

TABLE

Process Improvements Resulting From M&M Discussions

M&M Issues Identified	Interventions
MRI near miss (MRI imaging orders on patients with metals [pacemakers])	MRI safety screening form and hard stop in the EHR
Medication error (Dextroamphetamine ordered instead of Dextromethophan)	Name alert with tall man lettering and generic names added to the EHR
Failure to enter error report	Educational intervention (workshop focused on simulation and hands-on skills) in error report entry
Lack of discharge summary from transferring facility	Transfer algorithm to include request for discharge summary prior to patient acceptance to facility
Delay in lab orders and vitals for direct admissions (direct transfer from outside hospital)	Triage power plan created to obtain triage labs and vitals upon patient arrival
Failure to escalate care	Rapid response team creation of escalation protocol for medical ICU
Communication delays between nursing and provider staff (led to unsafe discharge of a patient)	Multidisciplinary daily discharge huddle to identify next day early discharges

Abbreviations: MRI, medical resonance imaging; EHR, electronic health record; ICU, intensive care unit.

improvement initiatives centered on the clinical environment. Fifteen residents from all PGYs were peer-nominated and recruited to join the council. Council members also included a patient safety officer from the institution, a nurse, a pharmacist, informatics personnel, and various volunteer faculty members. These members are invited to the monthly M&M, and they serve as stakeholders for the generated action plans developed in the M&M conferences. PSQC members discuss the action plans generated from the M&M, and conduct PDSA (plan, do, study, act) cycles at monthly meetings; they also continue to work on pertinent issues after the meetings. At subsequent M&M conferences, the chief resident begins with a follow-up of the projects from the PSQC members.

Outcomes to Date

Our M&M conference is modeled after a system that integrates a resident-driven PSQC forum with M&M conferences. This allows for M&M discussions to develop into process improvements and effective action plans. A resident-driven multidisciplinary committee can be a valuable forum where feedback from M&M could be operationalized into action. Moving from M&M discussions to implementing action plans requires involvement of designated champions and administrative staff to help champion these efforts. The M&M and PSQC model have led to several process improvements (TABLE). Our approach shows that the M&M conference can serve as more than a forum for education. Revamping it to focus on action plans may not be sufficient to create high-value process improvements that impact delivery of patient care. We feel that a structured forum with identified stakeholders, such as a patient safety council, has great potential to turn mortality discussions into robust, actionable improvement plans.

Nirvani Goolsarran, MD

Associate Professor of Clinical Medicine, Associate Program Director, Internal Medicine Residency Director of Patient Safety and Quality Improvement, Department of Medicine, Stony Brook University Hospital

Lorenzo Ottaviano, MD

Clinical Lecturer of Medicine, Stony Brook University Hospital

Corresponding author: Nirvani Goolsarran, MD, Stony Brook University Hospital, 101 Nicolls Road, Stony Brook, NY 11794, 631.358.6514, nirvani.goolsarran@stonybrookmedicine.edu

NEW IDEAS

Cognitive Autopsy: A Transformative Group Approach to Mitigate Cognitive Bias

Setting and Problem

Diagnostic errors are estimated to occur in 10% to 15% of patient encounters. Cognitive errors contribute to over half of diagnostic errors and are associated

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TABLE

Select Items From the Intervention Evaluation Questionnaire (N = 102)

Question	% Agree or Strongly Agree
I enjoy the clinical reasoning conference	92
I learn valuable information at the conference	95
I feel the sessions help with team building among residents	83
I gained new perspectives after attending these sessions	90
I am more aware of my cognitive biases	90
After the sessions I find myself reflecting how my cognitive biases influence my clinical care	78
These sessions improve my clinical approach and decision-making	95
These sessions help me become a better clinician	96
Some of my clinical decisions have changed after attending these sessions	70

with significant morbidity. Despite this, given the sharp-ended nature of discussing cognitive errors, educational initiatives tend to focus on system issues and fail to address the equally important cognitive component. However, addressing all contributing factors to diagnostic errors is crucial to optimizing patient safety, especially in cognitive fields such as internal medicine. Developing curricula to address cognitive errors through highlighting cognitive biases and teaching clinical reasoning and metacognitive strategies is crucial to a robust graduate medical education system.

Intervention

Our educational innovation utilizes a variation of the “cognitive autopsy” in an interactive case-based conference. A cognitive autopsy, typically performed individually, is a cognitive root-cause analysis where the analysis of medical outcomes occurs from a cognitive viewpoint (eg, thinking errors and biases: anchoring, premature closure, commission) as opposed to a system viewpoint (eg, staffing, policy, protocol). Residents use this reflective strategy in group settings to shed light on the myriad unconscious cognitive biases that affect their diagnostic reasoning.

- Our biweekly clinical reasoning conference was implemented in January 2016 at a large internal medicine residency program.
- The clinical reasoning conference team consists of a faculty director, a chief resident, and 15 senior residents.
- The clinical reasoning conference starts with a brief clinical vignette presented by a resident. Cases are carefully chosen to illustrate a diagnostic error that highlights several cognitive biases.
- Residents work in small groups (6 to 8) to evaluate and manage the patient in a real-time fashion. A

clinical reasoning conference team member facilitates each small group by responding to the group’s interventions in a simulated format.

- The actual patient course with the diagnostic error is revealed. Thinking aloud, residents reflect on the case by performing a cognitive autopsy and generating a list of potential cognitive biases that might have led to the error in the actual patient course and in their own small group discussions (Did the physician(s) allow framing effect to influence the ordering of diagnostic tests? Did the physician(s) anchor to a specific element in the patient’s presentation?).

We hypothesize that by demonstrating where and how cognitive biases can hide and lead to cognitive errors, residents can become equipped with metacognitive strategies that will help them mitigate bias, improve clinical reasoning, and ultimately decrease diagnostic errors.

Outcomes to Date

Our educational innovation has been very well received by the residents and is the most popular conference of the program. Formal evaluation is currently underway employing a mixed methods design (survey, reflections, and focus groups). The survey component with 102 responses reveals promising results (TABLE), with 90% of respondents indicated gaining new perspectives and reporting they are more aware of their cognitive biases. Ninety-five percent believed their clinical reasoning has improved, with 70% noticing their clinical decisions changing as a result of this intervention. Over 96% reported that the conference helps make them better clinicians. In addition, preliminary sampling of resident reflections points toward shifting perspectives indicative of transformational learning. Focus group data are still being collected.

We believe this conference has changed the culture of our program by normalizing attention to cognitive errors, integrating bias discussions into clinical rounds, and emphasizing metacognitive strategies in the face of uncertainty. We have observed that trainees embrace curricula that prepare them to tackle cognitive errors. Utilizing the cognitive autopsy in a safe, collaborative conference setting has proved to be an effective approach to deliver this curriculum. By providing a safe space to discuss cognitive errors, we are creating clinicians who are better equipped to tackle diagnostic uncertainty and ultimately provide safer care to patients.

Ali Mehdi, MD, MEd

Assistant Professor of Medicine, Cleveland Clinic

Cecile Foshee, PhD

Assistant Professor of Medicine, Cleveland Clinic

Wendy Green, PhD

Assistant Professor, Cleveland State University

Abby Spencer, MD, MS

Associate Professor of Medicine, Cleveland Clinic

Corresponding author: Ali Mehdi, MD, MEd,
Cleveland Clinic, Internal Medicine, 9500 Euclid
Avenue, Cleveland, OH 44195, 216.543.4424,
a.a.mehdy@gmail.com



A Culture of Safety From Day 1: An Institutional Patient Safety Initiative to Support Incoming Interns

Setting and Problem

To maximize the quality of care and protect patients, on the first day of residency incoming interns must understand the specific ways their new institution creates a culture of safety. To support transitioning trainees and cultivate our medical center's culture of

safety, we developed an authentic, large-scale immersive patient safety simulation called First Night-onCall (FNOC).

Intervention

Before participating in FNOC, incoming interns completed 5 WISE-onCall online educational modules geared toward providing incoming interns with a just-in-time framework to approach acute inpatient complaints such as chest pain or hypotension. The FNOC orientation event is a 4-hour immersive simulation (FIGURE) during which new interns, in groups, were challenged to conduct an ethical informed consent, evaluate a decompensating hypotensive patient and activate a rapid response team (escalation), document a clinical encounter, recognize a mislabeled blood culture bottle, conduct an effective patient handoff, recognize common patient safety hazards in a simulated patient room, and participate in patient safety rounds. During the simulation, learners interacted with standardized patients and nurses who assessed the learners using behaviorally anchored checklists. Faculty interacted with the learners and debriefed all activities. All learners completed a preprogram assessment, a retrospective pre-post assessment of their own perspectives, attitudes, and skills, and a program evaluation.

Outcomes to Date

A total of 145 incoming interns from 56 medical schools, entering training in 7 departments (internal medicine, surgery, neurological surgery, neurology, emergency medicine, obstetrics and gynecology, and orthopedic surgery) completed FNOC. Despite 61% ($n = 133$) reporting to have witnessed a medical error during medical school, only 35% of interns reported any formal training in patient safety. Prior to FNOC, relatively few interns reported being comfortable speaking to a supervisor (56%), escalating a situation (38%), or reporting a medical error (27%).

Outcomes from the simulation demonstrated that entering interns were not yet consistently able to recognize and demonstrate common safety practices. Learners were only able to, on average, recognize 35% of the common environmental patient safety hazards. In the group assessments, 63% of the groups ($n = 46$) called a rapid response team for the decompensating patient, while only 22% contacted the senior resident; 70% of groups ($n = 44$) recognized a blood culture bottle that was mislabeled, while only 33% alerted the nurse assisting in the blood draw; and 67% of the groups ($n = 46$) inquired

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