ACCM Student Program in Quality, Patient Safety, and Risk Management: (QPSRM)
A Practice-Based Learning Model That Embraces the ACGME Core Competencies
ACCM Student Program in Quality, Patient Safety, and Risk Management, JHMI

Program/Project Description.
The Department of Anesthesiology and Critical Care Medicine (ACCM) created the Student Program in Quality, Patient Safety, and Risk Management (QPSRM) to provide a dynamic opportunity for undergraduate pre-health students to explore how safety, risk, and quality of medical practices impact patient care. The educational objectives of QPSRM are for undergraduate students to develop proficiency in safety research and to contribute their acquired methodological skills to institutional initiatives on improving patient safety.

Process.
Johns Hopkins University undergraduate students seeking participation in the QPSRM program complete interviews with the program directors, an orientation course at Johns Hopkins Hospital Volunteer Services, at least two HIPAA courses: General Privacy for Providers, and Privacy Issues Relating to Research, as well as the Myers-Briggs Indicator personality assessment to better understand the dynamics of teamwork. The Weinberg Clinical Perioperative Services Team (WCPST) provides oversight for the safety initiatives in the QPSRM Program. The WCPST assigns priority scores to each initiative and develops quality improvement projects focusing on those with the highest scores. An online database and project organizer (SharePoint) allows for easy multimedia operations, electronic storage of education materials, and provides students with continuous monitoring of progress and process improvement. The scope of QPSRM projects includes patient safety-related incidents, operating room (OR) flow and efficiency, OR support, education, information technology, and perioperative teamwork/communication.

Solution.
The QPSRM curriculum consists of principles and practicum components. In the principles component, students are introduced to Lean Six Sigma methodology for interpreting research data and correcting systems defects. These include Root Cause Analysis, Defects Analysis, and Design for Lean. In addition, students utilize Patient Safety Net (PSN) reporting with SBAR formatting (Situation, Background, Assessment, Recommendation) to report patient safety events electronically. In the practicum component, students work closely with surgeons, anesthesiologists, risk managers, and human factors engineers to participate in clinical activities of the Weinberg Surgical Suite at Johns Hopkins Hospital. Students can choose to earn volunteer hours, academic credits, or both for their participation in the Program.

Measurable Outcomes.
60 Johns Hopkins University undergraduate students applied for the QPSRM Program: 12 were accepted from 2005 to 2010. Students worked on over 20 significant quality improvement initiatives. Highlights include an FDA national recall of improperly labeled drugs that resulted in look-alike medication errors, development of three surgical programs using in-situ simulations (brachytherapy, hyperthermic intraperitoneal chemotherapy, and interventional pulmonology), an on-site transfusion medicine blood dispensing program, new robotics programs involving four surgical specialties, and implementation of the Good Catch Award to incentive adverse events reporting. Students in the QPSRM Program have submitted 14 abstracts and 8 poster presentations at various national and state conferences, and won numerous awards for their work. All QPSRM projects have targeted and embraced the six ACGME core competencies in medical practices.
Table 1 attached.

Sustainability.
The QPSRM Program is ongoing in its effort to educate students, identify defects, and formulate solutions to sustaining a positive patient safety culture. As an innovative model for educating future physicians on patient safety by beginning at the undergraduate level, the program is sustained by the inclusion of medical students, ACCM residents, and new undergraduate participants.
Role of Collaboration and Leadership.
A multidisciplinary group of physicians, surgical and anesthesia administrators, nurses, risk managers, and managers of clinical operations and information technology in the WPCST collaborate to ensure the progress of QPSRM safety initiatives. Success of the student program is marked by the recent incorporation of QPSRM into the ACCM residency training systems-based learning curriculum. In addition, medical students collaborate with QPSRM participants to improve the quality and utility of the ACCM resident CODE bags, while nursing staff and students have been instrumental in the establishment of web-based educational resources for safety projects. Finally, contributions from QPSRM participants have significantly increased capacity and support to the WPCST members on quality improvement and patient safety projects in the hospital.

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<table>
<thead>
<tr>
<th>Year</th>
<th>QPSRM Projects</th>
<th>Proficiencies</th>
<th>Academic Achievements</th>
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<tbody>
<tr>
<td>Freshman</td>
<td>STIX sharps hazard, Latex exposure reduction, SBAR format, PSN Introduction</td>
<td>Introduction to the OR, Introduction to Lean Six Sigma (L6S), RCA</td>
<td>WPCST web module and practitioner education on latex safe practices</td>
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<td>Sophomore</td>
<td>13 Good Catch Awards, Program Pilot i.e., Heliox therapy, Insulin administration, Modified surgical stapler, In-situ simulations, IORT, HIPEC, Interventional pulmonology, DART</td>
<td>Abstract writing, Story board presentation, L6S on efficiency maximization</td>
<td>5th Annual Maryland Patient Safety Conference</td>
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<tr>
<td>Junior</td>
<td>14 more Good Catch Awards, Program Expansion and Sustainability i.e., Vecuronium and drug look-alike errors, King LT-Dairway, In-situ simulations, IORT, Robotic transaxillary thyroidectomy, DART, Weinberg Practices, Bone Marrow Harvest, IORT, Interventional pulmonology, Transfusion medicine blood dispensing, ACCM CODE bag standardization</td>
<td>Manuscript and scientific paper writing, Literature searches for academic writing, Academic poster presentations, Course background in health policy, biostatistics, and epidemiology</td>
<td>11th Annual ACCM Research Day - Silver Medal, 6th Annual Maryland Patient Safety Conference, 1st Annual JHU Public Health Studies Undergraduate Research Day, FDA national vecuronium recall, QPSRM incorporated into ACCM practice-based learning curriculum for residents</td>
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<td>Senior</td>
<td>ACCM CODE bag standardization and operationalization, DART year 1 and 2 analysis, MedicAlert Foundation National Difficult Airway/Intubation Registry</td>
<td>L6S methodology on capacity building and efficiency improvement, Design for Lean</td>
<td>Society of Airway Management, University Health Consortium (UHC) Patient Safety Fall Forum, QPSRM incorporated into elective anesthesia rotations for medical students</td>
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