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A Model for Quality Improvement Programs in Academic Departments of Medicine

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Academic departments of medicine care for large populations of underserved patients and conduct research designed to improve medical care and educate the next generation of physicians. As part of delivering patient care, the department must ensure that the care it provides is of the highest possible quality.^{1,2}

Traditionally, academic departments have played a passive role in quality improvement and patient safety (QI/PS) initiatives. These functions are generally carried out by centralized departments of health care quality often driven by the need to comply with external regulatory requirements. The disconnect between the hospital and the clinicians and educators can lead to a loss of important input from frontline providers and can similarly provide challenges in disseminating goals and interventions. A truly successful QI/PS program should combine centralized departments of health care quality and academic departments to work collaboratively.

Academic departments face several obstacles in implementing successful QI/PS programs. Faculty members often hold the belief that because they hold

academic appointments, they represent quality in medicine.² In addition, the academic mission itself often seems at odds with quality improvement efforts. First, it is difficult to design QI/PS interventions to make their outcomes attractive for publication in major journals. The continuous process of measurement of outcomes, modification of protocols, repeat measurement, and repeat modification does not lend itself to randomized control trials.² Second, it has been difficult to obtain competitive extramural funding for QI/PS efforts, which reduces the academic cachet for performing QI/PS studies. Finally, the need to publish as a means of gaining promotion may lead academic physicians to follow the approach of “plan, do, study, publish,” rather than “plan, do, study, act.”²

In addition to academic challenges, operational obstacles can thwart QI/PS efforts. These challenges include engaging front-line faculty clinician-educators, residents, and fellows to embrace QI/PS as a philosophy and to participate in and lead educational and clinical projects. A lack of commitment on the part of departmental leaders may starve QI/PS projects of clerical and statistical support and may impair efforts to overcome caregivers' resistance to change. To address these barriers, we engaged an entire department of medicine in a comprehensive QI/PS program.

OVERVIEW OF THE QI/PS PROGRAM

Beth Israel Deaconess Medical Center (BIDMC) is a 600-bed, full-service adult teaching hospital that pro-

All QI/PS activities reported were reviewed and approved by the Beth Israel Deaconess Medical Center Institutional Review Board under a special waiver covering QI/PS activities.

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vides approximately 750,000 patient visits annually in and around Boston, Massachusetts. The department of medicine's 370 full-time faculty clinicians and more than 200 residents and fellows represent the largest department in the hospital from clinical, research, and educational standpoints. The BIDMC medicine QI/PS program includes 5 major functions: a peer review process; a medical patient care committee that sets clinical priorities of the QI/PS program; multidisciplinary working groups that work to enhance the quality of care for patients receiving care in multiple disciplines; division-based dashboards and performance improvement projects; and the education of house officers, medical students, and faculty in modern QI/PS strategies (Figure 1).

QUALITY IMPROVEMENT FOR PATIENTS RECEIVING CARE IN MULTIPLE DISCIPLINES

This function encompasses working groups, set up collaboratively by the hospital department of health care quality and the department of medicine, to deal with issues in patient care identified by the departments or to help the hospital comply with external guidelines promulgated by regulatory groups, such as the Joint Commission or pay-for-performance measures put forth by payers. In all areas, the program sought to move beyond these external mandates. Examples of such multidisciplinary groups include the Diabetes Working Group, Heart Failure Committee, and Anticoagulation Working Group.

Additional efforts to improve inpatient care across the department include programs that reduce central line-associated bloodstream infections³ and ventilator-associated pneumonia,^{4,5} and ensure appropriate inpatients receive pneumococcal and influenza vaccinations. In addition, in the past 2 years the department of medicine, in collaboration with other departments, such as the emergency department and the department of anesthesia, has implemented a multiple urgent sepsis therapy protocol,⁶ drug-dosing and administration policies in the electronic health record, a Triggers program using the BIDMC version of rapid response teams, and the geographic reconfiguration of the medical service.

In the outpatient arena, the department has focused on improving telephone service and access to appointments, as well as enhancing the quality of the patient's experience in the waiting room. The department and the

hospital conduct monthly "mystery shopper" calls to each clinic. The callers provide standard clinical scenarios and seek appointments from the schedulers. The telephone interaction is recorded and scored against specific criteria for patient service. In addition, the date of the first ap-

pointment offered is recorded. At the end of the call, the mystery shopper identifies herself or himself to the scheduler and offers constructive comments as to how the service offered can be improved. These results are shared with all clinic administrators and physician directors at a monthly meeting. Customer service skills have improved markedly during the course of this project and the time it takes for a patient to see a physician has significantly decreased (Figure 2).

To improve the patient experience in the waiting room, the department and the hospital have conducted mystery shopper visits to the waiting rooms of each

clinic once every 2 months. The mystery shopper sits in the waiting room and records observations on a standardized form rating appearance, presence (or absence) of required signage, staff appearance and behavior, and the manner in which the staff interacts with patients. Each clinic is rated against perfect performance (Figure 3).

PERSPECTIVES VIEWPOINTS

- A successful QI/PS program depends on the collaboration of the department of internal medicine with the hospital's centralized department of health care quality.
- The Beth Israel Deaconess Medical Center QI/PS program established working groups to focus on certain issues, such as diabetes or heart failure, to better assess the care for these diseases.
- BIDMC developed quality indicators within division-based dashboards to address clinical concerns based on data from information-reporting systems in different divisions.

IMPROVING CARE WITHIN SPECIALTIES: DIVISION-BASED DASHBOARDS AND PERFORMANCE IMPROVEMENT PROJECTS

The division-based dashboards focus on quality indicators that are highly relevant to large groups of patients within the individual clinical discipline and that address the Institute of Medicine dimensions of quality, including safety, effectiveness, efficiency, and timely care.¹ Data are extracted from electronic health records; an administrative billing system; disease-related patient registries; pharmacy and laboratory databases; patient surveys and other information systems, including an incidence reporting system; and an adverse event management system. Because data trustworthiness remains critical in developing and maintaining active physician engagement, QI administrators regularly confirm and refine the ascertained data elements for clinical relevance and accuracy.

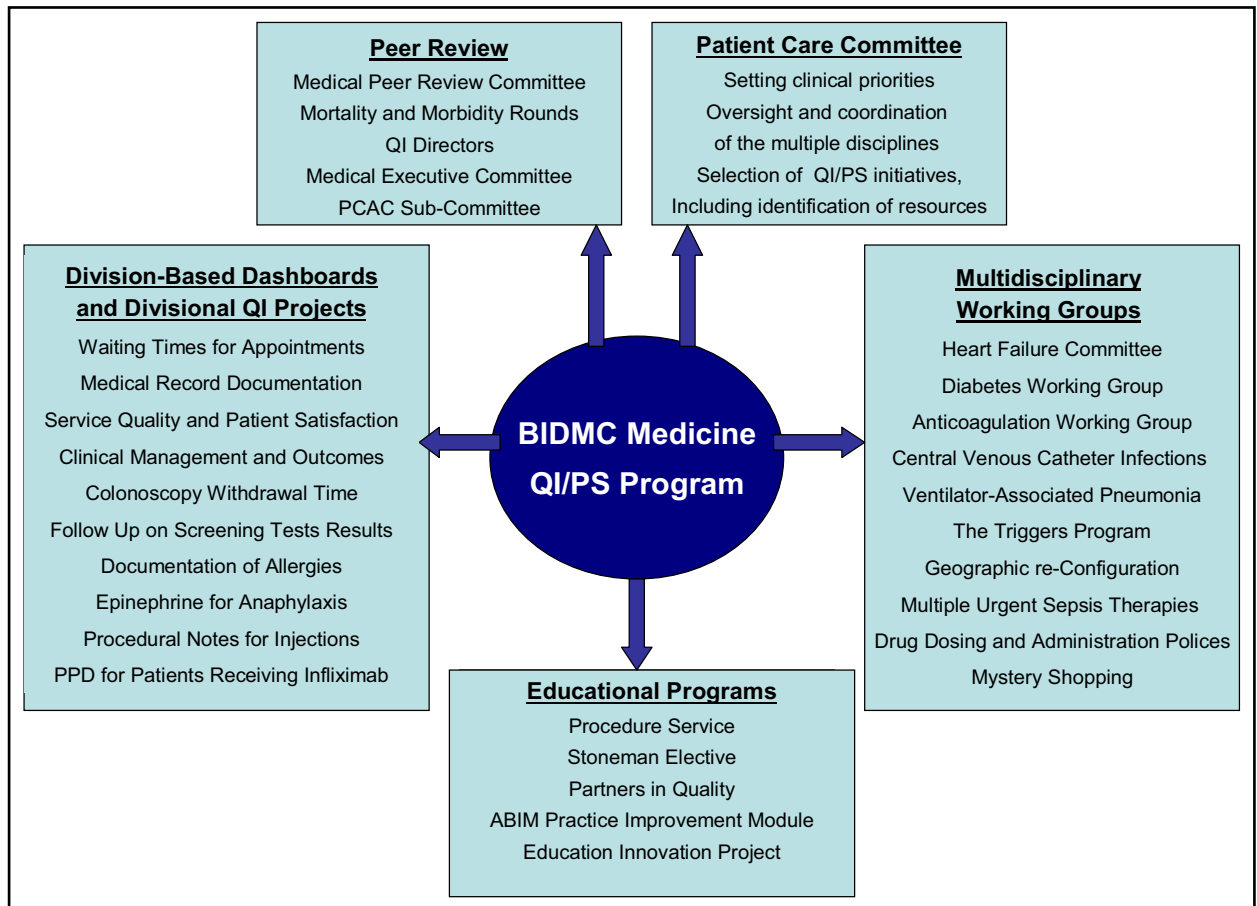


Figure 1 BIDMC Department of Medicine QI/PS program. PCAC = Patient Care Assessment Committee.

Examples of quality indicators incorporated into the divisional dashboards include documentation of allergies, medications, and problem list in the electronic health records; results from patient satisfaction surveys; procedural compliance with recommended guidelines; procedural complication rates; provision of screening tests; intensive care unit admission rates for specific diagnostic-related groups; and mortality and risk-adjusted mortality rates.

The data collected and analyzed in the dashboards allow each division to evaluate its performance over time, perform a comparative analysis with internal and external sources of benchmarking data, and identify areas for improvement and areas of best practice. These efforts now include divisional multidisciplinary teams of physicians, nurses, pharmacists, and other groups invested in improving care delivery who work together with the departmental QI administrators on numerous improvement projects.

Examples of successful results of recent divisional improvement projects include the following:

- Colonoscopy withdrawal time: Compliance rate increased with recommended guidelines (ie, spending

at least 7 minutes examining the colonic mucosa during withdrawal of the colonoscope) from 63% (February 2006) to 100% (December 2007) (n = ~400 colonoscopies per month).⁷⁻¹⁰

- Follow-up on abnormal screening test results: Attainment of 100% follow-up on abnormal Pap smear, fecal occult blood test, and mammography (April to September 2007; n = 622 abnormal tests) for patients seen in the hospital-based primary care practice was observed.¹¹⁻¹³
- Documentation of allergies: Adding an electronic reminder system resulted in increased documentation of allergies in the electronic health records. Allergy documentation rate increased from 66% (May 2006) to 95% (January 2008; n = ~800 audited charts per month; Figure 4) for patients seen in the primary care practice.
- Prescription of self-administered epinephrine for patients at risk for anaphylactic reactions: Documentation of epinephrine prescription for patients with a history of a previous anaphylactic reaction, in either the medication list or progress note in the electronic health record, increased from 50% (January 2006) to 100% (July to November 2007;

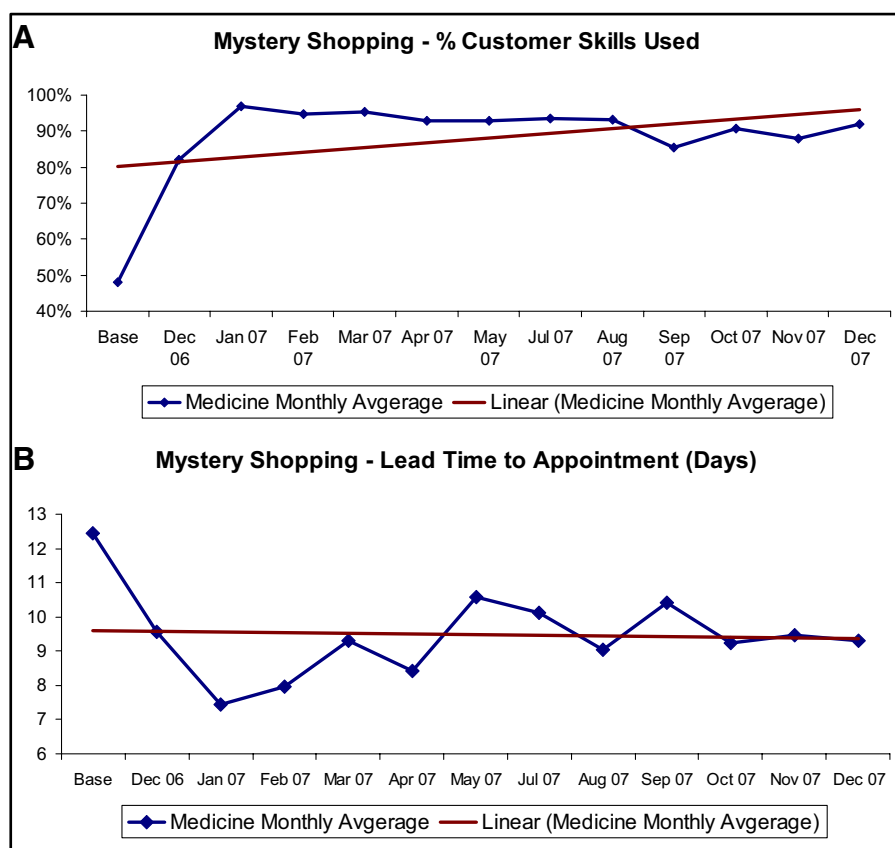


Figure 2 Mystery shopping data: telephone and appointment access. **A**, Customer service skills ratings. **B**, Average number of days to appointment.

n = 213 patients) among patients seen in the allergy clinic (Figure 5).

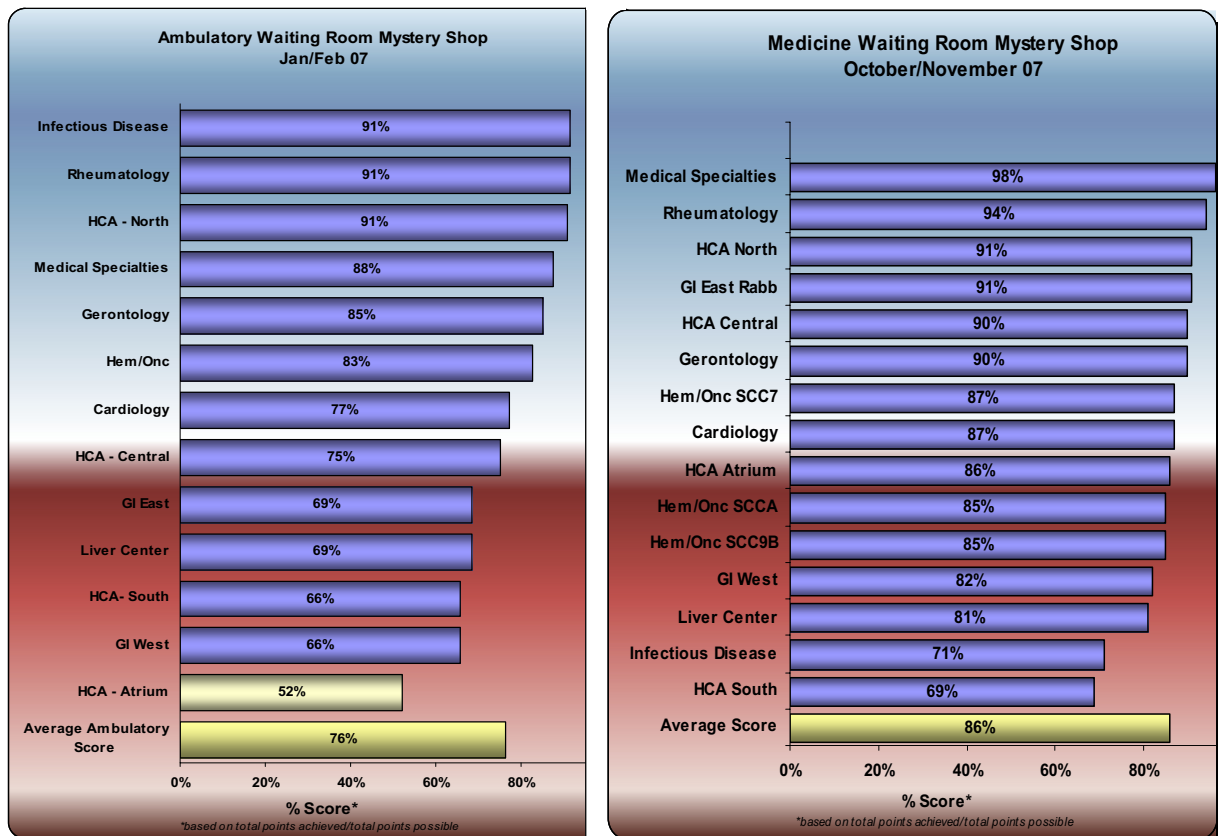
- Documentation of procedural notes for injections and aspirations: Documentation of appropriate procedural notes for injections and aspirations (ie, explanation of risks and benefits, documentation of verbal consent, description of the procedure, reports on complications, and documentation of postprocedure instructions given to the patient) increased from 28% (January to March 2006) to 79% (October to December 2007; n = 373 patients; Figure 6).
- Appropriate initiation of tuberculosis skin testing (purified protein derivative) for patients receiving infliximab: Attainment of 98% provision and documentation rate of purified protein derivative tests for patients receiving infliximab, and a 100% isoniazid treatment rate for patients with a positive purified protein derivative (2002-2007; n = 103 patients) was observed.¹⁴⁻¹⁷
- Provision of inhaled corticosteroids for asthmatic patients: An increase from 76% (October to December 2006) of prescriptions documented to 96% (October to December 2007; n = 250 patients) in the pulmonary outpatient clinic (Figure 7) was observed.

- Documentation of driving safety counseling for patients with excessive sleeplessness: Documentation of appropriate counseling regarding “drowsy driving” for all patients with hypersomnolence as part of their presenting symptom increased from 62% (May 2007) to 100% (November 2007; n = 250 patients).
- Documentation of health care proxy for geriatric patients: An increase from 68% (January to March 2007) to 84% (October to December 2007; n = 400 patients) was observed in the geriatric ambulatory clinic.

EDUCATION PROGRAMS

The medicine QI/PS educational programs seek to ensure that all faculty members, residents, and fellows understand the rationale behind continuous quality improvement and have the skills to systematically improve the care they give. The goals include the development of continuous self-directed learning with respect to quality of care; satisfaction of the Accreditation Council for Graduate Medical Education core competencies in systems-based practice and practice-based learning and improvement; demonstration of the importance of reporting medical errors and near-misses; and increased participation in QI/PS initiatives in

Medicine Mystery Shopping – Waiting Room Survey Results



January – February 2007

October - November 2007

Average Ambulatory Score = 76%

Average Ambulatory Score = 86%

Figure 3 Mystery shopping data: waiting rooms evaluation.

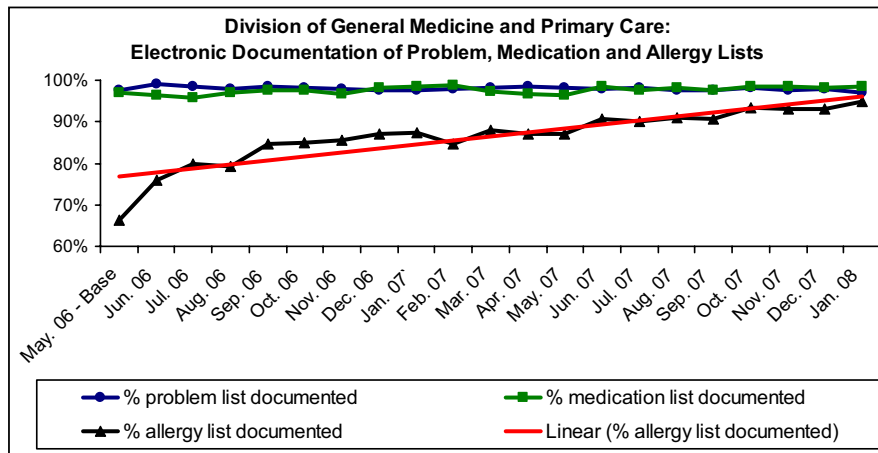


Figure 4 Division of general medicine: documentation of problem lists, medication lists, and allergies in electronic medical records.

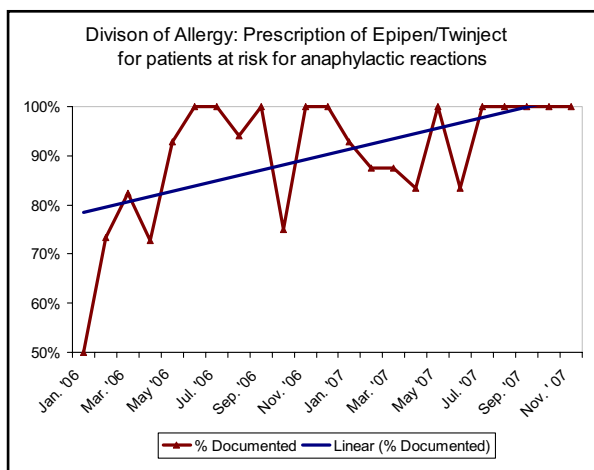


Figure 5 Division of allergy: prescription of self-administered epinephrine for patients at risk for anaphylactic reactions.

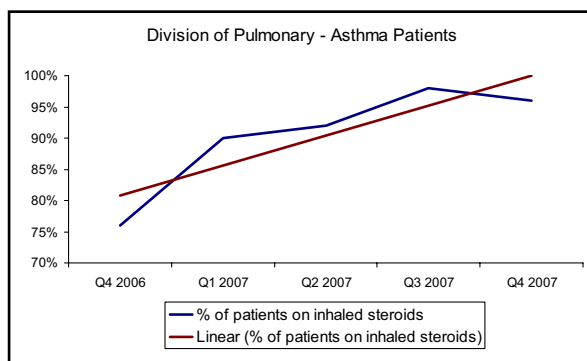


Figure 7 Division of pulmonary, critical care, and sleep medicine: prescriptions for inhaled corticosteroids for patients with asthma.

the department of medicine. The training efforts in QI/PS for residents form an important component of an educational innovation project, which was awarded to the department by the Residency Review Committee for Internal Medicine. Examples of QI/PS education programs include the medical procedure service,¹⁸ the Stoneman QI/PS rotation,¹⁹ and the reorganization of ward residents into unit-based, geographically integrated teams.

DISCUSSION

We have striven to foster a culture of improvement in which staff and clinicians engage continually in departmental efforts to improve patient care. Our efforts have resulted in the successful development and implementation of a departmental improvement program. A MEDLINE search of English-language articles published in the last 10 years using the headings “quality

assurance” and “internal medicine,” and limited for “humans” and “adults” revealed 228 articles. Most articles describe a specific improvement effort, and none provided a comprehensive model for QI/PS programs in academic departments of medicine. We therefore hope that the program described could serve as a roadmap for other departments of medicine committed to implementing similar efforts.

Academic departments of medicine can enhance their mission to excel in patient care, research, and education by becoming innovators and leaders in the emerging field of QI/PS. Instead of merely focusing on externally mandated reporting requirements, clinicians and staff invested in the delivery of high-quality care can identify additional areas where improvement is needed and develop improvement projects accordingly. Local QI leaders should take an active and influential role in making decisions on project directions and push for overall clinician and staff engagement. Engaging front-line clinicians in continuous quality improvement creates the right balance between top-down leadership and bottom-up ownership and commitment to QI/PS projects.

We found that key ingredients for a successful medicine QI/PS program include direct involvement of leadership, appointment of QI administrators, engagement of clinicians from all disciplines to serve as champions, an effective approach to dealing with resistance to change, alignment with hospital administration, and interdepartmental collaboration (Figure 8). Our QI/PS efforts have the full support of the hospital’s board of directors and executive leadership. In addition, the hospital set a goal of eliminating preventable harm by 2012 and reporting publicly on outcomes of major QI/PS efforts.^{20,21}

Clearly, an enormous challenge ahead remains for us and for other departments and hospitals to reach the goals outlined in the Institute of Medicine’s seminal call to action to help build a safer health system.^{22,23} Vigorous efforts by academic clinical departments of

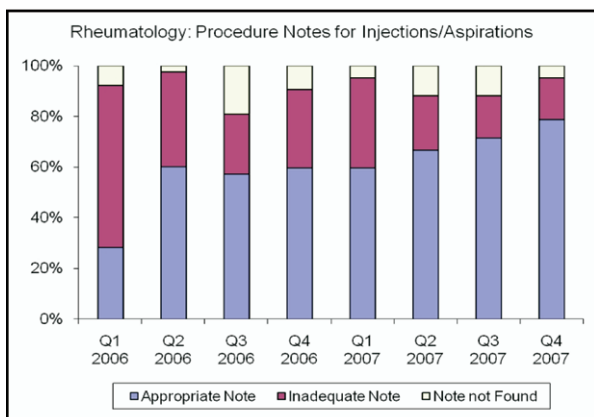


Figure 6 Division of rheumatology: documentation of procedural notes for injections and aspirations.

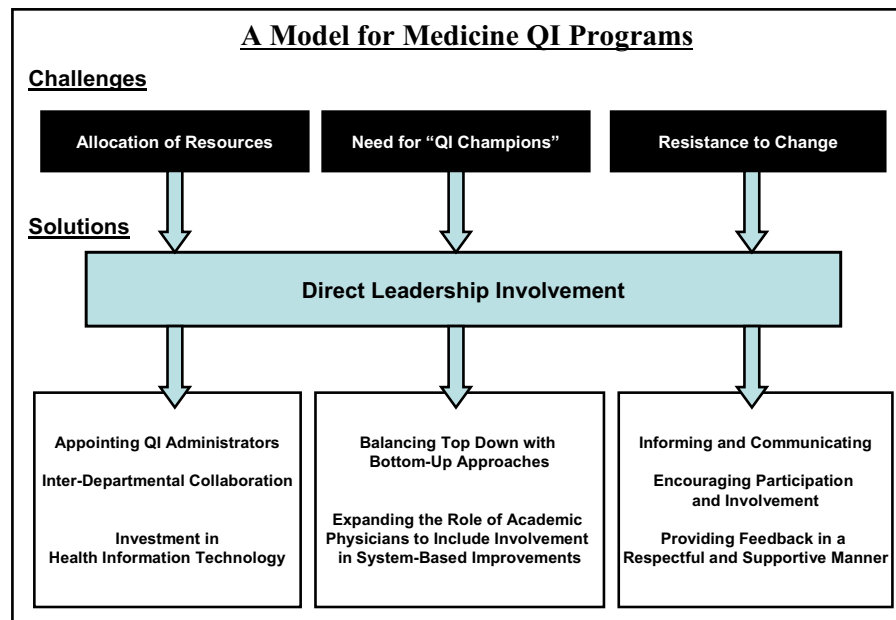


Figure 8 Model for medicine QI/PS programs.

all disciplines can improve the care they provide, develop novel approaches toward improved care that will work in other settings, and train the next generation of clinicians in quality improvement.

ACKNOWLEDGMENTS

We are indebted to Joanne Schulze (BIDMC Department of Medicine), for outstanding administrative support and data collection; Cheryle Totte, RN, for helping us carry out the peer review mission and organizing the Stoneman QI/PS rotation; Drs Michael Howell, Peter Clardy, and Sharon Brodie Wright, for leading programs to reduce central line-associated bloodstream infections and ventilator-associated pneumonia; Dr David Feinbloom for leadership in implementing the diabetes and anticoagulation protocols; Jayne Sheehan, RN, and Sarah O'Neil for leading the mystery shopping program; and Drs Tom Delbanco, Russell Phillips, and Saul Weingart for thoughtful comments on the article.

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