“The principal goals of research and education are to create people who are capable of doing new things, not simply of repeating what other generations have done—people who are creative, inventive and discoverers.”

JEAN PIAGET
## Table of Contents

Welcome from Kevin T. Hinchey, MD, FACP .................................................................1

Excellence in Teaching Award .......................................................................................2

Award for Outstanding Achievements in Clinical Research ........................................3

Schedule of Events ........................................................................................................4

Academic Week Abstract Awards

Academic Half Day: An Old Bottle, But New Wine ..........................................................6

Android Application Based Educational Tool to Improve Cost-Conscious Care Among Internal Medicine Residents .................................................................7

Burn Wound Disinfection with Pulsed Electric Fields in the Murine Model ...................8

Clinical Outcomes of Transferred vs. Onsite Primary Percutaneous Coronary Intervention for Patients with ST – Elevation Myocardial Infarction - The Need to Look Beyond Door to Balloon Time .................................................................9

Development of a Tool to Guide Consistency and Rigor in Resident Scholarship ..........10

Effect of Massachusetts’ Graduated Driver Licensing System on Adolescent Motor Vehicle Crashes .................................................................11

Engaging Nurses in the “Art of Questioning” .................................................................12

Enhancing Physician Resiliency and Improving Patient Centered Care ........................13

Healthcare Providers’ Knowledge of Different Diets and Dietary Advice Provided to Patients .................................................................14

Laryngeal Mask Airway Placement in Children Prior to an Intravenous Line Utilizing Heart Rate as an Indicator of Anesthetic Depth .................................................................15

Measuring the Most Functional Operating Position for Gynecologic Laparoscopy Procedures .................................................................16

New EKG Criteria for Hyperkalemia in Chronic Hemodialysis Patients ........................18

NOTES Transgastric Ventral Hernia Repair in a Porcine Survival Model ..........................20

Pharmacy Availability of Ulipristal Acetate Emergency Contraception: An Audit Study .................................21
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-surgical Distress Following Weight Loss Surgery is Associated with Reduced Weight Loss</td>
<td>22</td>
</tr>
<tr>
<td>Questioning the Benefit of Immediate CT Scanning in Suspected Renal Colic: A Retrospective Chart Review of Patients Age 50 and Under Presenting with Flank Pain</td>
<td>23</td>
</tr>
<tr>
<td>Restructuring the Pediatric Viral Respiratory Testing Protocols and Procedures: A QI Initiative</td>
<td>24</td>
</tr>
<tr>
<td>Resurgence of Penicillin-sensitive Staphylococcus Aureus in a US Tertiary Care Hospital, a Prevalence Study</td>
<td>26</td>
</tr>
<tr>
<td>Retrograde Superior Mesenteric Artery Stenting for the Treatment of Acute-on-Chronic Mesenteric Ischemia: A Case Series</td>
<td>27</td>
</tr>
<tr>
<td>Rhodiola Crenulata Extract-A Novel Therapy for High Risk Neuroblastoma</td>
<td>28</td>
</tr>
</tbody>
</table>
Dear Colleagues,

Welcome to Baystate Health’s Academic Week 2014! This year’s theme is *Cultivating Research and Education in an Era of Limited Resources*. The collection of scholarly activity from our physicians, residents, fellows, advanced practitioners, nurses, coordinators, and allied health professionals contribute to this theme. Academic Week demonstrates how Baystate is an award winning institution where high quality research and teaching contribute to the practice of providing high quality patient care.

The week begins with a keynote address by Thomas P. Agresta, MD, MBI, a seasoned clinician, educator and researcher from UConn Health and the Connecticut Institute for Primary Care Innovation. Other scheduled events include a poster reception, abstract presentations, and panel discussions which address navigating challenges and finding solutions during this difficult epoch. Light entertainment is also programmed in the form of *As Baystate Matches Wits*. And, as always, Academic Week concludes with the highly anticipated Awards Luncheon where our finest teachers and researchers are publicly recognized.

For fifteen years, Academic Week has been successful due to the generous contributions of time, energy and expertise by so many. Special recognition is given to the Academic Week Steering Committee for organizing an outstanding event and the Awards Committee for reviewing abstracts and adjudicating awards.

Please review the Academic Week daily schedule. Visit, learn and recognize the breadth of scholarly contributions made by your Baystate colleagues to the practice, improvement, study and teaching of high quality of patient care.

Thank you for attending Academic Week 2014.

Sincerely,

Kevin T. Hinchey, MD, FACP
Chief Academic Officer
Baystate Health
2014 Excellence in Teaching Award

This award recognizes an employee who has helped advance the mission of Baystate by making significant contributions towards engaging and motivating learners.

James Lane, BS, MT (ASCP)
Lead Medical Technologist, Transfusion Medicine
“Jim Lane is the finest example of an educator in Laboratory Science that I have encountered in my professional life...he has a true passion and talent for teaching and everyone who has been his student (including me) would confirm this.”

Honorable Mention:

Raquel K. Belforti, DO
Assistant Program Director, Internal Medicine Residency Program and Director of Internal Medicine Simulation Training
“By utilizing novel teaching techniques such as team-based learning (TBL) and “flipping the classroom,” Dr. Belforti was able to foster an educational environment that has maximized opportunity and satisfaction for both teachers and learners...feedback has been outstanding with regard to content, delivery and overall satisfaction.”

Neal Edward Seymour, MD, FACS
Chief, General Surgery Division
“As my teacher and mentor, I cannot think of anyone more deserving of such recognition for all that he exemplifies regarding resident education, faculty development and program enhancement through innovation….the number of lives Dr. Seymour has and does and will continue to touch are endless.”

Richard B. Wait, MD, PhD, FACS
Chairman, Department of Surgery
“Dr. Wait leads by example and models professionalism, outstanding leadership, dedication to patient care, and a desire to constantly work to better ourselves and our department to best take care of patients.”

Nominees:

Gail Aucella, PTA
Rebecca Blanchard, PhD
John Brooling, MD
Stanlies D'Souza, MD
Marshall Fox, MD
James Gebhardt, MD
Chelsea Gordon, DO
Michele Hart, RN

Susie Ho-Sang, CMA
John Joelson, MD
Brendan Kelly, MD
Jay Kuhn, MD
Stephen Ryzewicz, MD
Sundeen Shukla, MD
Richard Steingart, MD
2014 Award for Outstanding Achievements in Clinical Research

This award recognizes the outstanding contribution of a research staff member to either the conduct of clinical research within Baystate Health (systems contribution) or to the field (regional or national recognition).

Susan Garrow-Sloan, R.N., B.S.N, CCRP
Clinical Research Coordinator, Pediatric Endocrinology

“Susan’s extreme dedication to her work and focus on details along with unique humble personality including incredible patience and respect for everyone involved in the research process from study participants to trainees and collaborators helped our division become a research champion in the Department of Pediatrics.”

Honorable Mention:

Reva Kleppel, MSW, MPH
Research Consultant, Internal Medicine

“Reva is a wonderful asset to resident research…her encouragement and support help keep us motivated to do research…it is an honor and a privilege to know her and work with her and I am grateful for all the time she invested being a source of support and inspiration”

Mary Gervasini, BA, CCRP
Clinical Research Coordinator, Department of Pediatrics

“Mary’s experience, attention to detail, organization and excellent communication skills have helped keep our program at the highest standard and we are grateful…she is a compassionate leader in her field and shares her knowledge generously.”
**SCHEDULE OF EVENTS**

**MONDAY, JUNE 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 12:00 – 1:00 pm | **KEYNOTE SPEAKER:** Thomas Agresta, MD, MBI  
                  **Educating Our Healthcare Learners in the Rapidly Changing World of Health Information Technology** |
| Chestnut 1 A/B | Concerned that learners will be excluded from the optimal use of technology required for patient care due to their educational status? Looking for examples of how learners can help us transform our care environments into high-functioning, patient-centered multidisciplinary team environments? This presentation will review some of the challenges and opportunities in educating students and residents within the rapidly changing healthcare system with the advent of patient centered medical homes, accountable care organizations, meaningful use and the upgrading, implementation and use of many forms of rapidly changing health information technology (EHR’s, PHR’s, Registries, HIE’s etc).  
Dr. Agresta is a Professor of Family Medicine and a seasoned educator, administrator, researcher and innovator with a history of bringing together multidisciplinary teams to focus on developing novel methods for creating, using and evaluating technology in both clinical and teaching settings. He has a bachelors in Biomedical Engineering from Stevens Institute of Technology, a medical degree from New Jersey Medical School and a masters in Biomedical Informatics from Oregon Health Sciences University. He oversees the Electronic Medical Record for the Family Medicine residency clinic and has held state level leadership roles in adoption and implementation for Health Information Exchange and Electronic Health Records. He co-leads the BioMedical Informatics Division (BMID) within the Connecticut Institute for Clinical And Translational Science for the University of Connecticut. He is also the section leader for Informatics in the Connecticut Institute for Primary Care Innovation, a joint venture between the University of Connecticut and St Francis Hospital. |
| 1:00 – 4:00 pm | ePosterboards open for viewing |
| 4:00 – 6:00 pm | **Poster Reception** |
| Chestnut 1 A/B | Come view Baystate research on digital ePosterboards and meet with Abstract authors. |

**TUESDAY, JUNE 3**

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<th>Event</th>
</tr>
</thead>
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| 12:00 – 1:00 pm | **As Baystate Matches Wits hosted by Paul Visintainer, PhD and Annie McNeill**  
                  **Development of a Tool to Guide Consistency and Rigor in Resident Scholarship; Rebecca Blanchard, PhD**  
                  **Pharmacy Availability of Ulipristal Acetate Emergency Contraception: An Audit Study; Ashley Brant, DO, MPH**  
                  **Laryngeal Mask Airway Placement in Children Prior to an Intravenous Line Utilizing Heart Rate as an Indicator of Anesthetic Depth; Donald Schwartz, MD** |
| Chestnut 1 A/B | Have you ever dreamed of being on a game show? Well, here’s your chance to join your colleagues in this fun, informative and interactive game show style presentation. Test your wits about Baystate education and research using the audience response system! |

**WEDNESDAY, JUNE 4**

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<th>Event</th>
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| 12:00 – 1:00 pm | **Carving Your Path as an Educator with Limited Resources: A Panel Discussion with Clinical Educators for Clinical Educators**  
                  **Moderator:** Rebecca Blanchard, PhD  
                  **Panelists:** Michael Rosenblum, MD, Gladys Fernandez, MD and J. Aleah Nesteby, NP |
| Chestnut 5 | How can you develop as a clinical educator with limited time and funding? How do you translate your educational ideas, innovations, and activities into scholarship? Hear from clinical educators who are beginning to or have successfully navigated this area, and identify opportunities, regionally, and nationally, to develop as an educator and disseminate your work. Share challenges and solutions encountered when carving your path as a clinical educator. This panel event is intended for educators in all professions at Baystate who wish to contribute to the field of clinical education, through scholarship, scholarly practice, and professional development. |
**SCHEDULE OF EVENTS**

**Wednesday, June 4**

12:00 – 1:00 pm
Chestnut 3
**Abstract Presentations**
- Measuring the most functional operating position for gynecologic laparoscopy procedures; Tara Abraham, MD, MPH
- Effect of Massachusetts’ Graduated Driver Licensing System on Adolescent Motor Vehicle Crashes; Michael R. Flaherty, DO
- Android Application Based Educational Tool to Improve Cost-Conscious Care Among Internal Medicine Residents; Auras R. Atreya, MD

5:00 – 6:00 pm
Chestnut 1 A/B
**Community Event: Baby I Need Your Lovin’…But Not Yet**
Katharine White, MD, MPH, Chief, Division of General Obstetrics and Gynecology and her 2013 summer research scholars, Erin Amato and Brendan Prast, will present two projects designed to help women achieve the best timing for growing their family. The presentation will investigate the risk factors for why some women have a repeat pregnancy much sooner than they want after having a baby and will also examine the impact of giving teenage mothers the most effective birth control methods – before they leave the hospital with their baby.

**Thursday, June 5**

12:00 – 1:00 pm
Chestnut 1 A/B
**How to navigate the time and resources to be successful in research:**
A Panel Discussion with Baystate Researchers
- **Moderator:** Paul Visintainer, PhD
- **Panelists:** Shirley Hamill, RN; Shawn Roggie, PharmD; Rachana Singh, MD; Mihaela Stefan, MD

How can you find the time to successfully conduct research at Baystate? Where do you find the resources? How do you get started? Hear from Baystate investigators who have successfully navigated the challenges of the research process. This panel is intended for any one at Baystate who conducts research or are interested in conducting research.

12:00 – 1:00 pm
Chestnut 3
**Abstract Presentations**
- Questioning the Benefit of Immediate CT Scanning in Suspected Renal Colic: a Retrospective Chart Review of Patients Age 50 and Under Presenting with Flank Pain; Elizabeth Schoenfeld, MD
- Resurgence of Penicillin-sensitive Staphylococcus Aureus in a US Tertiary Care Hospital, a Prevalence Study; Matthew R. Chabot, MD
- New EKG Criteria for Hyperkalemia in Chronic Hemodialysis Patients; Muzzaffar Hussain, MD

5:00 – 6:00 pm
Chestnut 1 A/B
**Academic Affairs Reception**
Education and research play a valuable role in the development of Baystate providers and the care of Baystate patients. This reception is a celebration of the many ways we contribute to improving care through education and research, and will highlight stories that reflect this powerful collaboration.

**Friday, June 6**

12:00 – 1:00 pm
Chestnut 1 A/B
**Awards Luncheon**
The Excellence in Teaching Award and Outstanding Achievements in Clinical Research Award recipients will be announced and the Abstracts selected for Academic Week recognition will be acknowledged.
**ABSTRACT RECOGNITION**

**Academic Half Day: An Old Bottle, But New Wine**

Raquel Belforti, DO; Lauren Meade, MD; Ania Stepczynski, MD; Jorge Velez, MD; Michael Picchioni, MD; Sam Borden, MD; Brendan Kelly, MD; Reham Shaaban, DO; Chris Bryson, MD; Sudeep Aulakh, MD; Gina Luciano, MD; Michael Rosenblum, MD

**PROBLEM**

In an era of duty-hour restrictions and increasing demands on patient throughput, internal medicine residency programs are looking for new, more effective ways to meet the ACGME requirement of providing residents a didactic series on core medical knowledge. Many internal medicine residency programs have abandoned the traditional noontime lecture for an academic half day, in which all residents come together once weekly for longer designated periods of time, providing the opportunity for deliberate sequenced curricular content, protected learning time for residents, and encouragement of resident preparation and accountability for learning1. In September 2013, the Baystate Medical Center Internal Medicine Residency implemented an academic half day (AHD) to replace noontime lectures.

**DESCRIPTION OF INNOVATION**

The Baystate AHD is a mandatory conference for all medicine and medicine-pediatric residents on Tuesdays 1-5pm, comprised of four 50-minute sessions. This conference provides residents with protected learning time in which attendings cover all patient care responsibilities. Principles from team based learning and the “flipped classroom” have been incorporated into each session to provide an interactive learning experience. Each academic half day is focused on one main topic, residents are provided with mandatory pre and post-reading articles, complete multiple-choice tests based on these readings, participate in small groups working through patient cases with questions focused on highlighting pathophysiology, clinical presentation, diagnosis, management, and up-to-date evidence based medicine. Each small group learning activity is coupled with an interactive didactic overview by a designated subspecialist. The small group learning activities are developed by a senior resident in conjunction with an AHD course director and subspecialist. Each subspecialist is provided with literature on interactive didactic techniques and feedback on their presentations to provide a faculty development experience. Other AHD sessions include Evidence Based Medicine, Physical Diagnosis, Board Review, Doctor-Patient Communication, Intern Intake, Quality Improvement, Morbidity and Mortality, Pathology, and Residency Committee.

**RESULTS**

- Ninety percent of the residents completed an AHD mid-year evaluation.
- 100% of interns, 88% of second year residents, and 77% of senior residents rated the AHD as a better educational experience compared to the traditional noontime lecture.

Qualitative analysis:

- Interns felt the AHD is a clear, organized curriculum that provides focused learning for both inpatient and outpatient settings.
- Second year residents focused on AHD providing an opportunity for topics to be covered more thoroughly and in a practical manner that allows knowledge to be applied to the clinical setting.
- Senior residents highlighted the protected time for education in which they are reading more and spending more time in education.

Subspecialist presenters have provided verbal feedback that the AHD is an enjoyable experience in which the program is very organized and residents are much more prepared to learn compared to the traditional noontime lecture experience.

**CONCLUSION**

The Baystate Medical Center Internal Medicine Residency AHD has proven to be a positive educational change, utilizing the format of a traditional classroom setting but altering the content to be focused on case based, small group learning coupled with interactive subspecialist didactic lectures to provide an experience to promote life-long learning.

**REFERENCES**

Auras R. Atreya MD; Behdad Besharatian MD; Stefano Bucy; Thomas L. Higgins MD, MBA

PROBLEM
Cost of care in the United States is substantially higher than other nations and health care overutilization is an area of focus in today’s economic environment. The American Board of Internal Medicine Foundation recently launched the ‘Choosing Wisely’ initiative, aimed at reducing overuse of tests and procedures. Of the major drivers of overuse, one of the proposed physician-related factors is physician culture, which emphasizes thoroughness during medical education years. It is possible that this leads to increased test ordering in order to complete evaluation. However, it has been previously shown that medical residents have poor knowledge of the cost of diagnostic tests. Given that cost-effective care is part of the competencies required by the Accreditation Council for Graduate Medical Education (ACGME), there exists an opportunity to improve awareness of diagnostic tests and facilitate cost-effective care. Our objective was to develop an educational intervention that would raise awareness of medical residents with regard to frequently ordered diagnostic tests.

DESCRIPTION OF INNOVATION
Baystate Medical Center is an academic medical center in Springfield, MA that serves as the Western Campus of Tufts University. Educational curriculum for internal medicine residents and medicine-pediatrics residents on the inpatient medical service includes a half-hour morning report that is based on clinical case-based learning. This is an interactive session where residents hone critical decision-making and are involved in determining appropriate work-up for each particular presentation. We developed an android OS based application for mobile devices that would display the cost of commonly ordered tests. Cost of tests was based on fee-schedule that was obtained from the Financial Department of Baystate Medical Center. The mobile device can be connected to a projector and the cost of last ordered test is displayed along with total cost of tests ordered. Tests included in the application include serum chemistries, hematological tests, cardiac enzymes, CSF, urine and stool studies. Frequently ordered radiological tests, echocardiography and stress tests were also built into the application.

RESULTS
Prior to implementing this application in morning report sessions, we will conduct a pre-intervention survey where we asked all residents present at an academic half day (protected time where all internal medicine and medicine-pediatrics residents attend) will be asked to estimate the value of 10 commonly ordered diagnostic tests. We will then educate residents to use the application during morning report. Since not all residents attend morning report, we will have a group of residents not exposed to the application in addition to those exposed to the application. This will then allow us to conduct a post intervention survey to compare the effect of the educational intervention in this exposed to the application, with the unexposed group serving as a control group.

FEASIBILITY OF MAINTAINING PROGRAM
Although educational interventions to encourage cost-effective care among resident physicians have been developed before, this Android application is an innovative tool aimed at incorporating cost-consciousness into the initial work-up of patients admitted to the hospital without compromising thorough medical evaluation. Utilizing this tool during morning report will remain feasible since it does not involve a major change from current practices and it can become part of curriculum for residents on inpatient medicine service. Ultimately, the goal is to extend the use of this application in routine day-to-day patient care on the medicine wards.

PRESENTATIONS
SGIM National Conference, San Diego, CA – April 2014
SGIM Regional Conference, Boston, MA - March 2014

AWARDS
Best Innovation in Medical Education, SGIM Regional Conference, Boston, MA - March 2014
Burn Wound Disinfection with Pulsed Electric Fields in the Murine Model
Saiqa I. Khan, MD; Alexander Golberg, PhD; G. Felix Broelsch, MD; Daniela Vecchio, PhD; Michael R Hamblin, PhD; Robert L. Sheridan, MD, Martin L. Yarmush, MD, PhD; William G. Austen, Jr., MD

BACKGROUND
The use of antibiotics is often inefficient in burn disinfection due to emerging bacterial resistance. Here we report on a new, physical burn wound disinfection method: pulsed electric fields (PEF). High voltage, short PEF create non-thermal, permanent damage to cell membranes, possibly by irreversible electroporation mechanisms. In medicine, PEF has recently been used for non-thermal ablation of solid tumors. We have expanded the spectrum of PEF applications in medicine to burn wound disinfection.

METHODS
A third degree burn was induced on the dorsal skin of C57BL/6 mice. Immediately after the injury, the burn wound was infected with Acinetobacter baumannii expressing luxCDABE operon. Thirty minutes after infection, the infected areas were treated with 80 pulses delivered at 500 V/mm, 70µs, 1Hz. We used bioluminescence to quantify bacterial burden. Three animals were used per experiment condition.

RESULTS
PEF were effective in the disinfection of infected burned murine skin. The bacterial load reduction correlated with the number of delivered pulses. Forty pulses of 500V/mm led to 2.04 ± 0.29 Log10 reduction in bacterial load; 80 pulses led to the immediate 5.53 ± 0.30 Log10 reduction. Three hours after PEF, the bacterial reduction of the skin treated by 500V/mm, 80 pulses was 4.91 ± 0.71 Log10.

CONCLUSIONS
We introduce a new method of wound disinfection using high voltage, short PEF. We believe that PEF, in combination with systemic antibiotics, provide a new method for infection combat in patients; therefore, significantly decreasing morbidity and mortality.

PRESENTATIONS
46th Annual American Burn Association
Boston, MA – March 2014

PUBLICATIONS
Accepted for publication in Technology. Currently in print, Pulsed Electric Fields for burn wound disinfection in the murine model.
Clinical Outcomes of Transferred vs. Onsite Primary Percutaneous Coronary Intervention for Patients with ST – Elevation Myocardial Infarction –
The Need to Look Beyond Door to Balloon Time

Jaya Mallidi, MD; Daniel Fisher, MD; Kurt Barringhaus, MD;
Aaron Kugelmass, MD; Paul Visintainer, PhD; Amir Lotfi, MD

BACKGROUND
Despite the development of regional STEMI centers, there are several practical aspects that delay mechanical reperfusion in patients transferred from a non-Percutaneous Coronary Intervention (PCI) facility. It is unknown if these delays in the real world translate into adverse outcomes.

AIM
The aim of this study is to compare the major cardiovascular outcomes in relation to the door to balloon time between transferred and onsite STEMI patients.

METHODS
We conducted a retrospective cohort study of all patients > 18 years of age who presented with STEMI and underwent primary PCI in two large regional STEMI centers in Massachusetts – Baystate Medical Center and University of Massachusetts Memorial Medical Center between January 2005 – December 2010. Data was obtained using the electronic data base system that is routinely used to collect data on all STEMI patients to report to Massachusetts Data Analysis Center. We compared the door to balloon time (DBT), the door to door to balloon time (DDBT) and in hospital major cardiovascular events (myocardial infarction, stroke, revascularization, stent thrombus and bleeding) between transferred and onsite STEMI patients who received primary PCI.

RESULTS
The cohort included a total of 1398 patients. Among them, 520 (37%) patients were transferred from a non PCI hospital and 898 (63%) presented onsite for primary PCI. There was no statistical difference in the baseline characteristics between the two patient groups. The median DDBT was noted to be 124 minutes for transferred patients, compared to a median DBT of 70 minutes for patients arriving directly at the PCI hospitals. The rate of all bleeding events was noted to be significantly higher in the PCI hospital patients compared to non-PCI hospital patients (5.8 (non PCI) % vs. 9.9% (PCI) %, p =0.007). However, there was no statistical difference in the composite end point (4.1 % (PCI) vs. 4.4% (non PCI), p = 0.78), or mortality (3.3 (PCI) % vs. 3.5% (non PCI), p=0.88).

CONCLUSION
This study confirms that regional STEMI programs can provide exceptional care to transfer as well as onsite patients, with comparable outcomes. Parameters other than DBT times should be investigated for their contributions to improved patient outcomes.

PRESENTATIONS
Society of Angiography and Interventions. Las Vegas, NV - May 2014
Abstract

Development of a Tool to Guide Consistency and Rigor in Resident Scholarship
Rebecca Blanchard, PhD; Paul Visintainer, PhD; Kevin Hinchey, MD; Jeffrey La Rochelle, MD, MPH

BACKGROUND AND PROBLEM
In 2007, the Institute of Medicine (IOM) called for a Learning Healthcare System in a 2007 document which envisioned practitioners that “…drive the process of discovery as a natural outgrowth of patient care.”¹ They viewed evidence and patient care as intertwined components of excellent physician practice. The scholarly activity requirement mandated by the ACGME is one process by which we develop physicians to integrate evidence into their practice and generate evidence from their practice. This abstract describes the development of a rubric to improve the quality and consistency of skills obtained through resident scholarship.

DESCRIPTION OF INNOVATION
Program leaders from ten residency and 21 fellowship programs at Baystate were brought together to identify the skills associated with successful completion of a resident scholarly project. Skills were then organized and mapped onto two frameworks; principles for applying evidence-based medicine² (for research studies) and the criteria for a scholarly approach to teaching³ (for non-research projects, such as case reports or educational innovations). Feedback on mapped skills was obtained from research mentors and experts internal and external to the institution.

RESULTS
The resulting rubric contains a checklist for both research and clinical (or non-research) scholarship. Residents identify a mentor, project type (research or clinical), and timeline on the tool. Mentors indicate which skills the resident should demonstrate with the project; and subsequently indicate when the skill is completed. The purpose of the tool is to explicitly define a set of skills that demonstrate rigorous approach to scholarship. We are beginning a multi-institutional pilot of the checklist to establish completeness, utility, and feasibility, however establishing a common framework for scholarly skills among residents and mentors is a big first step. This rubric has strong potential to assist mentors in clarifying expectations, informing feedback, and maintaining a consistent level of rigor to sustain a scholarly approach to practice.

PRESENTATIONS
Ottawa/CCME Conference. Ottawa Canada - April 2014

REFERENCES
Effect of Massachusetts’ Graduated Driver Licensing System on Adolescent Motor Vehicle Crashes
Michael R. Flaherty, DO; Jane Garb, MS; Nancy Miller, MD; Laura Koenigs, MD

BACKGROUND
Motor vehicle crashes are the most common cause of death in the United States for adolescents. Since 1998, Massachusetts has implemented a Graduated Driver Licensing (GDL) system requiring teenagers to gain experience under conditions of low crash risk before gaining full privileges.

OBJECTIVE
To evaluate the impact of changes to strengthen Massachusetts’ GDL law on motor vehicle crashes in 16-18 year olds, as well as to assess whether these effects persist into young adulthood.

STUDY DESIGN
Longitudinal analysis of quarterly motor vehicle crashes in Massachusetts drivers aged 16-24 years from 2002-2010.

METHODS
Motor vehicle crash rates were analyzed for drivers aged 16-24 years during two time periods: 2002-2006, before the GDL law was strengthened, and 2007 (fourth quarter)-2010, after implementation of changes. Population-based crash rates over time for 16-24 year-old drivers before and after implementation of the law. Multiple regression was performed to test whether the rate of change in crash rates by quarter over time was different for the two time periods, after controlling for age and sex of the driver.

RESULTS
Motor vehicle crash rates for drivers aged 16-24 declined at a rate of 0.5% per quarter prior to implementation of changes to the GDL law in 2007, with an accelerated drop of 3.7% per quarter after 2007, a difference of 3.2% (p< 0.001). Logistic regression showed significant differences in time of crash by age (p<0.001) and period (p< 0.001). The proportion of crashes occurring between 12 and 5 AM dropped from 7.2% before 2007 to 6.3% after 2007 (p<0.001). There were no differences in the rates of fatal crashes between the two time periods or by age group.

CONCLUSIONS AND RELEVANCE
Changes to the Massachusetts GDL law in 2007 to enhance driver education and training, as well as to enact stricter penalties for violations have contributed to a significant decline in crash rates for Massachusetts youth. These effects seem to persist into young adulthood. Expanded restrictions on nighttime driving may further reduce crashes.

PRESENTATIONS
Pediatric Academic Society Conference
Vancouver, BC - May 2014

PREVIOUS AWARDS
Research Award for Best Abstract by a Resident
American Pediatric Association - May 2014
PROBLEM

Nurses at the point of care know the most about the impact of practice on patient outcomes. As they are closest to the patients receiving the care, they have the best opportunities to think critically when making clinical decisions. If there is evidence supporting a “better practice,” then questions from the RNs can start the process. How do we encourage and engage RNs to ask their clinical questions? Time constraints, resource limitations, knowledge deficits, and fear of conducting “research” often hinder them from pursuing clinical questions. Numerous issues need to be considered when engaging RNs to promote “clinical inquisitiveness.”

DESCRIPTION OF INNOVATION

The “Art of Questioning” Campaign (AOQC) was initiated as a mechanism to encourage direct care nurses’ clinical inquisitiveness & curiosity inclinations. Nurses have viable clinical questions that can improve patient care, safety, satisfaction & outcomes. In an era of limited resources and time, however, RNs are often unable to pursue evidence-based research endeavors on their own. In order to more fully participate in the research process, RNs need to partner with experts with whom they can collaborate to develop the problem into a formalized, actionable question. The “AOQC” team created an innovative strategy to encourage, engage, and support clinical nurses in submitting their questions for potential development as ideas for further inquiry and practice changes. Committee membership represented collaboration between the divisions of Nursing and of Healthcare Quality. An educational tool using SurveyMonkey® was developed to teach nurses the processes of constructing and submitting a clinical question using the PICOT method. An intensive marketing campaign was undertaken to ensure nursing engagement with the initiative. Committee members reached out to BMC and BCH nursing unit staff, managers, directors, and clinical practice groups including inpatient, ambulatory, BMP, BOSC, OR, Pre-Op and Chestnut Ambulatory Centers. In addition to the on-line training via SurveyMonkey®, members conducted in-services on the PICOT method at unit CPC meetings and at nursing committees. Email communications from the CNO/VP were sent to all nursing staff. Flyers, posters, and advertisements were distributed to staff upon arrival to work and in the cafeteria. Articles about the campaign were posted in the BH Connections bulletin and on eWorkplace. Committee members conducted one-on-one mentoring sessions with RNs to support development of their “question.”

RESULTS AND CONCLUSIONS

121 RNs and ancillary staff from 39 inpatient and outpatient locations submitted 79 clinical questions; 39 of those questions were developed into posters by the RNs. Committee members critically and objectively reviewed submitted posters using a grading rubric to ensure thoughtful and fair consideration. The Campaign culminated with a Nursing Grand Rounds celebration with a keynote speaker on “Nursing Inquiry.” Awards were given to the authors of the Best Question/Poster, 2 Runners-up, and 5 Honorable Mentions. The committee reached out to winners to establish a plan for supporting and moving forward with their projects as research endeavors.

Collaboration between clinicians & researchers enhances clinician’s interest, knowledge and competence in the research process. It contributes to clinically relevant research that may improve practice & patient safety, builds research capacity and fosters innovation. Cultivating an atmosphere encouraging “clinical inquiry” is paramount to nursing engagement.
Enhancing Physician Resiliency and Improving Patient Centered Care
Robert Smith, DO; Michael Picchioni, MD; Harry Hoar III, MD; Steven Fischel, MD

BACKGROUND
Burnout among physicians is prevalent and can have negative consequences on patient care\(^1\). Mindfulness-based physician education has been shown to have favorable effects on burnout, mood, empathy, and job satisfaction among primary care physicians\(^2\). The aim of this study was to determine if a mindfulness-based physician training could achieve similar outcomes among a mixed group of physicians from various specialties.

METHODS
Participants – Twenty-two physicians from general internal medicine and general pediatric and subspecialties: dermatology, endocrinology, geriatric medicine, hospital medicine (Adult and Med/Peds), pediatric rheumatology, psychiatry (adult and pediatric), and surgery, participated in a year-long program of mindfulness-based education.

Interventions – The initial intense period included 8 weekly 2.5-hr sessions followed by a full day silent retreat. A continuity period followed with 8 monthly 2.5-hr sessions. Sessions involved training in mindfulness, as well as didactics and discussions of clinically relevant experiences using Appreciative Inquiry.

Measurements – Baseline and periodic measurements were made using validated instruments. These included Maslach Burnout Inventory (MBI), Perceived Stress Scale (PSS), Jefferson Physician Empathy Scale (JPE S), Mindfulness Awareness Attention Scale (MAAS), Ten Item Personality Inventory (TIPI), and Profile of Mood States (POMS).

RESULTS
Of the 22 participants enrolled, 18 completed all components of the program and are included in the analysis. All measurements showed favorable change for both PCP’s and specialists. Those reaching statistical significance for the entire group by the end of the study include MBI, PSS, MAAS, TIPI-E S, TIPI-O , and POMS. Improvement in the JPE S very nearly reached that level.

CONCLUSIONS
These results further validate previous findings among primary care physicians. This study indicates that non-primary care physicians also significantly benefit from mindfulness-based physician education in improving resilience. Further study is needed to determine which components contribute the most to the outcomes and whether a shorter duration of the intervention would produce similar results.

REFERENCES
2. Krasner MS et al, Association of an Educational Program in Mindful Communication with Burnout, Empathy, and Attitudes Among Primary Care Physicians, JAMA 2009; 302(12):1284-93

PRESENTATIONS
Society of General Internal Medicine Regional Conference. March 2014
BACKGROUND
Therapeutic lifestyle changes, including diet and exercise, are considered first line therapy for patients at risk of coronary heart disease (CHD). It is unknown what dietary advice healthcare providers offer to patients and whether they tailor that advice to specific risk factors. Similarly, healthcare providers’ knowledge of the evidence supporting various diets has not been assessed. Our objective was to determine which diets physicians recommended to patients, as well as their beliefs about the evidence behind those recommendations.

METHODS
We surveyed attending physicians, fellows, residents, nurse practitioners and physician assistants in internal medicine, cardiology, endocrinology and family medicine at multiple practices within 2 health systems - Baystate Health and the Cleveland Clinic. The 22-question survey was devised by the investigators to determine physicians’ dietary recommendations for patients with diabetes mellitus (DM), hypertension (HTN), dyslipidemia, obesity and CHD; and to test healthcare providers’ knowledge regarding published evidence for various diet recommendations. Knowledge scores were constructed based on number of correct responses to questions about evidence for the benefits of various diets. Average knowledge scores were compared according to provider characteristics using one-way analysis of variance.

RESULTS
The overall response rate was 55.5% (236/462, 51.1% at Cleveland Clinic and 67.3% at Baystate Medical Center). 115 (33%) from Baystate and 236 (67%) at Cleveland Clinic completed survey questionnaires. 8 questionnaires were excluded for missing or incomplete demographic and attitude scores. Among 343 remaining responses, 163 (47.5%) were attending physicians, 155 (45.2%) house staff and 25 (7.3%) advanced practitioners. The majority (n=309, 90.1%) were from primary care specialties. Most (81.9%) healthcare providers felt it was very important for patients to follow a healthy diet, but only 38.6% of these physicians offered dietary advice to all patients. Instead, 59.9% gave dietary advice to high-risk patients or those who asked for advice. The top dietary recommendations for HTN were a low salt (70.8%) or DASH diet (69.6%); for uncontrolled DM a low carbohydrate diet (63.7 %), for obesity a low calorie diet (71.6%), for CHD low saturated fat (63.2%) or Mediterranean diet (57.3%) and for dyslipidemia a low saturated fat diet (72.8%). Only 28.8% of healthcare providers recommended the same diet for all conditions. Providers believed that 50.7% of their incorrect diet recommendations were supported by randomized trial evidence. The most common misconceptions were that randomized trial evidence existed that low carbohydrate diet helps control DM (63.7% of providers) and that Mediterranean diet increases life expectancy (51.5% of providers). Respondents’ overall knowledge of randomized trial evidence for dietary interventions was low (Mean/SD knowledge score 34.1%/15.3%, range 0% to 62.5%). Knowledge scores of attending physicians were higher than those of house staff (+5.0 percentage points, 95% CI 1.7, 8.3 percentage points, p=0.04) and advanced practitioners (+5.5 percentage points, —95% CI -0.9, 11.9 percentage points, p=0.09) and were higher at Baystate Health than Cleveland Clinic (+5.0 percentage points, 95% CI 1.6, 8.5). Knowledge scores did not vary significantly between specialties (35.3% primary care vs. 34.0% other, p=0.63, 1.3 pp, 95% CI -6.7, 4.1, p=0.63).

CONCLUSIONS
Physicians and advanced practitioners report recommending different diets depending on specific risk factors and generally believe that their recommendations are evidence based. However, there remain substantial gaps between their knowledge and the randomized trial evidence regarding diet in disease prevention. Apart from increased provider education regarding diets (through medical school curricula, residency training and CME), guidelines could take a more comprehensive approach to cardiovascular risk reduction, rather than focusing on single specific macronutrients for individual risk factors.

PRESENTATIONS
SGIM National Conference, San Diego, CA – April 2014
INTRODUCTION
The usual practice in pediatric anesthesia during inhalation induction is for one provider to induce with a mask while a second starts an intravenous (IV). Only after IV access is established is an airway--laryngeal mask airway (LMA) or endotracheal tube--placed. While it is reassuring to have an IV prior to airway manipulation, IVs can be difficult in children, particularly for inexperienced personnel, and maintaining a mask-airway during this process is not without risk. A different approach in an LMA case is to place the LMA prior to the IV, once the child is adequately anesthetized. We describe our experience with this technique, using heart rate (HR) as an indicator of adequate anesthetic depth.

METHODS
After IRB approval, 127 ASA 1-2 children <7 years of age underwent a mask induction with 8% sevoflurane in 70% NO2 and 30% O2. HRs were recorded every 12 seconds for 3 minutes. Adequate gas exchange was determined by capnometry. LMA placement was attempted when the HR dropped at least 10% from its maximum level or at 3 minutes, whichever came first. The circulating nurse rated the ease of LMA placement using a scale from 0-3 (0=easy placement, no movement; 1=easy placement, minimal movement; 2=able to place, moderate movement; 3=difficult to place). End-tidal sevoflurane concentration, occurrence of laryngospasm and blood pressure at LMA placement were also recorded.

RESULTS
The LMA was successfully placed on the first attempt in all 127 children. In 95.3% the placement was rated as easy with no movement, 3.1% experienced easy placement with minimal movement, 0.8% had moderate movement, and in 0.8% placement was rated as difficult. The incidence of laryngospasm was 0%. Hypotension, defined as a SBP < 80 mm Hg occurred in 22.8% of children. Mean LMA placement time was 138 sec (82-180). In 13.4% a 10% HR drop did not occur before 3 minutes. Mean end-tidal sevoflurane concentration at LMA insertion was 6.9%. Figure 1 shows the age breakdown for LMA placement at different time intervals.

CONCLUSIONS
During an inhalation induction in children, LMA placement before an IV appears to be a safe alternative to the usual mask-IV-LMA sequence. Our data compares favorably to other studies where ease of LMA placement was recorded (Fig 2). This technique has several advantages. In the event of a difficult IV placement, the airway can be secured first, so that attention can be paid and hands-on teaching given to a less-experienced provider in starting IVs. If there is only one anesthetist, as in a remote site location, and no one is capable or available to start an IV, the LMA can be safely placed first and then the IV started after. The theoretical risk of this approach is laryngospasm. A 10% drop in the maximal HR, or waiting 3 minutes with 8% sevoflurane proved to be a reliable indicator of appropriate depth. Others have advocated jaw-relaxation, centralization of pupils and squeezing the trapezius muscle as indicators of LMA insertion readiness but we prefer HR changes as this is objective and non-stimulating.

PRESENTATIONS
American Society of Anesthesiologists Annual Meeting. San Francisco, CA - October 2013

<table>
<thead>
<tr>
<th>Study/Year</th>
<th># Pts</th>
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<th>% Easy</th>
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<td>No</td>
<td>98.4</td>
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BACKGROUND
Laparoscopy has changed dramatically over the last two decades, with advances in instrumentation, techniques and procedures performed. Complex laparoscopic tasks require at least two operative ports for functional control of tissue or instruments. The same person can hold these instruments, or two separate people working together to accomplish the complex task can maneuver the instruments.

Gynecologic laparoscopy has for decades utilized a standard port placement, which includes the camera site at the umbilicus and accessory port sites in the supra-pubic area, the left lower quadrant (LLQ) and the right lower quadrant (RLQ). Though cosmetic, these port sites can result in awkward instrument positions for completing complex tasks. However, these ports sites are customary for the surgeons and cosmetic for the patients. Surgical performance is affected by factors such as the distance between the ports, the distance between the port site and the target tissue (fulcrum effect), the alignment of the ports with the optical viewing angle, and the comfort of the surgeon, particularly if assuming difficult positions when operating for extended periods.

STUDY DESIGN
This study proposes to test the functional activity of several port site locations commonly used in gynecologic laparoscopy. The objectives are: to compare scores (time and errors) at these various port sites on the same task to determine which is the most efficient, and to have study participants rate the various port site locations for ease and comfort. Our null hypotheses were that the peg transfer scores for situation A, B, C, and D will not be significantly different; and comfort levels for subjects will be similar for all situations A,B,C, and D.

METHODS
The peg transfer task been validated to correlate with surgical performance in the operating room, and whose completion correlates with the training level of the surgeons completing the tasks. The peg transfer task includes a 12-posted peg board with 6 rubber beads. Each bead must be lifted from its peg with one instrument, transferred to the instrument in the opposite hand, and replaced on a different peg. After moving 6 pegs in this manner, they must be again lifted off the new peg with the opposite hand, transferred to a new hand, and replaced on a new peg.

Participants did a warm up of the task with the traditional straight-on positional setup, a form of which is required by the American Board of Surgery in the United States to qualify for the ABS Board examination. For the study, four different functional positions were tested – A: LLQ and RLQ ports, B: LLQ and left upper quadrant (LUQ) ports, C: LLQ and suprapubic ports, and D: LLQ and RLQ with use of advanced assistant. In all cases the simulation assumed the camera at the umbilicus. Twenty-nine (n=29) different subjects trained in laparoscopy were recruited from Baystate Medical Center, a tertiary care center and teaching hospital. Participants were asked to complete the peg transfer task for four situations A,B,C, and D.

Tasks A,B, C and D corresponded to four different port placements and subjects were randomized to a particular order of these four situations. Each task was completed twice (e.g. CC, DD, AA, BB) and the best score recorded. The primary outcome was evaluating for transfer times associated with each different peg transfer task. A ten second penalty was added to each recorded time for errors (e.g. dropping a bead). We assessed the relationship between task position and average score using a generalized linear model that took into account the clustering of scores within participants. We used the Tukey method of assessing multiple comparisons to evaluate the difference in mean scores for each of the 6 possible pairwise comparisons. Participants completed a questionnaire assessing their perception of their general comfort and ease with laparoscopy and with the four tasks.

RESULTS
Seventy-nine percent of participants were experienced laparoscopists. Fifty-nine percent of participants assessed themselves as novices while the rest were intermediate or expert level laparoscopists. Eighty-six percent of participants were right-handed. There were no significant differences among all pairwise combinations of tasks A, B, and C.
only significant differences in mean score existed between task D and all others (p<0.001), and 83% of participants scored best for Task D.

Majority of participants (62%) gave highest ratings to the task they scored best. Eighty-six percent of participants agreed with the statement that task D was a very comfortable position, while only 24% agreed for task A.

CONCLUSIONS
These results show a statistically significant shorter time to complete task D compared to all other tasks. This may be explained by the fact that the advanced surgeon standing across from the study participant is able to improve the scoring of the tasks. This in turn may translate to better efficiency in the operating room. Furthermore, this position was overall assessed as the most comfortable by the study participants.

There was no statistical difference in scoring with a surgeon working alone with any port configuration (A, B, or C). However, our study was not powered to show a statistical difference due to our small sample size. Recruiting study participants was a bigger obstacle than we had anticipated. There was also not a big enough sample to compare skill level to see if any difference could be seen with our outcomes.

The peg transfer is the simplest of the FLS tasks and likely a bigger difference will be seen with a more complex task, such as pattern cutting. In this task ambidexterity and comfort level at each port placement becomes more important.

We will use what we have learned from this smaller study and move on the phase II of the trial. In future studies we will compare these port configurations for more complex laparoscopic tasks. We hope to compare various levels of training as well. Future studies also hope to look more into ergonomics of port configuration and muscle fatigue.

PRESENTATIONS
APGO/CREOG Conference
Atlanta, Georgia - March 2014
New EKG Criteria for Hyperkalemia in Chronic Hemodialysis Patients
Muzzaffar Hussain, MD; Heather Towery, MD; Keith Bartolomei, MD; Ken Santiago, MD; Anthony Johnson, MD; James Cook, MD; Gregory Braden, MD

BACKGROUND
Hyperkalemia (HK) is common in chronic hemodialysis patients (CHD) and requires rapid identification and treatment. Prior studies in CHD patients have shown that HK may not induce the classic EKG changes of HK (1). In this study we have performed the most extensive analysis of EKGs in CHD patients yet performed to define new criteria on EKGs for hyperkalemia.

MATERIALS & METHODS
We examined the effects of HK on the EKGs of 128 consecutive CHD pts who had been on HD for >3 months and presented with clotted AV grafts or fistulas to our hospital surgical center. Most CHD pts had missed a dialysis session and all had simultaneous serum electrolytes, magnesium, calcium, phosphorus and a 12 lead EKG preoperatively. Demographic data were collected on all patients. Fifty CHD patients with HK, defined as serum potassium concentrations of ≥5.5 mEq/L, were compared to 78 CHD patients with normokalemia (NK) <5.5 mEq/L. The EKGs were analyzed for classic HK changes including: increased PR, QRS intervals, flat P waves, and peaked T waves. In addition, we measured T wave width, height in lead II, V2 and V4; T wave height/width; QT, QTC; ratio analyses of PR/QT and PR/QTC; slope of the ascending and descending T wave in lead II and V4(2). All EKGs were read by the GE Max 5000 and a cardiologist reviewer blinded to patient’s laboratory values. Exclusion criteria included <3 months on dialysis, no laboratory values corresponding to EKGs, and inability to obtain all relevant data. Predictive factors in hyperkalemia (K ≥5.5) were tested using univariate analysis and multiple logistic regression (MLR). P values >0.05 were considered not significant (NS).

RESULTS
The 128 CHD pts include 70% Caucasians, 22% African Americans, 7% Hispanics, <1% Asians. Mean serum potassium for all CHD was 5.3 mEq/L +/- 1.1 (range 3.1-8.8 mEq/L). Univariate analysis showed 4 variables significantly different in HK pts compared to NK pts (p<.05): height of T wave in V4 and lead II, the slope of the ascending and descending limb of the T wave in V4. There were no differences in serum sodium, chloride, bicarbonate, magnesium, calcium, or phosphorus levels between HK and NK pts, and no effects of these on the EKGs. The automated GE Max 5000 did not record HK as a cause for any EKG changes in the HK pts.

DISCUSSION
In this initial analysis of 128 representative CHD patients, we found that the most sensitive predictor of HK is the height of the T wave in lead II. Significant differences were found in the slope of the ascending and descending limb of the T wave in V4, and the height of the T wave in V4 and lead II. These are not values commonly measured in the analysis of hyperkalemia, but our data points to the fact that they should be. The automated EKG machine did not detect HK in any of the 50 HK patients and program alterations are in order. More sensitive indicators are needed in this population that account for numerous acute visits for hyperkalemia. Height of the T wave and the ascending and descending slope of the T wave are more sensitive and should continue to be looked at in larger studies. The height of the T wave in lead II is the most sensitive indicator for hyperkalemia in CHD patients. We plan to further analyze our HK patients EKGs on encounters when they were NK, to use the patient as their own controls.

CONCLUSIONS
1. The classic EKG changes of HK such as increased PR or QRS intervals or flattened P waves are insensitive indicators of HK in CHD pts.
2. The height of the T wave in leads II and V4 and the ascending and descending slope of the T wave in V4 differentiates HK from NK in CHD pts.
3. The height of the T wave in lead II is the most sensitive indicator for HK in CHD pts.

REFERENCES
Table 1: Patient Characteristics

<table>
<thead>
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Table 2: EKG Analysis

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Figure 1: Etiology of Renal Failure

Figure 2: Representative EKG with HK
NOTES Transgastric Ventral Hernia Repair in a Porcine Survival Model

Maria Mora, MD; Rebecca Kowalski, MD; David Desilets, MD; John Romanelli, MD; David Earle, MD

BACKGROUND
Natural orifice transluminal endoscopic surgery (NOTES) is a minimally invasive technique, which has been applied to multiple procedures. We aimed at demonstrating that a hernia repair can be effectively performed in a porcine model utilizing a transgastric NOTES approach.

METHODS
Ten Yorkshire pigs (weight 30–50kg) were utilized for this study. The animals underwent general anesthesia for the procedure and were prepped steriley. Utilizing a percutaneous endoscopic gastrotomy technique, an opening was created in the greater curvature of the stomach. A balloon was used to dilate the gastrotomy, allowing the endoscope to enter the peritoneal cavity. A clean wire was introduced into the peritoneum and removed orally allowing secure access to the peritoneal cavity. Our mesh delivery system (prepared on sterile table) was introduced into the peritoneal cavity over the wire. The mesh was then secured to the abdominal wall using the pre–placed sutures and endoscopic tacks. The gastrotomy was closed with a Padlock-G™.

RESULTS
There was a survival rate of 80% for this study. At necropsy one animal was found have gastrotomy closure failure, the other animal died within 48 hours of unknown etiology. The first mesh was found to be grossly infected, and the second contaminated without gross infection. The remaining pigs had mesh that was free of contamination and infection. Of the animals that did survive 100% had appropriate mesh implantation.

CONCLUSION
Hernia repair via a transgastric NOTES approach in a porcine survival model is feasible. Contamination was eliminated after introducing iodine flushing of therapeutic endoscopic channels; making this a feasible method for hernia repair.
OBJECTIVES
The potential of emergency contraception (EC) to reduce unplanned pregnancy has not yet been realized. Ulipristal acetate EC has equal or greater efficacy than levonorgestrel EC and is effective for a longer window of time, yet is not prescribed nearly as often. Additionally, pharmacists vary in both their training on EC and their comfort in discussing its use.

STUDY DESIGN
We performed a cross-sectional audit study to examine pharmacy availability and staff knowledge of both forms of EC in western Massachusetts pharmacies.

METHODS
We identified all retail pharmacies in Hampshire and Hampden counties (n=110) and telephoned each pharmacy. A single researcher posed as a patient interested in purchasing EC four days following unprotected intercourse. Following a pre-determined script, we asked questions to determine the availability of both forms of EC, and if pharmacy staff understood the indications for each medication. The primary outcome was availability of both forms of EC. The secondary outcome was the accuracy of information given by the pharmacy staff. We performed descriptive analyses of our data, and no power analysis was performed.

RESULTS
Most pharmacies (89%) had levonorgestrel EC in stock, but only 7% had ulipristal immediately available. Only 36% of pharmacists correctly counseled our researcher that levonorgestrel EC would be at all effective four days after intercourse. Additionally, only 25% of pharmacy staff was able to accurately identify ulipristal as the superior medication for use between 72 and 120 hours after intercourse. Overall, 21% of pharmacy staff members gave all medically accurate information; 34% gave mostly inaccurate information and 30% gave a mixture of both.

CONCLUSIONS
The lack of widespread availability of ulipristal acetate EC hampers its effectiveness. Pharmacy staff could benefit from education about both forms of EC to better counsel patients in need.
Post-surgical Distress Following Weight Loss Surgery is Associated with Reduced Weight Loss  
Sofija E. Zagarins, PhD; Nancy A. Allen, PhD, APRN; Nicole E. Pollard, PhD; Garry Welch, PhD

BACKGROUND  
Given that psychosocial issues such as anxiety disorders and quality of life are associated with obesity, and given that weight loss surgery (WLS) patients are faced with unique challenges and sources of distress not shared by non-surgical weight management patients, a tool measuring post-surgical distress has the potential to identify patients at higher risk of reduced weight loss outcomes following WLS. In this analysis, we examined whether a newly-developed measure of post-surgical distress was associated with weight-loss outcomes including percent excess weight loss.

STUDY DESIGN  
For this analysis, we used data collected from post-surgical WLS patients enrolled in one of two cross-sectional studies conducted in patients enrolled in the Baystate Medical Center (BMC) Weight Loss Surgery Program (WLSP).

METHODS  
We used multiple linear regression to compare a new measure of post-surgical distress (Post-Surgical Distress Questionnaire, PSDQ) to a measure of general weight loss-related distress (Weight-Related Symptoms Measure, WRSM) and a measure of depression (Patient Health Questionnaire, PHQ) in terms of their association with weight-loss outcomes in a post-surgical WLS population. We used factor analysis to identify subscales within the PSDQ.

RESULTS  
WRSM and PHQ scores were not associated with weight loss outcomes, while the PSDQ tended to be inversely associated with weight loss. The PSDQ Social Distress Subscale was significantly associated with weight loss at follow-up, such that every 10-point increase in social distress was associated with a 0.9cm increase in waist circumference, a 1.1% increase in body fat percentage, and a 2.6% reduction in percent excess weight loss (all significant at p<.01).

CONCLUSION  
Given that post-surgical social distress is associated with reduced weight loss, identifying patients with higher levels of this distress soon after surgery may allow clinicians to intervene and help such patients manage the impact of their surgery on their relationships and social interactions, potentially improving weight loss outcomes for these patients.
Questioning the Benefit of Immediate CT Scanning in Suspected Renal Colic: A Retrospective Chart Review of Patients Age 50 and Under Presenting with Flank Pain
Elizabeth Schoenfeld, MD; Tala Elia, MD; Gavin Budhram, MD; Kye Poronsky

BACKGROUND
In the US the current diagnostic gold standard for patients presenting with suspected renal colic is CT scan. However, it is known that the majority of kidney stones pass spontaneously, making the need for CT less compelling. Previous studies have suggested that a high rate of alternative diagnoses makes CT scanning these patients a necessity, however these studies are limited by methodology, often retrospectively including patients who had “renal protocol” CTs rather than patients clinically suspected of having renal colic. Additionally, older patients are more likely to have an alternative diagnosis on CT and less likely to suffer the negative effects of cumulative radiation doses.

OBJECTIVES
To determine what percentage of patients 50 and under presenting with suspected renal colic have clinically important alternative diagnoses, based on CT scan and follow-up, and to determine if STONE score can predict kidney stones in this population.

METHODS
Retrospective chart review of 6 months of patients age 18-50 presenting with “flank pain,” excluding patients with pyuria, pregnancy and trauma.

RESULTS
115 patients met inclusion criteria. The prevalence of kidney stone by final diagnosis was 53.9%. 58 patients had abdominal CTs, and 0 emergent or urgent diagnoses were seen (one-sided 95% CI 0-5.0%). Only 2 patients had incidental findings needing follow up. The prevalence of kidney stones by STONE score was similar to that in the STONE Score original study: Score 0-5: 8.3%, 6-9: 64.7% and 10-13: 92.9%. Of stones identified by CT, only 4/30 (13.3%) were 6mm or greater, and all 4 were at the UVJ. Six urological procedures occurred, 3 as outpatients and 3 as inpatients after a second ED visit. No inpatient urologic procedures occurred during any patients’ initial kidney stone presentation.

CONCLUSIONS
This small sample suggests that in younger patients, the benefit of immediate CT scan for suspected renal colic should be questioned. Further studies are needed to determine which patients benefit from immediate CT scan for suspected renal colic, and which patients could safely be discharged with pain control and close follow up.

PRESENTATIONS
National Society of Academic Emergency Medicine, May 2014
Restructuring the Pediatric Viral Respiratory Testing Protocols and Procedures: A QI Initiative
Kathryn McKenna, MD; Beth Carter, MD; Jackson Williams, MD

BACKGROUND
In the last decade, significant advances have been made in the availability and reliability of laboratory testing for viral respiratory pathogens, allowing for rapid and accurate detection. This has introduced new challenges for medical providers and made it increasingly complicated to determine when and which test to order. It has also led to duplicate testing with associated increase in costs to the institution and patients.

OBJECTIVE
To assess the current practices in testing and create a new algorithm that clarifies the available testing methods within the institution and streamlines the current testing process in order to minimize testing duplication and decrease cost.

STUDY DESIGN/METHODS
A chart review of viral respiratory testing practices for all pediatric patients (inpatients as well as observation statuses), ages 0-21 years from 2011 through 2014 YTD was done by searching DRG codes for patient encounters for bronchiolitis, asthma, pneumonia, URI, viral illness, sepsis, and/or fever. A multi-disciplinary team created an algorithmic approach for testing that incorporated new molecular-based assays. The current algorithm and testing modalities were implemented in November 2013. Prospective data about cost and ordering practices using billing data provided to the quality improvement department was collected following implementation.

RESULTS
During the study period prior to algorithm implementation, 2,238 patients underwent viral testing, which represented 15.7% of all pediatric encounters. The most common diagnosis was bronchiolitis. Duplicate testing was found in 70% of patients. The total cost of testing from FY2011-2013 was $328,701 (~$147 per patient). Figure1 shows the new algorithm that has been developed and implemented. Following the implementation of the algorithm, there was a >33% reduction in duplicate testing (figure 2) and ~0.5 day reduction in length of stay. Cost data will be compiled by the end of April 2014.

CONCLUSIONS
Redundant testing during the viral respiratory season can lead to significant healthcare costs without improving healthcare delivery. The implementation of a standardized algorithm for hospitalized pediatric patients undergoing viral respiratory testing has markedly decreased the percentage of patients undergoing duplicate testing and resulted in a modest decrease in hospital length of stay.

FIGURE 1: Testing Algorithm
PRESENTATIONS


Poster Presentation: Pediatric Academic Society Annual Meeting, Vancouver, BC - May 2014
OBJECTIVES
Decades of penicillin (PCN) use led to widespread staphylococcus aureus (SA) resistance in the mid-20th century. However, after years of PCN being minimally prescribed for SA infections, PCN-susceptible strains of SA are now being reported again. The purpose of this study is to assess whether the prevalence of SA infections that are sensitive to PCN has increased over time. We hypothesize that there has been a significant increase in the proportion of SA that are PCN-sensitive.

METHODS
We performed a retrospective study using MedMined database, an infectious disease surveillance service. We assessed all staphylococcal culture results collected from inpatients at Baystate Medical Center between January 1st 2003 and January 1st 2013. Baystate Medical Center is a 716 bed tertiary referral center which services a catchment area of approximately 6.3 million people. To increase the specificity for pathologic cultures, we restricted the analysis to blood cultures. Cultures were excluded if they were labeled as coagulase-negative staphylococcus, or if cultures occurred less than 6 weeks after the index culture. Logistic regression was used to model PCN by study year and linear trends were tested using first-order orthogonal Tschebyscheff polynomials. Stata 12.1 (copyright 2011, StataCorp LP) was used for all analyses. The study was approved by Baystate Medical Center’s Institutional Review Board.

RESULTS
A total of 697 blood cultures positive for SA were included in our analysis. The median age of the study population was 60.0 years (Q1, Q3: 46.7y, 76.0y). 60% were male and 78% were white. There was a distinct trend over the 10 years of the study that showed an increase in the proportion of PCN-sensitive SA. In 2003, 7.9% (95% CI 3.4%, 12.3%) of cultures were PCN sensitive; in 2012, the proportion was 27.1% (95% CI 14.5%, 40.0%) (Graphic 1). The χ2 test of trend was statistically significant at p<0.0001.

CONCLUSIONS
We found that over a decade long period, there was >3 fold trend of increasing PCN sensitivity among SA cultures at a large tertiary care facility in Western Massachusetts. In an era of multi-drug resistance to antibiotics, this finding is very encouraging. Further studies are needed to confirm if similar emerging trends are described in other health care facilities.

PRESENTATIONS
ECCMID Congress, Barcelona, Spain - May 2014
Retrograde Superior Mesenteric Artery Stenting for the Treatment of Acute-on-Chronic Mesenteric Ischemia: A Case series
Syed M. Peeran, MD; Marc Norris, MD, FAC; Sydney L. Kahn, MD; Sang W. Rhee, MD; FAC; Neal C. Hadro, MD, FACS

OBJECTIVE
Acute mesenteric ischemia is a life threatening vascular emergency associated with a very high mortality rate. The current standard of care for acute mesenteric artery thrombosis is mesenteric arterial bypass grafting, but the perioperative mortality has been reported to be as high as 45%. A hybrid technique that employs an exploratory laparotomy, canalization of the distal superior mesenteric artery (SMA), and stent deployment across the atherosclerotic lesion was first described in 2004 for the treatment of acute on chronic mesenteric ischemia. We report 5 cases where acute on chronic mesenteric ischemia was treated with exploratory laparotomy and retrograde SMA stent placement. The purpose of this study is to describe this novel technique and to present our clinical outcomes, with regard to mortality, re-operation rate, and symptom resolution.

METHODS
This is a retrospective review of 5 cases of acute on chronic mesenteric ischemia that required emergent revascularization. Each patient in the study had a diagnosis of chronic mesenteric ischemia based on imaging that revealed atherosclerosis of the SMA, food intolerance or aversion, and a history of weight loss. In each case, a balloon mounted covered stent (iCAST™, Atrium Medical Corp.) was directly placed in the SMA in a retrograde fashion during exploratory laparotomy. A completion angiogram was performed in each case to ensure patency. All operations were performed at a single institution between 20011-2013.

RESULTS
The mean age of the patients in the study was 83±8.6 with an average APACHE II score of 14.5±2.6 upon presentation. Of the 5 patients reviewed, 3 had necrotic bowel necessitating resection, and 4 patients required ICU admissions. All attempts at SMA stenting were successful without technical complications as verified by completion angiogram. Overall, 4 of 5 patients survived the hospitalization and were discharged tolerating PO diet without symptoms. Re-interventions were required in 2 cases, one patient died of overwhelming sepsis within 24hrs of presentation.

CONCLUSIONS
The hybrid technique of exploratory laparotomy and retrograde SMA stenting is a viable revascularization option for the treatment of acute on chronic mesenteric ischemia. The preliminary results in this study for this novel technique have been promising with regards to patient mortality, when compared to that of emergent mesenteric arterial bypass surgery.

PRESENTATIONS
Society for Clinical Vascular Surgery - Annual Symposium
Carlsbad, CA – March 2014

PREVIOUS AWARDS
Runner up in the Karmody poster competition for the Peripheral vascular group
SCVS 2014 – March 2014
BACKGROUND
The purpose of this study is to evaluate the effectiveness of Rhodiola crenulata plant extract as a chemotherapeutic option for the treatment of chemo-resistant neuroblastoma.

METHOD
Two neuroblastoma cell lines, SK-N-AS (non-MycN amplified) and NB-1691 (MycN amplified), were evaluated. Cells were treated with Rhodiola crenulata extract and results were compared to ethanol vehicle (negative control) and doxorubicin (positive control). Viability following treatment was evaluated using trypan blue exclusion and MTS proliferation assay.

RESULTS
Following 72 hours of 200ug/ml Rhodiola treatment, 60% viability reduction of cells relative to vehicle control was observed (p<0.001). Cells treated with 10ug/ml doxorubicin exhibited a 13.7% viability reduction compared to control (p=0.04) after 72 hours. Proliferation of cells treated with 200ug/ml Rhodiola exhibited 25% reduction relative to control (p<0.001).

Treatment of SK-N-AS cells with 200ug/ml Rhodiola extract for 72 hours exhibited a 31.8% decrease in viability relative to vehicle control (p=0.001). Cells treated with 10ug/ml doxorubicin exhibited a 34.2% viability reduction relative to control (p=0.004) after 72 hours. Cells treated with 200ug/ml Rhodiola exhibited a 25% reduction in proliferation (p<0.001).

CONCLUSIONS
Rhodiola crenulata extract was successful at causing cell death and reducing proliferation in both neuroblastoma cell lines in vitro. Future research in animal models are necessary to determine if the Rhodiola crenulata extract will be an effective adjunct to standard multi-agent chemotherapy for the treatment of ne

PRESENTATIONS
Massachusetts Chapter of the American College of Surgeons, 2013
Academic Surgical Congress, 2014