Aligning Graduate Medical Education with Hospital's Quality Improvement and Safety Strategies

Institution: *Wayne State University School of Medicine*

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Description

The public and profession acknowledge that quality and safety in health care needs improvement. Residents play an important role in patient care at teaching institutions. Resident quality improvement (QI) efforts, shared across multiple programs, have the potential to improve care more quickly and effectively. The ACGME included Practice-Based Learning and Improvement (PBLI) and Systems-Based Practice (SBP) as 2 of its 6 core competencies, so it is imperative for residency programs to focus on them. Although many are involved in QI projects, very few have a systematic approach with integration with the hospitals' strategic initiatives. Data for educational and clinical outcomes is limited. The purpose is to design QI and safety initiative with all 3 Wayne State University-sponsored Internal Medicine, Family Medicine, and Transitional Year Residency Programs at the primary hospital, Crittenton Hospital Medical Center. In addition to integrating research, educational, and clinical objectives, the project is a testament of a strong partnership between an academic medical center and a hospital. It involves developing a curriculum with a combination of QI knowledge acquisition, team building and experience-based strategies. Residents work in interprofessional teams to understand their workplace, collect and present data, and propose interventions for improvement of care.

Goals & Objectives

The project goals can be categorized in three main areas: organizational, clinical and educational.

Overall institutional objectives include:
- Alignment of Graduate Medical Education with hospital strategic planning to improve quality of patient care.
- Recognition of the central role of residency programs in quality improvement and patient safety.
- Acknowledgement of the potential for faculty and residents to be change agents for quality improvement and patient safety.
- Completion of quality improvement and safety projects based on the hospital's strategic planning with specific patient care and process improvement outcomes and calculated return of investment.

- Providing team training, leadership and support to the team, and equip participants with the tools and infrastructure necessary to accomplish meaningful improvements within the home institution by increasing participants' teamwork competencies.

Clinical objectives include:
- Improved patient care quality
- Improve compliance with EBM guidelines
- Decrease over-utilization of resources
- Improve efficiency of process

Educational objectives include:
- Development of a QI interdisciplinary educational curriculum
- Enrichment of teaching skills and methods in the field of quality improvement and safety
- Improving teamwork and leadership competencies
- Meeting and exceeding the requirements of the ACGME core competencies on system-based practice and practice-based learning and improvement
- Local and regional scholarship presentations of outcomes
- Opportunity to author one or more manuscripts at the conclusion of the series

Implementation

The Project Champion, Dr. Markova, Associate Dean for GME and DIO for WSU started the initiative in the spring of 2011. Informed by a thorough literature search, she assured stakeholders support. The project was presented at the WSU SOM Deans' meeting and at the Hospital Leadership Forum and received very positive feedback. We created a powerful coalition, including a Leadership Team of the 3 Program Directors, the hospital CMO and the hospital Director of QI.

The project was accepted in May as a part of a National initiative (NI3) through the Alliance of Independent Academic Medical Centers (AIAMC) to provide a national opportunity for quality research and additional resources. AIAMC is a national membership organization made up of more than 75 major academic medical centers and health systems, with regard for medical education and research as strategic assets in providing patient-centered care. The project has no external funding. We also obtained HIC approval for data collection and dissemination of results.

The Leadership Team started meeting in November 2011 to established goals and objectives of the initiative. It identified 3 QI projects that align with the hospital strategic initiatives: Global Immunization, COPD Readmission, In-house Septic Shock. Team membership was identified based on the nature of the projects. The initial projects time line was set for January 2012 to June 2012. We all committed for long-term engagement. It was decided that each academic year a new 6-month cycle will be instituted. The new cycle will involve assembling of new teams and repeating the didactics and team training curriculum, along with completing QI projects. The projects would be either ones that build on the results from the previous cycle or new ones, based on the hospital's current priorities.

Residents from the Internal Medicine, Family Medicine, and Transitional Year Residency programs were approached to volunteer to be involved in this project. The project sponsors agreed to mentor the residents and provide resources, including time for them to participate in all associated activities. 7 residents volunteered to be involved, divided in three teams for completion of three quality improvement projects. Each team consisted of 6-7 members. The other team members included volunteers from the hospital staff based on the nature of the project (quality improvement specialists, nursing, data management, discharge planning, utilization management, and information technology). They developed the project charters of the initial three projects.

- Project 1: Global Immunization
    - Team: 2 Family Medicine Residents, 3 other members (QI, IT, nursing)
    - Focus on new Core Measure requirements for - Influenza vaccination for ALL patients (6mos +) - Pneumococcal vaccination for ALL patients (50+ yrs) - Pneumococcal vaccination for HIGH RISK patients (6yrs – 50 yrs)

- o Goal: Creating a systematic structure for insuring that all patients are assessed and that vaccinations are delivered
  - o Project Champion: Dr. Bill Murdoch, Family Medicine Program, Interim Program Director
- Project 2: COPD Readmission
  - o Team: 2 Transitional Year Residents, 3 other members (QI, nursing, discharge planning and case management)
  - o Focus on reducing preventable COPD readmissions
  - o Careful evaluation of why patients are likely to be readmitted
  - o Goal: Developing a systematic process to help reduce factors that cause readmission
  - o Project Champion: Dr. Pierre Morris, Transitional Residency Program Director
- Project 3: In-House Septic Shock
  - o Team: 3 Internal Medicine Residents, 3 other members (QI, data management, nursing)
  - o Expanding the efforts of the ED Sepsis team to address Rapid Response to Septic Shock in patients admitted to the General floors
  - o Goal: Using Keystone Sepsis EBM tools to prevent mortality
  - o Project Champion: Dr. Khalid Zakaria, Internal Medicine Residency Program Director

Our educational strategy included theoretical teaching of the quality improvement principles, teamwork and leadership strategies, and experiential learning through completion of the quality improvement projects. In order for the teams to be successful in completing their Quality Improvement projects, we developed 5 days of organized training sessions, starting in February, and including didactics and team exercises for all members of the 3 teams. The training sessions were led by the hospital Director of Quality Improvement, black belt Six Sigma. Participants were expected to meet the following learning objectives:

- Define: Objectives (Day 1)
  - o Understand how to gather information about a process
  - o Identify the "Y" and "X's" of a process
  - o Develop the deliverables for a Process Improvement (PI) project
  - o Understand what "Value" is to a customer
  - o Organize a team to address a process problem
  - o Use PI tools to help a project team to define a process
- Measure: Objectives (Day 2)
  - o Determine which data to collect for a project
  - o Develop a data collection plan
  - o Develop a case for the Return on Investment of a project
  - o Assess the progress of a project
- Analyze: Objectives (Day 3)
  - o Assist in team facilitation
  - o Develop a data collection plan
  - o Analyze project data collected
  - o Demonstrate knowledge of analysis tools for PI projects
- Improve: Objectives (Day 4)
  - o Identify improvement strategies – WorkOut – RIE – Infrastructure/Education – Information Technology Process
  - o Develop Standard Procedures (SOP)
  - o Identify Visual Cue opportunities in your improvement strategy
  - o Error proof your improvement strategy – FMEA, Poke-Yoke, Human Factor Considerations Control Objectives
- Control: Objectives (Day 5)
  - o Implement a plan to monitor and control your new process - Using control charts
  - o Transition new process to appropriate process owner
  - o Identify strategies to sustain improvement
  - o Prepare for final report out

Supplementary reading materials relevant to the training objectives were made available from the Institute of Healthcare Improvement (IHI) Open School, which is a free online course system. It consists of three online modules: Quality Improvement, Patient Safety, and Leadership. Each module contains 3 level courses (e.g. 101, 102 and 103) with 3-5 sessions. Each session is 15 minutes long with a pre-and post test. Access via: http://www.ihi.org/ihi. Clinical and educational outcomes are collected to measure improvement and assure sustainability.

Evaluation & Measurement

In February 2012, we collected preliminary information about baseline knowledge of all residents (49) and the Crittenton health care team members (100) about quality improvement and safety using an Internet-based survey. The participation was voluntary and with no individual identifiers. To evaluate educational impact, we used the Quality Improvement Knowledge Application Tool (QIKAT) developed by J Oyler, L. Vinci J. Johnson, V. Aurora, University of Chicago Medical Center. In addition, we included the Safety Attitude Questionnaire (SAQ)- Teamwork and Safety Climate, a valid and responsive to quality improvement interventions tool, developed by B. Sexton, E. Thomas, and B. Helmreich with funding from the Robert Wood Johnson Foundation and the Agency of Healthcare Research and Quality. The baseline results showed that from the 21(43% response rate)residents and 42 (14% response rate)hospital staff, who responded to the survey, 42 (14%) were not at all or just slightly comfortable with QI processes and only 11 (17%)had some experience with QI. We also measured the patient care impact of the completed clinical projects. We will monitor longitudinally the organizational impact by annual distribution of the SAQ- Teamwork and Safety Climate survey, sent electronically to all residents and hospital staff. Another measure of culture change is to successfully organize an Annual Quality Improvement Day to share all results to hospital administration, residents, faculty and staff. The project outcomes will be disseminated through publications and national presentations, e.g. at the annual AIAMC conference. After each cycle, a debriefing session with all team members is being conducted to evaluate the content of the sessions, effectiveness of the presenter, and scheduling logistics, as well as give feedback for improving the next cycle.

Results

Clinical outcomes from the immunization QI project include improvement for immunization compliance rates of pneumonia and influenza; this is illustrated in the increased process yield.

Measure	Process Yield Before	Process Yield After
Pneumonia Overall	94.8%	96.7%
Pneumonia Age 65+	96.3%	100%
Pneumonia High Risk	67.7%	93.5%
Influenza Overall	84.8%	*

*Data abstraction and analysis for the Influenza Measure will begin again in October 2012 Immunization core measures data will be available for comparison beginning in October 2012

COPD Readmission Research Project: Research of process led to recommendation for improvement of standardized care set that allows tracking of discharge planning and follow up to ensure compliance.

SEPSIS Process Improvement: Results include development of SEPSIS order set, activation of rapid response protocol and education to clinical staff. At project closure all improvements are in progress with follow up data to be collected following implementation. The results of the quality improvement projects were presented by the teams to the hospital administration and staff, other residents and faculty at the established by us first hospital-wide Quality Improvement Day on June 20, 2010 in more than 150 people in attendance.

In addition to the clinical projects' impact and the impact on the organizational climate, teams were provided the same survey to determine quality improvement knowledge before beginning the education series and immediately following the final project presentations. Responses show a reduction in the percent of negative responses for comfort in use of quality assessment and improvement skills (baseline average score of 3 on a scale of 1-4, post intervention average score of 3.4).

To sustain the results and continue the project, the Leadership Team continues to meet on a monthly basis. It is planning the 6-month project cycle for the academic 2012-2013, including again three teams, working on 3 separate projects. We will continue to apply similar to the first cycle approach for educational intervention and measure clinical, educational and organizational outcomes. The project leverages the strength of the WSU as an academic institution and the hospital commitment to improving quality of patient care and safety. We demonstrated that aligning GME process improvement projects with the hospital's strategic objectives can lead to superior educational outcomes, reduced over-utilization of resources, improved patient safety and more efficient care delivery through teamwork with faculty, residents and hospital staff.

The results were shared with other hospital partners in the Metro-Detroit area and received overwhelmingly positive feedback from hospital administration. The Project Champion is currently engaged in creating similar infrastructure in 2 other regional hospitals, hosting WSU-sponsored residency programs.

Discussion and observations from the experience:

- The needs assessment proved that QI competencies are lacking in residents and hospital staff
- Residents were able to engage with and lead interdisciplinary teams
- Didactic and experiential learning is powerfully synergistic
- Patient care improvements are very motivating to the teams
- It is challenging to coordinate schedules and carve out time for teams activities and meetings
- The results need to be disseminated: Present at the established by us hospital-wide annual Quality Improvement Day; Present at the Annual AIAMC and NI3 meeting in 2013; working on publications.

Integration of research and education

Using a systematic approach, we successfully engaged the academic institution, WSUSOM with an independent partnering hospital to align medical education with hospital's patient safety initiatives. It had overwhelming stakeholder approval and support at all levels. There is a general realization that designing and implementing a curriculum that combines knowledge and skills acquisition for QI and safety is important. For the success of the project, interdisciplinary collaboration is the key. We are developing a more sophisticated evaluation system in the second cycle to evaluate clinical, organizational and educational long- term outcomes. As larger multicenter studies to evaluate the impact of such projects are lacking, we are working on developing a regional GME Consortium with a focus on QI and safety, led by the academic center, which can be the framework for collaborative effort and data collection.