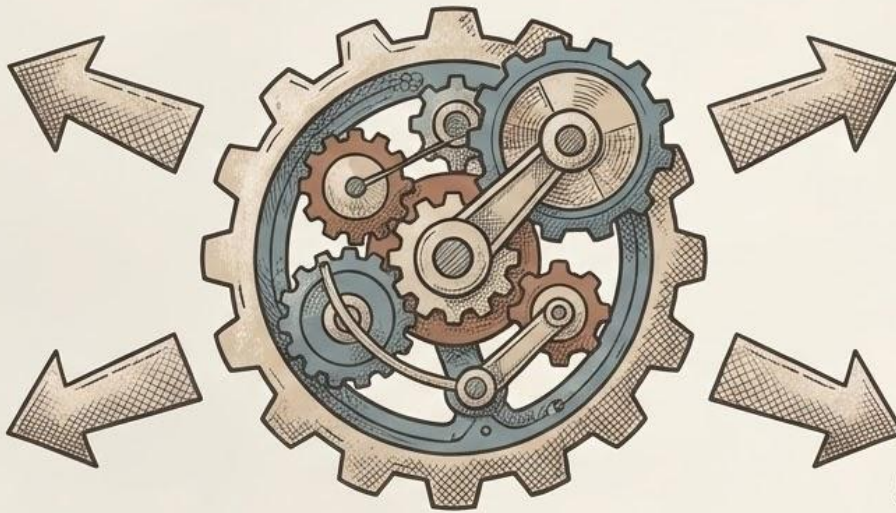
By implementing seven evidence-backed elements, orthopaedic M&M will:



Enhance resident education & surgical judgment



Identify preventable errors and system failures



Drive measurable improvements in patient outcomes



Strengthen safety culture across perioperative teams



Next Steps:

Schedule implementation kickoff meeting with key stakeholders

Practical Recommendations: QI Linkage & Team Models



Dissemination & QI Linkage



Integrate outputs into formal QI cycles (Plan-Do-Check-Act).



Generate written summaries and provide feedback on implementation.



Team-Based vs. Traditional Models



Traditional: Deep surgical dive, but limited insight and follow-through.



Team-Based: Improved system recognition, system recognition, broader education, more robust QI.

Practical Recommendations: Case Selection & Structure



Case Selection



Move beyond ad hoc selection; use registries to identify patterns.



Include near-misses and system failures for high educational value.



Attendance & Structure



Weekly or monthly conference with protected time and mandatory attendance.



Teleconferencing and hybrid options to increase participation.

Practical Recommendations: Education & Error Analysis



Educational Value



Limit case presentation time to allow for discussion.



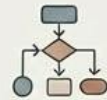
Require a brief literature review or guidelines summary.



Use structured formats (e.g., SBAR) and encourage interactive questioning.



Error Analysis



Apply a formal taxonomy (human factors, process, etc.).



Explicitly distinguish complications from preventable adverse events.



Shift focus from individual blame to system contributors.

Core Principles for Effective M&M

1. Defined Objectives & Format

Clear goals (Education & QI) and consistent structure.

3. Systems-Based Analysis & Taxonomy

Classify error types; move beyond ad hoc storytelling.



2. Structured Case Selection & Templates

Standardized tools for case presentation.

4. Explicit, Trackable Action Items

Assigned owners, deadlines, and follow-up.

Current M&M: Strengths & Limitations

What M&M Does Well

 Valued for education and perceived error reduction.

 Nearly universal practice in surgery.

 High attendance in many programs.

What M&M Does Poorly

 Often emphasizes individual blame.

 Lacks rigorous error analysis and system focus.

 Fails to close the loop with implemented QI projects.

M&M: A Tradition of Inquiry & Evidence



[Morbidity and mortality conferences in general surgery - PubMed \(2020\)](#)

[Morbidity and mortality conferences in general surgery: a narrative ... - PMC \(2020\)](#)

[Perioperative Team-Based Morbidity and Mortality Conferences - PMC \(2023\)](#)

[Perioperative Team-Based Morbidity and Mortality Conferences - PubMed \(2023\)](#)

[At the Crossroad with Morbidity and Mortality Conferences - PMC \(2016\)](#)

[A Survey of the Surgical Morbidity and Mortality Conference in the ... - PubMed \(2020\)](#)

[National survey of surgical morbidity and mortality conferences - PubMed \(2006\)](#)

[Perioperative team-based morbidity and mortality conferences - PSNet \(2023\)](#)

[Perspectives on Perioperative Team-Based Morbidity and Mortality ... - PubMed \(2023\)](#)

[A Survey of the Surgical Morbidity and Mortality Conference in the ... - Semantic Scholar \(2020\)](#)

[Morbidity and Mortality Conference: A Survey of Academic Internal ... - PMC \(2006\)](#)

[National survey of surgical morbidity and mortality conferences. - Semantic Scholar \(2006\)](#)

[Jamie Anderson - UC Davis Profiles](#)

[Cited In for PMID: 33139215 - Search Results - PubMed](#)

[Alex Hannenberg | Harvard T.H. Chan School of Public Health](#)

[Morbidity and mortality conferences in general surgery - Semantic Scholar \(PDF\)](#)

[Perspectives on perioperative team-based morbidity and mortality ... - PSNet \(PDF\)](#)

[Morbidity and mortality conferences in general surgery: a narrative ... - CanJSurg \(2020\)](#)

[2023 Surgical Morbidity & Mortality - Baystate Health](#)

[The morbidity and mortality conference: a century-old practice with ... - Leiden University \(PDF\)](#)

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1. Cullen SW, et al. A survey of the surgical morbidity and mortality conference in the United States and Canada. J Surg Educ. 2021;78:927-933. doi:10.1016/j.jsurg.2020.10.008.
2. Lecoanet A, et al. Characteristics of morbidity and mortality conferences associated with implementation of patient-safety initiatives. BMC Health Serv Res. 2016;16:35. doi:10.1186/s12913-016-1279-8.
3. Antonacci AC, et al. A report card system using error profile analysis and concurrent morbidity and mortality review. J Am Coll Surg. 2009;209:567-575. (M&M versus ACS NSQIP comparison summarized in Zygorakis et al., Can J Surg. 2021.)
4. Zygorakis CC, et al. Morbidity and mortality conferences in general surgery: a narrative systematic review. Can J Surg. 2021;64:E211-E226. doi:10.1503/cjs.009719.

Notes

The conference-prevalence, reporting-guideline, cause-analysis, and case-capture figures are descriptive findings from surveys and observational studies. They do not establish that any specific M&M format causes better clinical outcomes. Drawn from the OrthoScienius evidence library.

References (continued)

1. Wahl TS, et al. Perioperative team-based morbidity and mortality conferences: a systematic review. *Ann Surg Open*. 2023;4:e312. doi:10.1097/AS9.0000000000000312.
2. Morris RS, et al. A novel system to improve case capture for surgery morbidity and mortality conference. *J Surg Res*. 2022;279:251-258. doi:10.1016/j.jss.2022.05.016.
3. Cifra CL, et al. House staff-led interdisciplinary morbidity and mortality conference promotes systematic improvement. *J Surg Res*. 2017;214:124-130. doi:10.1016/j.jss.2017.02.065.
4. Aboumatar HJ, et al. A descriptive study of morbidity and mortality conferences and their conformity to medical incident-analysis models. *BMC Health Serv Res*. 2007;7:100. doi:10.1186/1472-6963-7-100.