CENTER FOR PATIENT SAFETY RESEARCH AND PRACTICE

TRANSFORMING PATIENT CARE

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a seasonal review

The Center Bids Farewell to Longtime Member Lucian L. Leape
By Gordon Schiff, MD, Associate Director, Center for Patient Safety Research and Practice

Imagine being able to go back into history to meet George Washington or Beethoven or Florence Nightingale. Well, in patient safety, we do just that. As described by Don Berwick in one of his tributes to Lucian Leape, we have an equally historic figure who is the founder of patient safety here in our midst. The Brigham and Women's Hospital Center for Patient Safety Research and Practice has been fortunate to have this extraordinary patient safety leader as one of its founding members, and longtime member of its Executive Council.

Lucian Leape started his career as a Pediatric Surgeon. He graduated With Honors from Harvard Medical School and trained in General and Thoracic Surgery at the Massachusetts General Hospital, and in the new specialty of Pediatric Surgery at Boston Children's Hospital. He was instrumental in the founding of the American Pediatric Surgical Association. How this successful surgical career launched him in the direction of patient safety is one of the most amazing chapters in this history of medicine.

According to an interview with Dr. Leape:

"There was a moment when I decided I was going to leave surgery. I had done the usual academic things, and I was wondering what I was going to do for the next 20 years. I was always interested in how to change things and make the world a better place, but I guess everybody is. It was clear to me that we had major policy problems. And like many people, I really thought the biggest problem was that the economists had taken over, and it was time for the doctors to get back in and straighten things out. I wanted to work in health policy, but I wasn't quite sure what that would be.

I decided to spend a year in a mid-career fellowship at the

Rand Corporation. It gave me a basic background in statistics, epidemiology, and various other health policy issues. Then I came back to Boston looking for work. I didn't really know what I was going to do. Meeting BWH and Harvard School of Public Health leader Dr. Howard Hiatt was almost accidental. Dr. Hiatt contacted me because the Medical Practice Study was just beginning and they needed some more people with a clinical background. He took an interest in the fact that I had some training in health policy work. I initially told him I wasn't interested. I thought it was a study of malpractice, and I didn't leave clinical medicine to study malpractice. But he convinced me that it was going to be a lot more than that, so I signed on. In all honesty, I really didn't have a whole lot else to do. I was writing a review on unnecessary surgery, which I started at Rand, but I wasn't involved in any research projects. So it was an opportunity to participate in what seemed would be a rather seminal study, and it sure was."[1]

After finding a shockingly high rate of medical errors in the Harvard Malpractice Study, Dr. Leape wondered how other industries made their operations safer. He learned that health care was several decades behind in adopting more advanced "systems thinking" to reduce error. While Medicine blamed "bad doctors," other industries emphasized making safer systems that protect users from making errors. Discovering this systems approach led Dr. Leape to write and publish the historic *Error in Medicine* in JAMA in 1994, which called for the application of systems theory to prevent medical errors. This led ultimately to the founding of the National Patient Safety Foundation (NPSF) and the Institute of Medicine's (IOM) landmark publications, *To Err is Human* and *Crossing the Quality Chasm*.

For the past two decades, Dr. Leape has continued to push forward our thinking and practices to make health care safer. In 2007, he founded and helped lead the Lucian Leape Institute based at the National Patient Safety Foundation "to provide a stra-

Farewell to Lucian L. Leape, continued

(Continued from page 1)

tegic vision for improving patient safety." Composed of national thought leaders with an interest in patient safety, the Institute functions as a "think tank to identify new approaches to improving patient safety, call for the innovation necessary to expedite the work, create significant, sustainable improvements in culture, process, and outcomes, and encourage key stakeholders to assume significant roles in advancing patient safety." The Institute's work has focused on: medical education reform, active consumer engagement, integration of care within and across health care delivery systems, restoration of joy and meaning in work and ensuring the safety of the health care workforce, and most recently transparency as key to safer care as a practiced value.[2]

Another major area of contribution has been his leadership in promoting disclosure and apology to patients after health care errors occur. In 2006, he convened the Harvard teaching hospitals to draft an historic manifesto, *When Things Go Wrong,* declaring the necessity and their commitment to honestly informing patients about adverse events. As with so much of Dr. Leape's work, this ran counter to the conventional wisdom that suggested it was unwise to do so from a medical-legal perspective and would lead to an increase in malpractice suits. Data has subsequently confirmed Dr. Leape's prophetic patient-centered wisdom in refuting this concern, as well as numerous examples of patients helped after harm from such an honest disclosure. More recently Dr. Leape worked with our Brigham Center for Patient Safety Research and Practice's PROMISES (Proactive Reduction of Outpatient Malpractice: Improving Safety, Efficiency, and Satisfaction) team to write an updated and succinct version of the Harvard teaching hospitals' statement, *Doing Right by our Patients When Things Go Wrong in the Ambulatory Setting*, addressing the need and practice steps for disclosure and apology in the outpatient setting.[3]

It is impossible to fully describe the depth and breadth of Dr. Leape's work in each of these domains, as well as his ongoing contributions to the work of the Brigham Center for Patient Safety Research and Practice. His extraordinary contributions both as a regular participant at virtually every meeting of the Executive Council over the past 10 years, as well as his generous personal financial support to the Center, are immeasurable. The Center is most grateful to have his special insights, historical perspectives, critical commentaries, wry and youthful (yes youthful!) humor, and never-ending advocacy for the patient, as part of the DNA and permanent legacy of the Center.

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A Remarkable Collaboration: Drs. Leape and Bates
By Gordon Schiff, MD, Associate Director, Center for Patient Safety Research and Practice

Dr. Lucian Leape had just completed the Harvard Malpractice Study—a historic study in the 1980s reviewing tens of thousands of medical records in New York State. This study's findings formed the basis for the Institute of Medicine's (IOM) to Err is Human projects, which demonstrated nearly 100,000 deaths occur annually from medical error.

Dr. Bates had just begun exploring the potential for improving medication safety by moving from handwritten prescriptions to ordering them on a computer. What happened next, in Dr. Leape's words:

"I walked into his office and said, I understand you're interested in medication errors. And I said, let me tell you about systems theory and this looks like a good place to start because everybody really understands the 'medication system,' and it affects everybody. So if we can show anything here, we'll get people's attention. So we did some pilot studies, and then we set out to do a big study to see if we could find adverse drug events , and then see if we could determine indeed whether there were systems failures...and then of course, to see if we could change the systems [by ordering drugs on the computer] to reduce them."[1]

The study demonstrated a 55% decrease in medication errors. This seminal study led to accelerating the adoption of computerized provider order entry, and to the next generation of even better decision support (to build on the more primitive clinical decision support in this early pilot system), and ultimately laid the basis for the HITECH Act allocating tens of billions of dollars to support practices and hospitals implementing computerized medical records across the country.

PROSPECT: Looking Back with Anthony Massaro, MD
By Patrick Dempsey, DGIM Project Manager

The PROSPECT Study (Promoting Respect and Ongoing Safety through Patient-centeredness, Engagement, Communication, and Technology) has been a major initiative for the Center for Patient Safety Research and Practice for the past two years. Dr. Anthony Massaro, Director of Brigham and Women's Medical Intensive Care Unit (MICU) and a Co-Investigator on the PROSPECT Study, took the time to reflect on what has been accomplished.

Dr. Massaro has been with Brigham and Women's Hospital for the past 25 years, and has spent the last 15 years focused on improving patient critical care. This made for a perfect fit when Dr. David Bates approached him for a study to eliminate preventable harms in the ICU. To eliminate these preventable harms, the PROSPECT Study included both technological and non-technological interventions in the MICU.

The non-technology side involved teaching and training MICU Nurses in the use of the Patient SatisfActive® model, in which, every shift, nurses ask the patients, family members or surrogates if there were any unmet patient needs, concerns or expectations during hospitalization. According to Dr. Massaro, "This did a lot of what we have always tried to do in our care, only this brought a structure for how that could happen reliably. Every nursing shift, this information could then be brought back to the patient's medical team as a whole." It also taught the MICU teams how to have these types of conversations with patients and families, in or-der to help bring out concerns, instead of waiting for patients and families to do so on their own. The Patient SatisfActive® model was appreciated by patients, families, and staff; and is now used as the standard of care in the MICU.

The first intervention on the technology side of the PROSPECT Study involved taking the already established Nursing Plan of Care and making an electronic version of it. Since this Nursing Plan of Care was already a required and useful tool within the MICU, it was a matter of "taking the things the nurses had already been doing and making them digital," Massaro explained.

The second PROSPECT electronic intervention implemented was the "Microblog." According to Dr. Massaro, "This provided a way for clinical members of the MICU team to easily communicate about a patient, or alternatively, communicate with the patient or their designated health care proxy."

Dr. Massaro felt that the Microblog was much more useful to the MICU team than email. Email chains typically meant staff members would have to copy every member of the patient's MICU team, as well as any outpatient providers, such as the patient's PCP. This process is problematic, as it can leave some team members out of the loop for relevant patient information. The Microblog eliminated this issue by creating one central patient forum for all providers and staff to review. This was valuable for situations in which a patient's attending physician might change day-to-day, allowing the new attending to catch up on a patients "central" note without sorting through hundreds of emails.

The final technology component is the Electronic Safety Checklist. This replaced the paper checklist, detailing the patient's care for the day, which staff would verbally read at the end of each patient presentation. The paper checklist was not optimal because staff would complete the checklist with varying levels of thoroughness and there was no system in place to monitor and review this. The Electronic Safety Checklist tool was developed in such a way that it would take the team about 60-90 seconds to answer and then electronically document all questions pertaining to patient processes of care. Most importantly, the team have to explain and document *why* a patient does or does not need certain processes of care. Dr. Massaro felt that this was hugely important. "When you actually make the team explain and document why a patient does not need a certain process of care," he revealed, "it creates a more robust and meaningful discussion, which in turn leads to more thorough, accurate and thoughtful care."

Overall, the PROSPECT Study has been successful in the MICU because it provides a set of tools to facilitate patient-centered care. The MICU team hopes to continue to refine the PROSPECT toolkit, integrate it into eCare where appropriate, and spread to other ICUs within and outside Partners HealthCare to more broadly reduce harm.

"When you actually make the team explain and document why a patient does not need a certain process of care, it creates a more robust and meaningful discussion, which in turn leads to more thorough, accurate and thoughtful care."

Honors & Awards

Dr. Gordon Schiff, Associate Director of the BWH Center for Patient Safety Research and Practice has received grants from the Arnold P. Gold Foundation for the Promotion of Humanism in Medicine, and the Lucian Leape Foundation for Patient Safety for a project entitled: Clinician-Patient Relationships: Boundaries, Barriers, Breakdowns.

The project will study issues related to clinician-patient relationships and educate clinicians in a three-part initiative that will include: a) survey of a nationally representative sample of physicians and other health professionals to examine their attitudes and practices related to caring acts that might be considered as problematic crossing of "professional-patient boundaries;" b) study breakdowns of physician-patient relationships leading to the termination (firing) of patients; and c) survey and educate clinicians in a series of Grand Rounds type presentations across the county related to boundary-crossing and relationship-breakdown issues.

The Patient-Centered Outcomes Research Institute (PCORI) 30-Day Transitions Project
By Jeffrey Schnipper, MD, MPH (Principal Investigator) and Nyryan Nolido, MA (Project Manager)

When a patient is admitted to the hospital and then discharged home, there is important information that needs to be communicated and understood by: a) patients, b) caregivers (anyone who helps take care of patients, including family or friends), and c) the outpatient team (the medical providers that care for patients after they are home, such as primary care providers). Recent health reform efforts are changing the way healthcare is provided in order to improve care and reduce costs. One of these changes is the development of Accountable Care Organizations (ACOs)—large medical organizations that take responsibility for lowering costs and improving care for a defined group of patients. Another change is the conversion of regular primary care practices into Patient-Centered Medical Homes (PCMHs), with more staff and better technology to improve patient-doctor communication and the management of chronic illnesses.

In theory, PCMHs and hospitals within ACOs have a vested interest in improving the discharge process so that patients recover fully and do not have to return to the hospital. Our question is whether we can leverage this situation and redesign the discharge process so that there is better communication between the hospital's medical team, patients, caregivers, and the outpatient medical team in order to ensure that patients do as well as possible post-discharge. This redesign will include nurses to help coordinate care, pharmacists to make sure medications are taken safely, a home visit by a visiting nurse, a follow-up appointment within three days of discharge, and healthcare "coaches" to motivate patients at home.

The goals of study are to: a) Design and implement a set of procedures ("the intervention") to improve patients' experiences when they are discharged home from the hospital; b) Look at how the intervention affects problems that are known to occur after discharge, including medication issues, worsening medical problems, or the need to come back to the hospital (we will study how well patients recover the ability to do the things they could do before they were admitted and their opinions of the discharge process); and c) Understand the best way to put the intervention into place at different hospitals and practices, and which kinds of patients benefit most from it.

This study involves about 1,800 patients admitted to two different hospitals from 20 primary care practices that are becoming PCMHs as a part of a new ACO. The results of this study will help healthcare leaders decide whether and how to adopt these kinds of interventions. Patients and caregivers will have more information to help them decide whether to join or stay with these kinds of new medical practices. Patient enrollment is nearly complete, and preliminary results are promising, showing a lower rate of new or worsening symptoms in the 30 days after discharge in the intervention arm compared with usual care.

The next step in the PCORI Transitions Project is to analyze the data over the next 4-6 months to: 1) Compare rates of preventable 30-day readmissions

Preliminary results are promising, showing a lower rate of new or worsening symptoms in the 30 days after discharge in the intervention arm compared with usual care.

Brigham and Women's Patient Safety Learning Laboratory: A Year of Exciting Progress

By Alexandra Businger, PSLL Project Manager, MPH candidate 2016

The Brigham and Women's Hospital (BWH) Patient Safety Learning Laboratory (PSLL), led by Principal Investigator David W. Bates, MD, MSc, is an exciting collaboration with the Center and Northeastern University's Healthcare Systems Engineering Institute (HSyE), led by Co-Principal Investigator James C. Benneyan, PhD. The PSLL's vision is to make acute care more patient-centered by focusing on developing tools to engage patients, family, and care team members in reliable identification and assessment of patient safety threats before they manifest into harm. The PSLL is funded through a grant from the Agency for Health Care Research and Quality.

The Administrative Core, led by Dr. Bates and BWH Co-Investigator Patricia Dykes, RN, PhD, has provided oversight of the PSLL through project management, methodological, translation and dissemination expertise. The Systems Engineering, Usability, and Integration Core, led by BWH Co-Investigator Anuj Dalal, MD, in coordination with the HSyE program, has provided ongoing engineering and human factors expertise, a "system-of-systems" integration of the three projects, and has developed a plan to examine the impact of the tools on workload, flow and system use. The model known as the Patient Satisf*Active*® has been refined by Dr. Bates and Ronen Rozenblum, PhD, MPH to create a culture of patient- and family-centered care, and to aid in the successful implementation and improvement of the health information technology (HIT) tools on BWH patient care units.

The PSLL has just completed a year of significant progress on three projects, developing tools to foster a health system focused on collaborative learning: 1) Patient-centered Fall Prevention Toolkit, led by Dr. Dykes, aims to engage patients and their families in the design of HIT tools to prevent patient falls and related injuries during hospitalization; 2) Patient Safety Checklist Tool, led by BWH Co-Investigators Lisa Lehmann, MD, PhD, Jeffrey Schnipper, MD, MPH, and Kumiko Schnock, RN, PhD, aims to improve patient safety and quality outcomes, provider efficiency, and team communication; and 3) MySafeCare Patient Safety Reporting System, led by BWH Co-Investigator Sarah Collins, RN, PhD, aims to develop and evaluate the impact of a patient safety reporting system on patient safety.

During Phase One, problem analysis, the three projects conducted workflow observations, surveys and focus groups with clinicians, patients and family members to identify software and workflow requirements, which aided in discovery of participants' experiences and perspectives and enabled the PSLL to complete Phase Two, designing iterative prototypes for the PSLL toolkits. Currently, we are finalizing Phase Three, developing and refining the three toolkits in preparation for a proof of concept pilot in October 2015. The Fall Prevention project plans to pilot paper and electronic fall prevention tools on four Oncology units and four Medicine units, as well as mobile and iPad Fall Prevention tools and a clinician desktop screensaver on two Oncology units. The Safety Checklist Tool project will pilot an electronic checklist for daily rounds on the Medical Intensive Care Unit (MICU), and a patient- and unit-level aggregate dashboard. The MySafeCare pilot has been active since May on MICU and Oncology, and will be deploying robust clinical dashboard features. The three projects are aligning to deliver an integrated patient safety portal and screensaver. Phase Four will involve evaluation and refinement of the toolkits. Future phases will focus on broader implementation and scalability, and the PSLL aims to implement the toolkits as part of a main trial in April 2016.

The BWH PSLL has completed a successful year of working towards a vibrant learning ecosystem of health services, informatics, and systems engineering researchers, all while collaborating with patients and family to evolve and apply these approaches to adverse event prevention in hospitalized patients. Through increased implementation and use of HIT and patient/family engagement in their plan of care, this PSLL, its cores and its projects will provide information, strategies, and tools for utilizing HIT to facilitate patient activation in eliminating harm in hospital settings.

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Global Fellows Corner, Patrick Beeler

For each issue, the Center's Global Fellows are invited to share their experiences in the program, and how working with the Center has influenced their own patient safety initiatives.

Medical Informatics, the study of the design, development, adoption and application of IT-based healthcare innovations (HIMMS), is a hot topic in medicine today. Global Fellow, Patrick Beeler, MD, a Physician and Medical Informatics Researcher from Switzerland, is convinced that medical informatics innovations will improve patient safety and care quality. For the past eighteen months, Dr. Beeler (34) has been a welcome addition to BWH and the Center's pioneering informatics research team. Having just completed his Global Fellowship, Beeler is happy to discuss what he considers to have been a valuable learning experience, which has helped him to strengthen his already sound medical informatics expertise.

Dr. Beeler's patient safety work centers largely around improving healthcare through design and implementation of smart computer interventions, particularly based on computerized physician order entry in combination with clinical decision support. He introduced himself to the field of informatics fifteen years ago, when he began programming computer software as a hobby. Then, while attending medical school, he decided to combine his personal interest with his professional goals after realizing the potential medical informatics innovations have to improve patient safety and reduce costs. After graduating medical school from University of Fribourg and University of Basel, he initially worked as a clinician in the field of Internal Medicine and Radiology. Later, in 2010, he was granted the opportunity to become a medical informatics researcher at what is now known as the University Hospital Zurich "Research Center for Medical Informatics."

"I kind of fulfilled my dream during these first years in Zurich," Beeler reflects. "I learned so much about research, data analysis, drafting papers, statistics, and giving scientific talks, among others; but despite this new understanding of medical informatics research and practice, I craved opportunities to advance my skills."

Beeler's lust for higher learning eventually led him to apply for a position in the BWH Global Fellows Program. "My boss, Jürg Blaser, who understood my research goals, suggested that a stay abroad in the US would be the perfect next step to improve my skills," he explains. "We [at the University Hospital Zurich 'Research Center for Medical Informatics'] knew the amazing medical informatics work that Harvard Medical School-affiliated hospitals and MIT were doing, as well as the studies conducted at BWH. We also knew some Swiss researchers who had worked with Dr. David Bates and BWH to advance their research careers. One of these researchers, Balthasar Hug, helped me meet Dr. Bates. Intrigued by the Global Fellows Program and the possibility to work with the Center, I submitted a research proposal to the Swiss National Science Foundation, which has a very good reputation and highly competitive grants, and fortunately I was accepted."

As a Global Fellow, Dr. Beeler assisted on several projects, focusing on such topics as inpatient diagnosis prediction, heart failure-associated readmissions and mortality, drug interaction analysis, and automated identification of rare conditions, such as Aspirin-exacerbated respiratory disease. He was also a major part of Phase 2 of the Centers for Education and Research on Therapeutics (CERT2) project. "CERT2 investigated how often, and why, care providers override electronic patient safety warnings from programs like LMR and BICS," Beeler shares. "It was a great experience to work with this productive team. On this project, I made substantial contributions to uncover whether there is variation around providers' decisions to accept or override electronic warnings. I compared how providers reacted to electronic alerts that warned against the risk of medication allergies between the outpatient and inpatient setting. I also contributed to the investigation of non-formulary alert medication overrides."

Discussing what he values most about his Global Fellowship, Dr. Beeler reveals, "There are several worthwhile aspects! I don't have a single *favorite* project. I would rather say that all studies were interesting and important, helping in several ways to advance my skills. I certainly improved my knowledge about medical informatics, overrides of electronic warnings and alert fatigue, machine learning methods, and statistics; and it's clear I will use all my new skills to perform the best possible research. I was able to work with a number of great researchers interested in many different fields as well, and thus am looking forward to publishing many papers.*

"I substantially extended my research network," Beeler continues. "I was amazed by how many leading researchers' offices were *down the hallway*, and how easy it was to meet with these busy people to discuss plans and possibilities. Finally, something I enjoyed a lot was the opportunity to think creatively; to be able to work on my own ideas as well as to participate in established projects."

*Dr. Beeler's CERT2-related research publication, Provider Variation in Responses to Warnings: Do the Same Providers Run Stop Signs Repeatedly? (Beeler, et al.), which focuses on the variability of providers' decisions to accept or override electronic warnings, has just been accepted for publication by JAMIA. At the time of this writing, Beeler considers this his "top paper."

Selected Publications by members of the Center

Evaluating ambulatory practice safety: the PROMISES project administrators and practice staff surveys. Singer SJ, Reyes Nieva H, Brede N, Ling J, Leydon N, Weissman JS, Goldmann D, Griswold P, Yoon C, Orav EJ, Bates DW, Biondolillo M, Schiff GD. Med Care. 2015 Feb;53(2):141-52. doi: 10.1097/MLR.0000000000000269.

Computerised physician order entry-related medication errors: analysis of reported errors and vulnerability testing of current systems. Schiff GD, Amato MG, Eguale T, Boehne JJ, Wright A, Koppel R, Rashidee AH, Elson RB, Whitney DL, Thach TT, Bates DW, Seger AC. BMJ Qual Saf. 2015 Apr;24(4):264-71. doi: 10.1136/bmjqs-2014-003555. Epub 2015 Jan 16.

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Leveraging health information technology to achieve the "triple aim" of healthcare reform. Sheikh A, Sood HS, Bates DW. J Am Med Inform Assoc. 2015 Jul;22(4):849-56. doi: 10.1093/jamia/ocv022. Epub 2015 Apr 15.

A web-based, patient-centered toolkit to engage patients and caregivers in the acute care setting: a preliminary evaluation. Dalal AK, Dykes PC, Collins S, Lehmann LS, Ohashi K, Rozenblum R, Stade D, McNally K, Morrison CR, Ravindran S, Mlaver E, Hanna J, Chang F, Kandala R, Getty G, Bates DW. J Am Med Inform Assoc. 2015 Aug 2. pii: ocv093. doi: 10.1093/jamia/ocv093. [Epub ahead of print]

Health Information Technology and Care Coordination: The Next Big Opportunity for Informatics? Bates DW. Yearb Med Inform. 2015 Aug 13;10(1):11-4. doi: 10.15265/IY-2015-0020. Epub 2015 Jun 30.

Does integrating nonurgent, clinically significant radiology alerts within the electronic health record impact closed-loop communication and follow-up? O'Connor SD, Dalal AK, Sahni VA, Lacson R, Khorasani R. J Am Med Inform Assoc. 2015 Sep 2. pii: ocv105. doi: 10.1093/jamia/ocv105. [Epub ahead of print]

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Provider variation in responses to warnings: do the same providers run stop signs repeatedly? Beeler PE, Orav EJ, Seger DL, Dykes PC, Bates DW. J Am Med Inform Assoc. 2015 Oct 24. pii: ocv117. doi: 10.1093/jamia/ocv117. [Epub ahead of print]

Evaluation of Perioperative Medication Errors and Adverse Drug Events. Nanji KC, Patel A, Shaikh S, Seger DL, Bates DW. Anesthesiology. 2015 Oct 24. [Epub ahead of print]
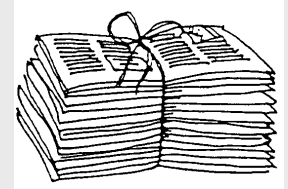
Take a look at some recent publications by members of the Center!

PCORI Transitions, continued

(Continued from page 4)

and post-discharge adverse events (i.e., patient injury due to medical care) in the two arms of the study; 2) Review qualitative responses from different providers to determine what the barriers are to implementing the protocol; 3) Perform subgroup analyses to understand which patients benefit the most and least from the interventions; and 4) Perform mixed method analyses, using a combination of staffing data, provider survey data, rates of implementation of the intervention, and patient outcomes to explore and explain why some hospital units and primary care practices were more successful than others in improving post-discharge care.

transitions
pcori project Improving Care Transitions Within a Pioneer Accountable Care Organization

Global Fellows Corner, continued

(Continued from page 6)

BWH and the Center are glad Dr. Beeler found the Global Fellows Program to be such a rewarding experience. Beeler's intelligence and all-around friendly nature have made him a very positive influence on his Boston colleagues and their groundbreaking patient safety research. It was an absolute pleasure to host him, and his presence will be missed. He leaves behind him a network of supporters who thank him for his contributions, wish him luck in all future work, and look forward to seeing what he will accomplish.

Dr. Beeler assures that he will use what he learned through the Global Fellows Program to enhance patient safety back in Switzerland. "Currently, I'm planning to improve inpatient care and safety at the University Hospital Zurich by implementing novel computerized interventions," he explains. "I also have a number of ideas that are partially based on the work carried out in Boston. For instance, I'm thinking about designing an electronic alert warning against substantial International Normalized Ratio changes due to drug-drug interactions with vitamin K antagonists. This might create further opportunity to analyze providers' responses to electronic interventions, as well as the appropriateness of these responses, in order to target unsafe overrides and increase patient safety."

Beeler "Absolutely!" plans to work on future collaborations with Dr. Bates, BWH, and the Center. Also interested in conducting international, comparative studies, he will take part in some upcoming Norwegian, French, and Belgian projects as well, working with colleagues who are associated with Dr. Bates and the Center. Above all, he really hopes there will be several chances to further partner with his Boston-based colleagues, a feeling he truly shares with BWH and the Center.

Dr. Beeler is also delighted to announce that he and his wife are expecting their second child! His friends at BWH and the Center are thrilled to hear this, and would like to whole-heartedly congratulate the Beeler family on their exciting news. We wish them the very best, and cannot wait to see pictures when the newborn Beeler arrives this January.

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