Center Updates: a seasonal review

The Center’s Executive Council Meeting: A Closer Look

On May 1, BWH’s Center for Patient Safety Research and Practice hosted its biannual Executive Council meeting, focusing on the theme of satisfaction and patient engagement. The meeting began with opening remarks by Executive Director David W. Bates, MD, MSc, who explained that the healthcare industry is changing in a very fundamental way, and it was the goal of the Center to drive this change, find solutions, align incentives, and spread awareness.

The first speaker of the day was Victoria Rich, PhD, RN, FAAN, who discussed the topic of patient- and family-centered care as innovative forms of healthcare grounded in mutually beneficial partnerships among health care professionals, patients, families, and providers. As part of this discussion, Dr. Rich talked about the core concepts of these forms of care, highlighting the major first steps the Center would need to take toward improving satisfaction and patient engagement.

Next, Patricia Dykes, PhD, RN and Ronen Rosenblum, PhD, MPH discussed the major goals of the Promoting Respect and Ongoing Safety through Patient-centeredness, Engagement, Communication, and Technology (PROSPECT) Project and its sponsor, the Gordon and Betty Moore Foundation. In collaboration with Brigham and Women’s Hospital, the Moore Foundation’s goal is to achieve a fundamentally better approach to healthcare that improves quality and safety, reduces costs, and ensures the dignity and respect of both patients and those who serve them. The PROSPECT Project aims to optimize the overall patient experience, minimize preventable harm in the ICU and acute care oncology unit, and reduce unnecessary healthcare costs. More specifically, the project looks to transform the acute care environment through implementation of a patient-centered intervention, known as the Patient SatisfActive® Model, through a web-based patient centered toolkit.

After talks by Jan Berger, MD, MJ on the science of health engagement and Mary Beth Navarra-Sirio, RN, MBA on adherence, the Council held an open discussion regarding strategic planning. The purpose of the open discussion was to create a clearer vision of what the patient safety industry will be like in five years and what the Council and Center hope to accomplish during that timeline. Dr. Bates and David Kronfeld, MSc, MBA asked the other Council members to consider healthcare as a startup business.

The Current Capabilities of Health Information Technology to Support Care Transitions

In a recently-published article Dr. Lipika Samal, et al., examined the extent to which health information technology (HIT) currently supports care transitions. To date, there has been little scientific research on this topic despite the many improvements to care quality and safety HIT has contributed to. In order to determine the degree of this support, Dr. Samal and her team conducted focus group style interviews to query clinicians from emergency departments, acute care hospitals, skilled nursing facilities, and home health agencies about their approaches to managing care transitions. Their aim was to identify content related to the Agency for Healthcare Research and Quality (AHRQ) care coordination mechanisms.

From the interviews, the team found that, while HIT is used for each of the 13 AHRQ patient-centered care coordination mechanisms, it is sporadically employed. HIT is used for activities related to aligning resources with patient and population needs. HIT is strongly affiliated with disease management and case management as well. Contrarily, HIT was rarely found to be used during many patient-centered care coordination practices, such as assessing needs and goals, facilitating transitions, responding to changes, establishing accountability,
Electronic Problem List Documentation of Chronic Kidney Disease and Quality of Care

In the United States, chronic kidney disease (CKD) has become increasingly common in primary care clinics. Of the 26 million Americans with CKD, 95 percent are being treated by primary care physicians (PCPs) in primary care clinics. Despite these vast numbers, even with nationally accepted guidelines for CKD care, the current state of primary care management of early CKD is largely unknown. Recognition of CKD is poor due to reports of suboptimal management and low adoption of CKD guidelines. In addition, a systematic review revealed a wide variation of CKD documentation in patient records.

In a recent article in the BMC Nephrology Journal, Dr. Lipika Samal, et al, investigated the correlation between the quality of CKD monitoring and treatment, and documentation of the disease in the electronic problem list within the electronic health record (EHR). The authors proposed that appropriate documentation of CKD can be beneficial by reminding PCPs to order the appropriate tests and medications, alerting covering physicians to the condition, and triggering clinical decision support programs.

Samal’s team conducted a cross-sectional observational study of patients with stage 3 or 4 CKD who visited a PCP at one of the twelve primary care clinics in the Brigham and Women’s Primary Care Practice Based Research Network. The same EHR, the Longitudinal Medical Record, was used by all 12 of the clinics involved in the study. For the data analysis, the team measured the proportion of patients who were noted to have CKD and other renal diagnoses on the problem list. To supplement this information, the team extracted data on five outcomes of interest: serum eGFR tests, urine albumin/protein tests, an ACE/ARB prescription, mean systolic blood pressure, and blood pressure control.

The results of the study indicate that documentation of CKD on the electronic problem list is rare. Only 4,888 (16%) of the eligible 3,149 patients with laboratory evidence of stage 3 or 4 CKD had that diagnosis documented on the problem list. In terms of the correlation between CKD documentation and the five quality of care outcomes, Dr. Samal’s team determined that CKD documentation was most associated with serum eGFR testing and urine albumin/protein testing after adjustment for eGFR, gender, and race/ethnicity.

The low documentation of CKD shows that there are opportunities to improve the quality of care for CKD patients. One encouraging result of the study is that patients with CKD documentation were more likely to receive stage-appropriate monitoring of the disease, such as serum eGFR testing and urine albumin/protein testing. From this data, the team concludes that, while interventions aimed at increasing CKD documentation may improve stage-appropriate monitoring, documentation of the disease alone is not sufficient enough to improve treatment or intermediate clinical outcomes.


Executive Council Meeting, continued

(Continued from page 1)

ness — start small, work to complete only a few goals, and then work on a broader range of goals after success and support increase.

In addition, many expressed how information regarding patient safety innovations is primarily published in academic journals and rarely gets into public media. On this point, Dr. Berger stressed the importance of branching out and making these publications more accessible to the public, so that their ideas can spread.

Overall, as stated by Council Chair David Feggin, PhD, MBA, the answer to value-based care, transparency and quality, patient-centricity, and the driving of optimal practices is bringing the right people together.
The Problem of Human Error: 1 in 20 Outpatients Misdiagnosed

In a recent article published in the BMJ Quality and Safety journal, Dr. Hardeep Singh and his colleagues determined that at least 1 in 20 adult outpatients receives an incorrect diagnosis from his or her doctors. According to their analysis, an estimated 12 million Americans per year are affected by diagnostic errors, and potentially 6 million of these could face major consequences as a result. But what is meant by “diagnostic errors” or “misdiagnoses?” These terms have been notoriously difficult to quantify across multiple providers, as researchers do not all use the same definition for these types of mistakes. A researcher at the Veterans Affairs Center for Innovations and Baylor College of Medicine, Dr. Singh personally defines a diagnostic error or misdiagnosis as a clear, missed opportunity to make a timely and correct diagnosis at that given point in time.

Dr. Singh’s study is reportedly the first to provide robust population-level data on the impact of the misdiagnosis problem.

While this study provides vital knowledge about diagnostic errors, Dr. Gordon Schiff, a general internist and the Center’s Associate Director, argues that we are only now beginning to understand what these errors are and what causes them. “The problem of diagnostic errors in general has not been front-and-center in the patient safety movement until recently,” Schiff told The Boston Globe. He contends that Dr. Singh’s work has probably overlooked certain types of error activity, and may in reality underestimate the actual scope of diagnostic errors. However, Dr. Schiff added, “This [new study] is a very good first pass at trying to really, in a more rigorous way, establish the incidence of diagnostic errors,” believing this study will give researchers a good “hard number” to work with.

Assigning this “hard number” to outpatient diagnostic errors is a vital first step toward generating greater awareness of and the resources to resolve the issue. This is a multifaceted problem, which will require a multifaceted solution. Patients themselves, for instance, need to be more proactive about their care. In addition, doctors should not be afraid to ask for second opinions if they are unsure of a diagnosis or course of treatment. Finally, there needs to be a way for doctors to hear about their errors, so they can learn from them. “There's a lot of opportunity to do better with diagnosis,” concludes Dr. Schiff. “A lot of our efforts should be on [tightening] these gaps in practice for the practitioners struggling on the front lines of clinical care.”


To find more information on this topic, check out the articles from NBC News and The Boston Globe.
Honors & Awards

A Leader in Nursing Informatics

Patricia C. Dykes, PhD, RN received the 2014 Rita D. Zielstorff Nursing Informatics Leadership Award at the New England Nursing Informatics Consortium (NENIC) annual symposium in May. Dykes earned the award for her pioneering work in the field of nursing informatics, having developed a decision-support and communication intervention for use by care providers, patients and family members to prevent patient falls.

Bates and Leape: Leaders in Patient Safety Excellence

David W. Bates, MD, MSc and Lucian L. Leape, MD have been ranked among the top 50 leading patient safety experts of 2014 by the Becker’s Hospital Review. Both are recognized for their commitment to improving patient safety, personal accomplishments, and organizational leadership.

Dr. Bates is an internationally renowned expert in patient safety, whose research has demonstrated that the most effective means to prevent serious medication errors is through improving the systems. He has made important discoveries exploring the epidemiology of adverse medical events, such as drug-related injuries, and is a seemingly constant contributor of evidence-based guidelines to healthcare quality, efficiency and safety.

Dr. Leape has been an awarded patient safety advocate ever since publishing his seminal article, “Error in Medicine,” in 1994. In his long history, Leape has founded several organizations dedicated to developing and improving patient safety strategies, including the Massachusetts Coalition for the Prevention of Medical Error, the Harvard Kennedy School Executive Council Session on Medical Error, and the Lucian Leape Institute at the National Patient Safety Foundation.

Impact of an Automated Email Notification System for Results of Tests Pending at Discharge

Many of the preventable adverse events that occur during the transition period after hospitalization are a result of poor communication. An alarming number of physicians are not aware of the results of tests pending at discharge (TPADs), despite having access to the shared clinical data repository through an integrated, electronic medical record (EMR).

Many hospitals do not have a reliable system for managing TPADs, and discharge documentation often does not provide timely information to the responsible provider who must then act. In order to combat this problem, Dr. Anuj Dalal and his team developed an automated system that notifies responsible physicians of TPAD results via secure, network email. In a recent article published in the Journal of the American Medical Informatics Association, the team evaluated the impact of the system on self-reported awareness of TPAD results by responsible physicians.

Dalal’s team performed a cluster-randomized controlled trial at Brigham and Women’s Hospital, enrolling all adult general medicine and cardiology patients, of participating physicians, who reportedly had at least one TPAD. The facility’s attending physicians and PCPs were surveyed approximately 72 hours after all patients’ TPAD results were final-ized. The primary outcome was the level of self-reported awareness of TPAD results by each attending physician. Secondary outcomes included self-reported awareness of the TPAD results by both network and non-network PCPs, provider satisfaction, and self-reported awareness of actionable TPAD results by both attending physicians and PCPs.

The study showed a statistically significant increase in the rate of awareness of TPAD results by both attending physicians and PCPs assigned to the intervention, compared with the usual care. For patients assigned to usual care, 95 (70%) attending physicians and 54 (65%) PCPs reported dissatisfaction with their current method of managing TPADs. In contrast, 118 (85%) attending physicians and 43 (63%) PCPs assigned to the intervention reported satisfaction with the method of receiving email notifications of TPAD results. Therefore, the automated email notification represents a promising strategy for managing TPAD results.

Though these findings show positive potential for reforming TPAD management, Dalal discloses that his study was not designed to detect whether appropriate downstream actions were taken in response to the actionable TPAD results. Thus future studies should assess the impact of this email strategy on downstream actions post discharge.
The Importance of Incorporating Prescription Indications: An Interview with Gordon Schiff

On June 11, Dr. Gordon Schiff, and associates, presented a pitch at the iHub Clinical Innovation Day IdeaLab, BWH’s new innovation center, developed to inspire and coach innovators to launch their ideas toward commercialization, disrupting traditional medicine and improving patient care. Their pitch, entitled “Indications Based CPOE: Designing a Safer, More Efficient, Computerized Prescribing System,” argued that current medication computerized prescriber order entry (CPOE) systems are flawed, and may actually be hindering patient safety instead of facilitating it. The issue with traditional CPOE systems, highlighted by Schiff and his colleagues, is that many do not incorporate medication indications—the names of medications, reasons for prescribing, and other important information—into the prescription order. Errors that arise from a lack of indications, through non-adherence or confusion about logistics, for instance, occur far too frequently in medication prescribing practices, and can lead to major medical complications.

To illustrate how unspecified or ambiguous medication indications can lead to such complications, Dr. Schiff explains the example of Methotrexate, a drug prescribed when treating both rheumatoid arthritis and certain cancers. For rheumatoid arthritis, Methotrexate should be taken only once a week. Cancer patients, however, must take it once a day. Depending on a patient’s condition, a lack of indication when prescribing this medication could cause that patient to drastically under- or overuse the drug, leading to new or worsening, perhaps even fatal, health problems.

Aiming to improve health information technology (HIT) prescribing safety, Dr. Schiff and his co-presenters have hypothesized a means of redesigning CPOE systems to make prescribing practices safer and more effective. Their proposed redesign will enable physicians to incorporate medication indications into the prescription order, ideally without interrupting normal workflow or compromising autonomy. Dr. Schiff explains, “By having indications on medications, pharmacists will know why the medication is being prescribed and, therefore, how much they need to prescribe to the patient.” In other words, medication indications will help physicians and pharmacists avoid potentially major prescribing errors, better ensuring that patients receive the correct medications, doses, and instructions to be treated safely and effectively.

While it was important for Dr. Schiff and his team to use their pitch to spread awareness of the inferiorities of current CPOE systems and the dangers of faulty or nonexistent medication indications, their ultimate goal was to gather the support required to create a working prototype of their desired system. This working prototype would allow them to teach others about how such a system would function. It would also grant these people the opportunity to test out the model, observe any issues, and discuss potential improvements.

Since presenting the pitch, support for the Schiff and his team’s idea has grown favorably. Recently, the project was selected as part of the Agency for Healthcare Research and Quality’s HIT Safety Call for Proposals to receive a $750,000 grant. Thrilled to have procured this initial funding, Dr. Schiff’s team now prepares to enter the first phase of the project. “This phase,” Schiff explains, “will involve convening six expert panels of high-level stakeholders to discuss the many facets of designing the working prototype, including rationale, multi-user needs, operational and interoperability requirements, interface design elements, limitations and barriers, and policy implications of incorporating medication indications into the CPOE. These stakeholders may then choose to invest in the new CPOE, so that it might in the future become the standard medication prescribing system.”

Dr. Schiff is hopeful that, one day, all prescriptions will be written in a different way, one which includes indications and other vital information. Possessing a clear vision of his goals, and solid financial backing, Schiff is confident in his ability to lay the foundation for this new CPOE. With his help, traditional prescribing practices may soon become obsolete, replaced with a system that establishes a safer course of treatment for all.
Global Fellows Corner, Olivia Dalleur, PhD

In this new section, we will share the story of one of the Center's Global Fellows – what brought them here, what they learned, and what their take away will be.

One of the major problems in the medical profession is the lack of appropriate safety associated with medication alerts and prescriptions. Working as a pharmacist in Brussels, Belgium, Dr. Olivia Dalleur’s primary interests have mainly been in the areas of clinical pharmacy, the process of prescribing medication, and geriatrics. Recently, her research has focused on the appropriate use of medicines in older patients using the Screening Tool of Older People’s potentially inappropriate Prescriptions and Screening Tool to Alert Doctors to Right Treatment (“STOPP & START”) criteria. Embracing her love of travel, Dr. Dalleur found the Global Fellows Program, which she states was one of the most rewarding experiences of her professional career.

Before coming to the Center, Dr. Dalleur studied Pharmacy at Université catholique de Louvain (UCL), followed by a Master’s degree in Hospital and Clinical Pharmacy. She went to work for a few years in geriatric wards and nephrology. She completed her PhD through a program in the clinical pharmacy research group of UCL’s Louvain Drug Research Institute shortly before enrolling in the Global Fellows Program last June.

It was during her research in the nephrology department when Dr. Dalleur first learned about the Center through its publications. Through these publications, she found that the research being conducted by Dr. David Bates, BWH’s Senior Vice President for Quality and Safety and Chief Quality Officer, was very similar to both research she was currently invested in and what she hoped to investigate in the future. Looking into the Center further, Dr. Dalleur discovered the Global Fellows Program, which she opted to enroll in after receiving funding from Foundation Saint-Luc, which supports such endeavors.

As a Global Fellow, Dr. Dalleur spent a great deal of her time working on the Center for Education and Research on Therapeutics (CERT) Project. “My job in the CERT Project involved inpatient cases in which physicians overriding alerts concerning nephrologic or geriatric conditions,” Dr. Dalleur explained. “I needed to assess the appropriateness of each override and determine if there were any clues in the medical record that explained why the alerts were overridden. Using this information, my team and I worked on improving the alert system, making future alerts more relevant and secure.”

Another major project Dr. Dalleur worked on involved utilizing a natural language processing system to detect cases of medical discrepancies, focusing on opiates. Her role in this project was to identify and describe cases in primary care where important information regarding opiate use was present in the free text of the medical letters, but not in the prescribing system.

Reflecting on her time as a Global Fellow, Dr. Dalleur explained that the most valuable aspect of the experience was the extensive network of people she was able to form within the Center. “Working on many different projects allowed me to work with so many different, interesting people. I loved it!” Dr. Dalleur exclaimed. In addition, she was intrigued by the process through which the Center analyzes information. “In Belgium, we deal with the same research questions and the same issues with prescribing, but we manage them in a different, interesting, and complementary way,” she stated. “It is at the same time very close and somehow different.”

Looking to the future, Dr. Dalleur hopes to incorporate the research she performed during her fellowship into both her academic and hospital work. She wants to build upon the ideas of prescribing security and patient engagement in treatment that she learned about at BWH and looks to implement similar interventions into Belgian hospitals. Dr. Dalleur views the Center as an inspirational place, since it shows the potential growth her own research facility may one day achieve. “At my hospital, our research facility is relatively new, so it’s still very small,” she explained. “To me, the Center is inspiring because it shows how big our research facility can get.”

As for her future with the Center, Dr. Dalleur has already made plans to come back to the Center from September to December to extend the research she performed before returning to Belgium. Beyond this, she hopes to continue collaborating with the Center on more investigations down the line. “I loved the city of Boston and the many people I worked with during my time here,” Dr. Dalleur stated. “In the future, I hope we can develop new research projects together.”
Selected Publications by Members of the Center

Dr. David Bates' Wikipedia Page


and creating proactive plans of care. It was also much underutilized for information transfers across settings. For instance, instead of using HIT to electronically transfer information to a health care home, most systems employ a nurse to personally maintain contact with patients across transitions.

Based on their findings, Dr. Samal and her team have concluded that current HIT practices are not conducive to supporting the safest and highest quality care transitions. They propose that, ideally, HIT should be used as a bridge across transition settings, not just within one healthcare setting to prepare for a transition, as it is mainly utilized today. There is, therefore, substantial room for improvement in many key care coordination mechanisms, even within organizations. Only after it is realized that HIT tools exist to help streamline and improve operations will they be properly implemented into healthcare systems, ensuring patients receive the best transition of care possible.