



Introducing an M&M Rounds framework to Island Health<sup>1,2</sup>

# the Ottawa M&M Model: A Guide to Enhancing Morbidity & Mortality Rounds

## *Toolkit*

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## AIM

The Health Authority Medical Advisory Committee (HAMAC) has a responsibility to ensure high quality medical care. An opportunity to enhance the ability of medical staff to fulfill the obligations of the medical staff rules to participate in clinical care quality improvement and enhancing patient safety has been recognized. The OM3 rounds focus on reviews for learning and serve a different purpose than critical incident reviews, case rounds, and medical grand rounds. This model will provide a common template to identify issues of concern for clinical staff that are distinct from patient safety events and provide a unified mechanism to elevate those concerns to the Health Authority Medical Quality Committee, HAMAC and the Board.

## OVERVIEW



### KEY COMPONENTS

Appropriate Case Selection

Structured Cases Analysis  
(Cognitive/System Errors)

Creation & Dissemination of  
Bottom Lines/Summaries

Development of Effector/  
Administrative Pathway for  
Action Items

Encourage Inter-professional &  
Multidisciplinary Involvement

## CHOOSING AN APPROPRIATE CASE

Cases presented at M&M rounds should have **all** of the following 3 criteria:

- 1. Adverse outcome such as death, disability, harm, injury, or a near miss** (potential harm avoided - for example, a patient given incorrect medication due to mislabeling of syringe - potential for harm but the patient ultimately wasn't affected).
- 2. Lessons to be learned about cognitive biases and/or system issues**
- 3. Opportunities for improvement can be acted upon**

It is also important that you present a case *in which you were involved*.

Potential ways for you to identify a case include but are not limited to:

- Cases identified in your group/hospital's patient safety and learning system (PSLS)
- Cases with an unexpected bounce-back or readmission
- Cases highlighted to you by Department Head, Medical Health Officer or the coroner
- Cases where you were provided follow-up by a colleague or consultant
- Cases related to a patient complaint
- Cases which causes you to think about them long after they occurred
- Cases which highlight a recurring system issue/frustration

It is easy to track potential cases in powerchart by creating a custom "patient list" (**Appendix A**). If you are involved in a case that you may wish to review, simply add to your custom list. Remember to select "QA/QI Reviewer" when you come back to look at the case later.

## PERFORMING A CASE ANALYSIS

We recommend that you review your case from 2 perspectives:

1. Were there any *cognitive biases* that contributed to the outcome?
2. Were there any *system issues* which contributed to the outcome?

Potential issues in a surgical M&M case may be identified using the Surgical Specialty Case ANALYSIS Tool (**Appendix B**)

Cognitive Biases: Classification Scheme for Cognitive Dispositions to Respond (CDRs)<sup>3</sup>

### Errors of over-attachment to a particular diagnosis

- **Anchoring:** the tendency to perceptually lock on to salient features in the patient's initial presentation too early in the diagnostic process and failing to adjust this initial impression in the light of later information. This CDR might be severely compounded by the Confirmation Bias.
- **Confirmation bias:** the tendency to look for confirming evidence to support a diagnosis rather than look for disconfirming evidence to refute it, despite the latter being more persuasive and definitive.
- **Premature closure:** a powerful CDR accounting for a high proportion of missed diagnoses. It is the tendency to apply premature closure to the decision making process, accepting a diagnosis before it has been fully verified. The consequences of the bias are reflected in the maxim: "when a diagnosis is made, the thinking stops."

### Errors due to failure to consider alternative diagnoses

- **Multiple alternative bias:** a multiplicity of options on a differential diagnosis might lead to significant conflict and uncertainty. The process might be simplified by reverting to a smaller subset with which the physician is familiar, but might result in inadequate consideration of other possibilities. One such strategy is the 3 diagnosis differential: "it is probably A, but it might be B, or I don't know (C)". Although this

approach has some heuristic value, if the disease calls in the C category and is not pursued adequately, it minimized the change that serious diagnoses are made.

- **Representativeness bias:** drive the diagnostician toward looking for prototypical manifestations of disease: “if it looks like a duck, walks like a duck, quacks like a duck, then it is a duck.” Yet, restraining decision making along these pattern recognition lines leads to atypical variants being missed.
- **Search satisficing:** reflects the universal tendency to call off a search once something is found. Co-morbidities, second foreign bodies, other fractures, and co-inhestants in poisoning may all be missed.

### **Errors due to inheriting someone else’s thinking**

- **Diagnostic momentum:** once diagnostic labels are attached to patients they tend to become stickier and stickier. Through intermediaries (patients, paramedics, nurses, physicians) what might have started as a possibility gathers increasing momentum until it becomes definite, and other possibilities are excluded.
- **Framing effect:** how diagnosticians see things might be strongly influenced by the way in which the problem is framed, e.g. physicians’ perceptions of risk to the patient may be strongly influenced by whether the outcome is expressed in terms of the possibility that the patient might die or might live. In terms of diagnosis, physicians should be aware of how patients, nurses, and other physicians frame potential outcomes and contingencies to the clinical problem to them.
- **Bandwagon effect:** the tendency for people to believe and do certain things because many others are doing so. Group-think is an example, and it can have a disastrous impact on team decision making and patient care.

### **Errors in prevalence perception or estimation**

- **Availability bias:** the disposition to judge things as being more likely, or frequently occurring, if they readily come to mind. Thus, recent experience with a disease might inflate the likelihood of its being diagnosed. Conversely, if a disease has not been seen for a long time (is less available), it might be underdiagnosed.
- **Base-Rate neglect:** the tendency to ignore the true prevalence of a disease, either inflating or reducing its base-rate, and distorting Bayesian reasoning. However, in some cases clinicians might (consciously or otherwise) deliberately inflate the likelihood of disease, such as in the strategy of “rule out worst-case scenario” to avoid missing a rare but significant diagnosis.
- **Hindsight bias:** knowing the outcome might profoundly influence perception of past events and prevent a realistic appraisal of what actually occurred. In the context of diagnostic error, it may comportise learning through either an underestimation (illusion of failure) or overestimation (illusion of control) of the decision maker’s abilities.

### **Errors involving patient characteristics or presentation context**

- **Fundamental attribution error:** the tendency to be judgemental and blame patients for their illness (dispositional causes) rather than examine the circumstances (situational factors) that might have been responsible. In particular, psychiatric patients, minorities, and other marginalized groups tend to suffer

from this CDR. Cultural differences exist in terms of the respective weights attributed to dispositional and situational causes.

- **Triage cueing:** the triage process occurs throughout the healthcare system, from the self-triage of patients to the selection of a specialist by the referring physician. Many CDRs are initiated at triage, leading to the maxim: “geography is destiny.” Once a patient is referred to a specific discipline, the bias within that discipline to look at the patient only from their own perspective is referred to as “deformation professionnelle”.

- **Ying-yang out:** when patients have been subjected to exhaustive and unavailing diagnostic investigations, they are said to have been worked up the yin-yang. The yinyang out is the tendency to believe that nothing further can be done to throw light on the dark place where, and if, any definitive diagnosis resides for the patient, i.e. the physician is let out of further diagnostic effort. This might prove ultimately to be true, but to adopt the strategy at the outset is fraught with the change of a variety of errors.

### **Errors associated with physician affect, personality, or decision style**

- **Commission bias:** results from the obligation toward beneficence, in that harm to the patient can only be prevented by active intervention. It is the tendency toward action rather than inaction. It is more likely in over-confident physicians. Commission bias is less common than omission bias.

- **Omission bias:** the tendency toward inaction and rooted in the principle of nonmaleficence. In hindsight, events that have occurred through the natural progression of a disease are more acceptable than those that may be attributed directly to the action of the physician. The bias might be sustained by the reinforcement often associated with not doing anything, but it may prove disastrous. Omission biases typically outnumber commission biases.

- **Outcome bias:** the tendency to opt for diagnostic decisions that will lead to good outcomes, rather than those associated with bad outcomes, thereby avoiding chagrin associated with the latter. It is a form of value bias in that physicians might express a stronger likelihood in their decision-making for what they hope will happen rather than for what they really believe might happen. This may result in serious diagnoses being minimized.

- **Overconfidence/underconfidence:** a universal tendency to believe we know more than we do. Overconfidence reflects a tendency to act on incomplete information, intuitions, or hunches. Too much faith is placed in opinion instead of carefully gathered evidence.

- **Zebra retreat:** occurs when a rare diagnosis (zebra) figures prominently on the differential diagnosis but the physician retreats from it for various reasons: perceived inertia in the system and barriers to obtaining special or costly tests; self-consciousness and underconfidence about entertaining a remote and unusual diagnosis and gaining a reputation for being esoteric; the fear of being seen as unrealistic and wasteful of resources; under- or overestimating the base-rate for the diagnosis; team members may exert coercive pressure to avoid wasting the team’s time; inconvenience of the time of day or weekend and difficulty getting access to specialists; unfamiliarity with the diagnosis might make the physician less likely to go down an unfamiliar road; fatigue or other distractions may tip the physician toward retreat.

## System Issues

System-level issues often relate to problem(s) beyond just the individual clinical or team, and pertains to how your clinical setting operates, this may include<sup>4</sup>:

*Patient factors:* e.g. any communication barrier (due to language, intoxication, obtunded, critically ill, etc), behaviour eliciting affective bias

*Skill-set errors:* e.g. procedural complications or errors in interpretation of ECGs, laboratory/diagnostic imaging tests

*Task-based errors:* e.g. failure of routine behaviours such as regular bedside care, attention to vital signs and appropriate monitoring – often reflects work overload

*Personal impairment:* e.g. personal factors that impact job performance such as fatigue, illness, emotional distress

*Teamwork failure:* e.g. breakdown in communication between team members, across shifts, between teams, and across specialty boundaries or due to inappropriate assignment of unqualified personnel to a given task - this includes resident and student supervision

*Local environmental contributors:* e.g. appropriate staffing, stocking, functional equipment, sufficient policies & guidelines

*Hospital-wide contributors:* e.g. access to patient services, consultants, inpatient beds, specialty treatments

*Hospital administration contributors:* e.g. budgetary constraints, hospital policies & guidelines

*External contributors:* e.g. paramedic services, provincial regulations and priorities, public health campaigns

## M&M Bottom Lines

When drawing lessons from your M&M rounds case, consider *action items* that could be made:

1. Any cognitive de-biasing strategies
2. Education regarding evidence, practice guidelines, policies, procedures, use of simulation
3. Changes to the system and how the department/division works
4. Ways that the adverse outcome in a similar patient could be mitigated

When contemplating your proposed actions and recommendations, be cognizant that certain types of interventions are much more effective and consistent than others in reducing errors and improving patient safety. The following diagram depicts the hierarchy of effectiveness, based on human factors theory, which ranks various categories of intervention based on their overall effectiveness:

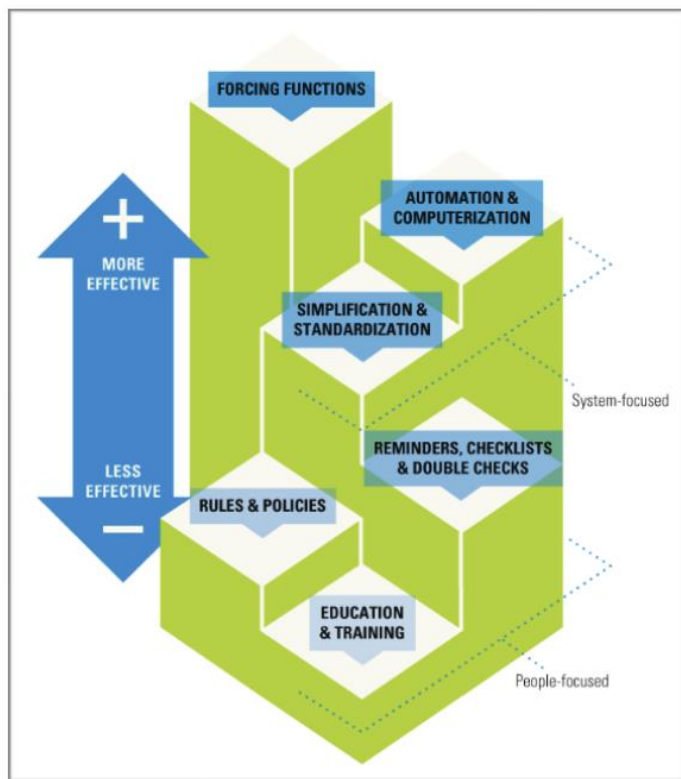


Figure 3: the Hierarchy of Effectiveness<sup>5</sup>

## PREPARING FOR PRESENTATION

### Time Structure

For a 30-min M&M presentation:

- 10 minutes for review of the case and state of evidence on current management
- 10 minutes for case analysis in terms of cognitive and system issues
- 10 minutes for discussion, review of bottom lines and consensus on potential action items

### Slides

Every M&M case presentation should have a few mandatory slides (**Appendix C**):

- Title slide
- Goal of M&M rounds - opening with a reminder statement about the purpose of M&M rounds will help frame your audience's mindset, and focus blame-free discussions around improving quality of care and patient safety
- Confidentiality - there will often be rotating learners or new staff members at your rounds; it is good practice to always remind the audience about patient confidentiality Section 51
- Hierarchy of effectiveness
- Case Presentation - remember not to spend too much time on this section, just enough information to set the stage for open discussion. Recall that there should not be any patient identifiers.
- Case Analysis - walk through the cognitive/system issues you found during your review
- Discussion - open this part of the presentation to the group. They may have further insights into other cognitive/system issues you didn't think of.
- Bottom Lines

## REFERENCES

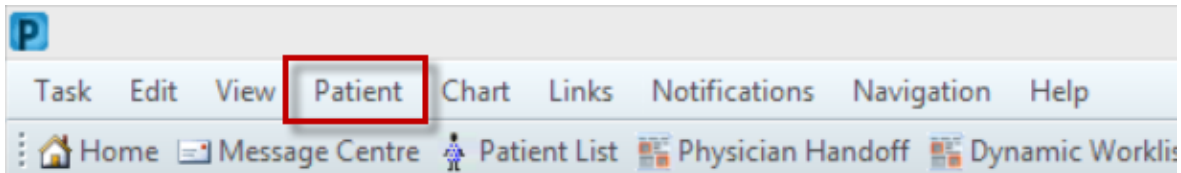
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3. Campbell SG, Croskerry P, Bond WF. Profiles in patient safety: a "perfect storm" in the emergency department. *Acad Emerg Med*. 2007;14:743-749
4. Cosby KS, Roberts R, Palivos L, et al. Characteristics of patient care management problems identified in emergency department morbidity and mortality investigations during 15 years. *Ann Emerg Med*. 2008;51(3):251-261
5. <http://www.cassiemcdaniel.com/blog/hierarchy-of-effectiveness-process/>





## APPENDIX

### Appendix A: Creating a custom patient list in powerchart

These lists are self-managed. You can add and remove patients as needed. Right-clicking on a patient on a list allows you to select **Add to a Patient List**. This is also available within the patient's chart on the tool bar.



1. Click the **List Maintenance icon** 
2. In the **Modify Patient Lists** window, click **New**.
3. From the **Patient List Types** list, select **Custom** and then click **Next**.
4. From the **Custom Patient List** window, type a name for your list and then click **Finish**.
5. Select your list from the **Available Lists** column and click 
6. When your custom list moves to the **Active List** column, click **OK**.

## Appendix B: Surgical Specialty Case Analysis Tool

### WERE THERE ISSUES RELATED TO:

- | <b>Pre-OP</b>                                   | <b>Intra-OP</b>                         | <b>Post-OP</b>   |
|---|---|--|
| 1. Communication/care prior to surgical consult | 1. Protocols/Checklists                 | 1. Post-op orders/pathways   |
| 2. Diagnosis                                    | 2. Choice of surgical approach          | 2. Communication with ICU/PACU   |
| 3. Staging investigations                       | 3. OR leadership                        | 1. Communication within surgical team  |
| 4. Evaluation of fitness for surgery            | 4. Teamwork                             | 2. Communication with consultants  |
| 5. Consultation                                 | 5. Work environment (assistants/timing) | 3. Identification/diagnosis:<br>a. Recognition of adverse event<br>b. Treatment of adverse event |
| 6. Other patient factors                        | 6. Equipment                            | 4. Discharge instructions  |
| 7. Timing/prioritizing surgery                  | 7. Other                                | 5. Appropriateness of follow-up care   |
| 8. Other  |   | 8. Other   |

For each area selected above, were there COGNITIVE and/or SYSTEM issues?

Pre-op	Definitions
1. Communication/care prior to surgical consult	<ul style="list-style-type: none"> <li>- Includes referral from primary care physician and any specialist care prior to receiving consult</li> </ul>
2. Diagnosis	<ul style="list-style-type: none"> <li>- Includes cognitive issues such as anchoring on a simpler rather than a complex diagnosis (<b>Anchoring</b>: the tendency to perceptually lock on to salient features in the patient's initial presentation too early in the diagnostic process and failing to adjust this initial impression in the light of later information)</li> <li>- Includes a system issue such as delay in diagnostic imaging</li> </ul>
3. Staging investigations	<ul style="list-style-type: none"> <li>- Includes both cognitive and system issues where appropriate investigations may have been omitted</li> </ul>
4. Evaluation of fitness for surgery	<ul style="list-style-type: none"> <li>- Includes omission bias which may have led to incomplete information</li> <li>- Includes clarity of written communication</li> </ul>
5. Consultation	<ul style="list-style-type: none"> <li>- e.g. anesthesiology, cardiology etc.</li> <li>- Includes lack of appropriate consultation (system or cognitive issues)</li> <li>- Includes conflicting opinions potentially due to system related communication issues or teamwork failure</li> <li>- e.g of a cognitive issue: <b>Bandwagon</b> effect: the tendency for people to believe and do certain things because many others are doing so.</li> </ul>
6. Other patient factors	<ul style="list-style-type: none"> <li>- Includes patient's personality or potentially psychiatric diagnoses which may lead to affective bias (counter-transference) among health care provider/team.</li> </ul>
7. Timing/prioritizing surgery	<ul style="list-style-type: none"> <li>- Includes system issues which may have led to delays</li> </ul>
8. Other	

Intra-Op	Definitions
1. Protocols/Checklists	<ul style="list-style-type: none"> <li>- E.g. surgical checklists, sponge counts, antibiotic administration, etc.</li> <li>- Includes failure of an existing protocol to achieve objectives in a given case</li> <li>- Includes the identification of an opportunity to standardize care</li> </ul>
2. Choice of surgical approach	<ul style="list-style-type: none"> <li>- Includes cognitive biases which may have led to a given decision as well as other factors such as fatigue, personal impairment</li> <li>- Includes system issues if there was a lack of availability of equipment to perform a given preferred approach</li> </ul>
3. OR leadership	<ul style="list-style-type: none"> <li>- Was situational awareness maintained (did the leader know what was going on around them at all critical points or were they fixated on a task)?</li> <li>- Was decision making clear to all team members?</li> <li>- Was communication effective with team members?</li> </ul>
4. Teamwork	<ul style="list-style-type: none"> <li>- Consider all members of the team – was situational awareness maintained? (i.e. did all team members know what was going on around them at various critical points)</li> <li>- Were there any communication barriers within the team – could be related to personality conflicts or fatigue or team dynamics or response to stress</li> </ul>
5. Work environment (assistants/timing)	<ul style="list-style-type: none"> <li>- e.g. late night, post-call residents etc.</li> <li>- Includes fatigue of providers</li> <li>- Includes availability of personnel</li> <li>- Includes heating/cooling issues of room</li> </ul>
6. Equipment	<ul style="list-style-type: none"> <li>- Includes access/functioning/trouble-shooting of equipment</li> </ul>
7. Other	


Post-Op	Definitions
1. Post-op orders/pathways	<ul style="list-style-type: none"> <li>- Includes clarity of orders, errors of omission</li> <li>- Includes opportunities identified for standardization of care</li> <li>- Includes failure of existing protocols/pathways to achieve objectives</li> </ul>
2. Communication with ICU/PACU	<ul style="list-style-type: none"> <li>- Includes cognitive issues related to teamwork communication</li> <li>- Includes oral and written communication</li> </ul>
3. Communication within surgical team	<ul style="list-style-type: none"> <li>- Includes availability and responsiveness of team</li> <li>- Includes oral and written communication</li> <li>- Includes teamwork failure in communication</li> </ul>
4. Communication with consultants	<ul style="list-style-type: none"> <li>- Includes oral and written communication</li> <li>- Includes conflict management</li> <li>- Includes teamwork failure in communication</li> </ul>
6. Identification/diagnosis: a. Recognition of adverse event 5. Treatment of adverse event	<ul style="list-style-type: none"> <li>- a. Recognition of Adverse Events:             <ul style="list-style-type: none"> <li>o Includes appropriate identification of adverse outcome related to healthcare provided rather than progression of disease</li> <li>o Includes disclosure of adverse event to patient and/or family</li> </ul> </li> <li>- b. Treatment of Adverse Events             <ul style="list-style-type: none"> <li>o Includes appropriate mitigation of harm once adverse event identified</li> <li>o Includes appropriate communication with team members involved and discussion of methods to prevent recurrence</li> </ul> </li> </ul>
6. Discharge instructions	<ul style="list-style-type: none"> <li>- Includes errors of omission</li> <li>- Includes affective bias if patient factors influence communication</li> <li>- Includes written and oral communication</li> </ul>
7. Appropriateness of follow-up care	<ul style="list-style-type: none"> <li>- e.g. physio, social work etc.</li> <li>- Includes system issues such as access to primary care and specialist care</li> <li>- Includes system issues such as efficiency of booking</li> <li>- Includes communication issues with patients and/or family</li> </ul>
8. Other	

# Appendix C: PowerPoint Slides

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## M&M Rounds


Department:  
Date:  
Presenter:

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## Confidentiality Statement


- We need to protect the privacy of patients
- These rounds are strictly confidential
- No patient initials, dates, times or names of staff involved will appear in this presentation.

**Goal of M&M Rounds**  
To improve the quality of care and patient safety outcomes

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## Section 51 Protection

- Purpose is for learning and improvement
  - within hospital, mental health facility or ambulance during transfer
- Conducted under approved council/committee
- Opinion is protected
- Fact *is not* protected


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## Hierarchy of Effectiveness

1. Forcing Functions and Constraints 2. Automation/Computerization	} <b>HIGH LEVERAGE - MOST EFFECTIVE</b> (e.g. installing grab bars; ensuring that devices intended for use by different routes of administration lack connectives)
3. Simplification/Standardization 4. Reminders, Checklists, Double Checks	
5. Rules and Policies 6. Education and Information	} <b>MEDIUM LEVERAGE</b> (e.g. restricting the number of types of a device; reducing reliance on memory and vigilance; build-in redundant cues)
	} <b>LOW LEVERAGE - LEAST EFFECTIVE</b> (e.g. education sessions, memos, etc.) (while these are important, when used alone they will not result in sustained practice change)

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## Case Presentation


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## Case Analysis

Cognitive Issues                      System Issues

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## Discussion

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## Bottom Line/Action Items