Plan, do, study, act: For these M3s, it means helping patients

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Timothy M. Smith
Senior News Writer

The third year of medical school might seem like a tough time for medical students to make value-added contributions to quality improvement, but at least one med school is proving it’s doable. The secret? Start small.

Following are highlights from “Plan-Do-Study-Act: Vanderbilt University School of Medicine,” Chapter 9 of Value-Added Roles for Medical Students, which summarizes an approach to teaching and implementing quality improvement (QI) projects for all third-year medical students.

Value-Added Roles for Medical Students is part of the AMA MedEd Innovation Series, which provides practical guidance for local implementation of the education innovations tested and refined by the AMA Accelerating Change in Medical Education Consortium. In addition to presenting case studies, the textbook lays out the historical background and conceptual foundations that underpin value-added roles.

Four key areas

Vanderbilt’s QI projects for third-year medical students (M3s) are part of a larger, longitudinal course through all four years that focuses on the “foundations of health care delivery.” The course teaches the core content of health systems science—an understanding of how care is delivered, how health professionals work together to deliver that care, and how the health system can improve patient care and health care delivery.

Vanderbilt launched its QI curriculum in the 2014–2015 academic year. In the last two academic years alone, students have undertaken nearly 100 projects in these following areas.

Patient education. One project aimed to cut the average endoscopic sinus surgery two-week postoperative call rate in the otolaryngology clinic. In the first plan-do-study-act (PDSA) cycle, the M3s

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contacted patients prior to their operations using a script focused on questions frequently asked in the post-operative period. They then documented how many post-operative calls patients made in a two-week period.

In the second PDSA cycle, the students reviewed the topics of those calls and revised the scripts to better address patient concerns. They reached their goal of a 20% reduction in the median post-operative callback rate.

**Clinic education.** Another project sought to reduce the rate of incorrectly placed radiology orders. Using a document posted throughout the clinic that reminded nurses to check laterality when placing radiology orders, M3s helped slash the rate of wrongly placed orders from 11.2 per month to 6.3 following the first PDSA cycle.

**Systems redesign.** Medical centers often struggle with operating room inefficiency. One QI project aimed to improve efficiency in the children’s catheterization lab by lengthening nurse shifts, adding a nurse practitioner to help with discharge from the post-anesthesia care unit, deploying research staff to enter data, and improving scheduling of procedures. Both turnaround time and first-case start improved by at least 10%.

**Patient care.** Physicians use the empiric antibiotics vancomycin and Zosyn (piperacillin and tazobactam combined injection) when an infection is suspected. But higher doses of vancomycin and longer duration of its use often increase the risk of nephrotoxicity. In addition, taking vancomycin and Zosyn together boosts the risk of acute kidney injury.

A medical student-run QI project looked at developing a vancomycin de-implementation protocol, presenting an evidence-based protocol at grand rounds and displaying that protocol in work areas. Students met their aim, reducing the average days on treatment by 85%, from 191 to 29.

**Let students lead**

The chapter also covers evaluation procedures and required resources, as well as tips for feasibility and sustainability.

The medical students’ outcome scores were not as high for QI projects involving systems redesign as for those relating to patient-care improvements, but they “had a greater potential for lasting impact,” the authors wrote, adding that “some student projects rose to the level of sustainable and meaningful change.”

*Value-Added Roles for Medical Students* features case studies of additional longitudinal experiences, as well as guidance for planning, launching, sustaining and growing value-added roles.

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Also check out the “AMA Telehealth Clinical Education Playbook,” a new educator-directed guide focused on embedding educational interactions within a telehealth patient encounter. Download the playbook now.

In addition, the AMA has released the second edition of the *Health Systems Science* textbook. A companion, *Health Systems Science Review*, provides case-based questions followed by discussions of answers and suggested readings.