

# Interdisciplinary Medical, Nursing, and Administrator Education in Practice: The Johns Hopkins Experience

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## Abstract

Reforming graduate medical, nursing and health administrators' education to include the core competencies of interdisciplinary teamwork and quality improvement (QI) techniques is a key strategy to improve quality in hospital settings. Practicing clinicians are best positioned in these settings to understand systems issues and craft potential solutions. The authors describe how, in ten months during 2004 and 2005 the school of medicine, the school of nursing, and an administrative residency program, all at Johns Hopkins University, implemented and evaluated

the Achieving Competency Today II Program (ACT II), a structured and interdisciplinary approach to learning QI that was piloted at various sites around the United States. Six teams of learners participated, each consisting of a medical, nursing, and administrative resident.

The importance of interdisciplinary participation in planning QI projects, the value of the patient's perspective on systems issues, and the value of a system's perspective in crafting solutions to issues all proved to be valuable lessons. Challenges were encountered

throughout the program, such as (1) participants' difficulties in balancing competing academic, personal and clinical responsibilities, (2) difficulties in achieving the intended goals of a broad curriculum, (3) barriers to openly discussing interdisciplinary team process and dynamics, and (4) the need to develop faculty expertise in systems thinking and QI. In spite of these challenges steps have been identified to further enhance and develop interdisciplinary education within this academic setting.

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**A** series of seminal reports from the Institute of Medicine (IOM)<sup>1–3</sup> have focused health care providers on the need to improve health care delivery systems in the United States. The IOM findings suggest that the chasm between what actually exists in practice and what providers know to be good quality care can be bridged only through a radical

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redesign of the health care delivery system.<sup>2</sup> A redesign is itself dependent in part on reform of the education system for health care providers. Greiner and Knebel<sup>4</sup> envision that “all health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics.” Two of the core competencies defined by the Accreditation Council for Graduate Medical Education (ACGME), systems-based practice and practice-based learning and improvement, specifically address interdisciplinary quality improvement,<sup>5</sup> and residency programs are beginning change their curricula to foster this approach.<sup>6</sup>

While systems-focused educational initiatives and groundwork have already been established in many academic settings, significant reform has been slow.<sup>7</sup> Nevertheless, several institutions have created initiatives to keep educational reform of this type at the forefront, including The PEW Health Professions Commission,<sup>8</sup> the Institute for Healthcare Improvement through the

Interdisciplinary Professional Education Collaborative,<sup>9</sup> and more recently, the IMPACT network of academic medical centers.<sup>10</sup> In spite of this progress, physician and nursing education is usually delivered as separate and parallel processes with each discipline teaching its own content while its students are acquiring clinical skills. Although collaboration is desired and expected, the intense clinical environment has traditionally left little time for interdisciplinary dialogue regarding health delivery systems and potential process improvement. Although academic medical centers are typically known for discovery, innovation, and a commitment to excellence, their complex organizational structures present unique challenges to teamwork, communication, interdisciplinary collaboration and dissemination of new knowledge, all of which underpin successful quality improvement (QI) initiatives. Perhaps designing curricula focused on systems thinking and improvement, where multidisciplinary learning and practice are core components, can help to effectively address these challenges. In the rest of this article, we describe how a school of medicine, a school of nursing,

and an administrative residency program implemented and evaluated this type of curriculum, the Achieving Competency Today II Program (ACT II), a structured and interdisciplinary approach to learning QI that was piloted at various sites around the United States. We also share key lessons learned.

## The Program

Partnerships for Quality Education (PQE) is an initiative of the Robert Wood Johnson Foundation. From October 2004 to June 2005, the PQE collaborated with the Association of American Medical Colleges (AAMC) and the American Association of Colleges of Nursing on a pilot program, ACT II, which targeted residents and graduate nursing students in major teaching hospitals.<sup>11</sup> Johns Hopkins Medicine (JHM), through its subsidiaries, The Johns Hopkins University Schools of Medicine and Nursing and its two major teaching hospitals, was one of twelve pilot institutions selected to participate. The program was designed to meet the ACGME core competencies of systems-based practice and practice-based learning and improvement. The expected outcomes of ACT II for learners and faculty were to use the knowledge and skills gained in the learning experience to develop a systems perspective in daily practice and to design QI projects addressing active institutional needs. The learners and the faculty were then to evaluate the applicability of the course content and help to tailor the program for future participants.

## Curriculum

The ACT II curriculum was Web-based and required self-directed learning. The outcomes were met through readings and action learning strategies focused on the macro U.S. health care system, and through learner-identified micro system issues, using a patient's hospital experience as the lens to view organizational or practice problems. The program at our institutions devoted a week each to four content areas:

Week one: The structure of the U.S. health care system and how it affects hospital functioning and the provision of patient care.

Week two: the financing and purchasing of health care in the United

States and its effect on care delivery.

Week three: The hospital's organization, culture and financing and how these support or act as barriers to the implementation of a quality improvement project

Week four: The translation of the curriculum content from week one to week three; application of knowledge to development of the quality improvement project plan<sup>11</sup>

## Participating institutions

Johns Hopkins Medicine (JHM) is composed of The Johns Hopkins University (JHU) and the multiple institutions within The Johns Hopkins Health System. For this program both The Johns Hopkins Hospital (JHH), a 1,051-bed academic teaching center, and Johns Hopkins Bayview Medical Center, a 335-bed community academic teaching center, were used as the teaching sites. The JHU School of Medicine hosts accredited training programs in 78 disciplines including most medical and surgery specialties. The JHU School of Nursing prepares advanced practice nurses in the areas of health care systems and management and clinical nurse specialties, and as nurse practitioners. JHM also provides an administrative residency program for recent graduates or current students from health administration masters programs, who come to JHM to gain hands-on experience in hospital administration.

## Team design and selection of participants

The chief operating officer (COO) of JHH assumed leadership as the principal investigator for the ACT II program and delegated program coordination to a senior director of operations. The COO had the explicit support of the academic deans of both professional schools and was in the best position to assure implementation of projects across disciplines. The leadership team also included subsets of faculty (JW, SK) and program directors.

After open solicitation, residency program directors from the Departments of Surgery, Medicine, and Anesthesia-Critical Care expressed interest in having trainees participate. Since residency program schedules were already in place, several strategies were used for team

member selection. Directors of residency programs selected and assigned either residents who were currently on a research rotation or those with elective blocks available during the projected timeframe of the program. Graduate nursing students from each of the previously described advanced practice programs were identified by their faculty for participation based on interest and availability during the project timeframe. Senior hospital leadership also selected administrative residents according to their availability during the project timeframe.

Faculty were also recruited based upon interest and availability from the respective schools as well as from JHM administrative leadership. Faculty were not required to be experts in quality or systems improvement; however all faculty participants had been involved in QI in their clinical or academic practices. When recruitment was complete there were 18 learners organized into six teams, each of which was a triad of three persons: a medical, nursing, and administrative participant. Eighteen matching faculty members were chosen so that each faculty team also had a triad of medical, nursing, and administrative faculty.

## Program implementation

The PQE gave participating sites the freedom to implement the curriculum based on their own organizational constraints and culture. Because ACT II was incorporated into the existing academic schedule, to avoid "losing the learners" in other clinical and academic responsibilities, the planning group decided to limit the experience to one four-week block. This also allowed the COO and faculty to focus their involvement with learners more intensely.

The program called for more independent learning by participants during week one, mostly focused on background readings and on interviews with a patient and members of the health care team regarding concerns that impede quality practice within the hospital environment. Toward the end of week two, learners transitioned to a team focus within their triads when the quality improvement deliverables drove most of the process. Project themes were selected based on institutional or academic interest in a topic, issues identified by

stakeholders during interviews, and issues that learners independently identified as common in their clinical experiences. Not surprisingly, the final QI projects (see List 1) were easily encompassed in the existing broad quality and safety agenda of JHM. By the end of week four, each of the triads had completed their assessments and presented them to the JHM leadership. Upon completion of the four-week process, the institutions' QI committees took over implementation of each of the projects, whenever possible with continued participation of the team members.

### Program evaluation

There were weekly meetings facilitated by the COO, where each of the teams shared experiences, discussed their progress, and reviewed assigned articles. Each meeting served as a type of focus group, whereby feedback was collected and the process was refined while the program was occurring. At the completion of the program, formal questionnaires were sent to faculty and learners asking several questions, including "Do you feel this was a useful learning experience?," "What has been the most enlightening experience to date?," and "What were the project concerns and frustrations?" Responses to the questions were analyzed for common themes by program leadership. Some representative quotes, linked to common themes, are presented in Table 1. Further, at the completion of the project, faculty and program leadership participated in a series of debriefings where these and other lessons were consolidated into concrete plans for the next implementation year.

### List 1

#### **Interdisciplinary Quality Improvement Projects Carried Out by Participants in the Achieving Competence Today Program, The Johns Hopkins University Schools of Medicine and Nursing, and The Johns Hopkins Medical Institutions, October 2004 to June 2005\***

1. Improve thermoregulation of surgery patients to reduce the incidence of surgical site infections.
2. Decrease number of last-minute elective surgery case cancellations.
3. Relieve emergency department congestion by improving direct from clinic admissions.
4. Improve hospital throughput by improving communication and teamwork associated with the patient discharge process.
5. Improve the efficiency of hospital inpatient discharge process by identifying a discharge coordinator.
6. Improve communication during patient transfer between a medical intensive care unit and the emergency department.

\* Each project description represents the final project plan completed by each of the six teams of medical, nursing, and administrative participants.

### Lessons Learned

#### Valuable positive experiences

##### **Value of interdisciplinary participation.**

Most of the learners did not previously know one another or work together, yet ACT II gave these learners a structured opportunity to become acquainted and to work across the typical professional boundaries. Learners gained a new appreciation for the strengths and perspectives of learners from other disciplines and the greater effectiveness of a team approach to problem solving. Learners also commented on how validating it was to have the COO beside them supporting their efforts to improve the quality of care.

##### **Value of patient and family perspective on the health care system.**

The patient and family add an important perspective from which to view our health care system. Learners valued the patient and family interactions as they gathered evidence on system issues. Learners realized that through the lens of the public they are able to better question their assumptions of the most basic hospital systems and processes.

##### **Value of thinking from a systems perspective.**

Teaching about systems practice and quality improvement adds an important dimension to traditional clinical training. Clinicians in nursing and medical training programs have traditionally been taught to approach patient care from an individual perspective, focusing on how they can provide the best care for patients. ACT II taught learners to look at the system

failures. Learners were surprised to find there is a science to QI and that small projects can have potentially great impact. The learners particularly enjoyed selected readings that focused on QI skills and how to approach a problem from a systems perspective.

### Challenges encountered

#### **Balancing competing priorities proved difficult to meet.**

Scheduling team planning meetings and finding time for group work were major challenges. Finding time to meet in interdisciplinary forums was difficult due to varying schedules. Despite our expectations to protect time, the resident's research and clinical work and the administrative fellow's departmental work ultimately distracted them from this project, the graduate nurses had to balance work commitments against the academic schedule, and faculty had to juggle teaching, clinical, and administrative assignments. The pace of the project outstripped the depth required to best absorb some of the new concepts.

#### **Achieving broad curricular goals proved challenging.**

The short four-week duration of the program impeded the learner and faculty teams in thoroughly discussing the ACT II reading materials. While the intent of the ACT II curriculum was to ground the learner in an understanding of both the macro and micro health care systems, constrained timelines resulted in learners' primarily focusing on the readings and activities that directly affected the final QI project, such as development of a QIP, a 2 × 2 matrix (effort versus yield), and a fish bone diagram. Attempting to link in the broader health system learning objectives proved confusing to the learners, who had difficulties making the curricular connection between QI and the macro health care system.

#### **Discussing team process and group dynamics was difficult.**

While all team members had been exposed to the concepts of effective teamwork, there was inadequate time to discuss and learn from team dynamics and behavior. Some team dynamics were compromised by learner's competing demands, resulting in uneven work distribution. Learners occasionally had difficulty taking a broad view on issues and, instead, defaulted to their comfort zones, focusing improvement strategies on their own

Table 1

**Selected Quotes (Organized by Themes) from Participants in the Achieving Competence Today Program, The Johns Hopkins University Schools of Medicine and Nursing, and The Johns Hopkins Medical Institutions, October 2004 to June 2005\***

| Quote   | Theme  |
|---|--|
| "Interacting with clinical residents has been the most enlightening because it made me think of issues that I could have otherwise missed from a purely administrative perspective."  | Value of interdisciplinary participation     |
| "What I like the most is that [the chief operating officer] is personally involved in the project. Any project is very appealing when leadership goes out of the way to get involved in such initiatives. I think this dedication motivates everyone."            | Value of interdisciplinary participation     |
| "Most enlightening was [my time] with the patient's family. They made me question previous assumptions about the system and specifically the discharge process."  | Benefits of patient and family perspective   |
| "The fact that although many fragments of record keeping (i.e., data) exist, it [record keeping] has not been reviewed in the fashion that we propose to do in this project. This will invariably allow us explore new approaches to old and continued problems." | Value of thinking from a systems perspective |
| "If the weeks' assignments could be spread out to either bi-weekly or monthly [due to conflicts in students' workloads], I think the students would have a greater appreciation for the value of the project and be able to contribute more."                     | Challenge of time constraints                |
| "The other potential frustration may be the short time we have to analyze a fair amount of data, draw conclusions, and suggest or implement changes. Our theme and the work that could be drawn from it could easily take half a year or more."                   | Challenge of time constraints                |
| "I think there is a big disconnect between our required readings, the deliverables, and the QIP [quality improvement project] in general."  | Challenge of broad curricular goals          |

\* These selected comments were collected during the interdisciplinary meetings and through formal surveys at the completion of the program.

professional interests. For example, in one group, the medical resident and graduate nurse concentrated mostly on clinical issues related to discharge planning, albeit from their own disciplines' perspectives, while the administrative fellow focused on the cost implications of the proposed interventions. This was also evidenced in the QI presentations, where most of the groups defaulted to having the physician be the main presenter, reinforcing a long-standing hierarchal disparity in clinical team leadership.

**Implementing QI proved more challenging than anticipated.** Once the learners completed the four-week program, the institutions were to move forward to implement the projects, but this occurred at various rates of speed. Leadership hypothesized that one significant root cause of such variability was inadequate time to really engage key stakeholders in new processes. In several teams, learners were not key members of the units where the QIP was being proposed, effectively being viewed as "outsiders" and unable to partner with

"insiders" to garner support beyond the initial planning and discussion.

**Sustaining this curricular change requires large-scale integration and more faculty expertise.** Whereas faculty expertise was not integral to selection to this project, each faculty member was actively engaged in QI to some level in his or her department. The fact that there are relatively few faculty, even at our large institution, who serve in QI roles may explain why we didn't receive a large number of residency training programs interested in participating in the four-week program or beyond. Further, because the planning group decentralized education into the six teams, there was inconsistent teaching of the core curricular components.

### Next Steps

ACT II challenged faculty and learners to evaluate the feasibility of this curriculum in a complex academic environment with clinical, educational and research demands. There appears to be unanimous agreement amongst

participants and leadership that the program is valuable and can be modified to meet the needs of the learners. The dean and CEO of JHM and the dean of the nursing school reviewed the program and strongly encouraged our continued participation. Subsets of faculty from the professional schools are currently in the process of developing a modified version of ACT II, which we will implement as a pilot program. The major challenge continues to be how to integrate this curriculum into the academic calendars of medicine and nursing, whose schedules are more complex than the administrative residents. In spite of this barrier, faculty has agreed on the following key principles:

- Continue to incorporate this curriculum into the nursing, medical, and administrative residency programs, maintaining the interdisciplinary experience.
- Train more faculty members and better weave the concepts of the curriculum into the fabric of each training environment; this is integral to the dissemination of these change-producing concepts. We plan to offer faculty development modules in systems thinking and QI and promote them across the schools.
- Standardize core curricular teaching. We plan to create centralized classroom education on broad concepts of systems thinking, QI, and teamwork and communication for the entire group. We also plan to reduce the content of the Web-based curriculum to make it more manageable, given our time constraints.
- Overcome the barrier of teams being spread too thin by competing demands. We plan to increase the size of each team, maintaining the interdisciplinary mix, hoping to establish a greater unity within teams.
- Consolidate faculty time in order to improve sustainability of the program. We plan to decrease the faculty-to-student ratio in each group, and make the group portion of the faculty role more facilitative.
- Achieve effective handoffs of future projects to the institutions. We plan to better focus on stakeholder engagement and choosing projects that can be more realistically achieved with limited time and resources.
- Facilitate discussions on teamwork and communication in order to break down

some of the power gradient perceived between health care disciplines.

### Summing Up

Implementation of the ACT II program at our institutions provided the learners a structured approach for gaining core competencies in systems thinking and QI techniques. The faculty and learners evaluated the program by identifying valuable experiences and challenges throughout the implementation. Interdisciplinary learning, patient focus, and systems thinking stimulated our learners and resulted in an overall positive experience.

There is unanimous support for interdisciplinary education at Johns Hopkins; however, the challenge remains how to effectively implement this into daily practice, changing it from a potential action item to a critical work process. Just as many health professionals find lack of time to be a barrier to interdisciplinary work,<sup>12-14</sup> so too did the Johns Hopkins ACT II participants discussed in this article; a similar barrier was encountered at the other ACT II sites as well. This and other challenges, including a need to focus on faculty, project scope, and teamwork skills have laid the foundations for further development and enhancement of the new curriculum. By sharing our experience we hope to provide insight with hope that we and others can continue to improve the interdisciplinary

educational infrastructure necessary to reduce the quality chasm.

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### Correction

In the June 2006 Supplement to *Academic Medicine*, Petra Clark-Dufner, MA, should have been listed as a coauthor of the case study entitled "University of Connecticut HPPI Pipeline," pp. S25-S27. At the time the article was written, she was an education and development specialist for the Department of Health Career Opportunity Programs at the University of Connecticut Health Center in Farmington, Connecticut. She is now an administrative officer and AHEC program officer, Connecticut Area Health Education Centers, University of Connecticut Health Center.