

Newsletter of the Leadership in Medicine Society at the Boston University School of Medicine

Project RED: Improving Continuity of Care at BMC (Khalil Hussein, MS2)



One experience all doctors share from their time in medical school is a patient response that genuinely surprises them during an interview. That outcome is virtually guaranteed when an interview combines the legal protection of doctor-patient confidentiality with intensely personal questions. However, the most eye-opening reply I've heard came in response to a follow-up question that is not typically taught in clinical medicine courses and seems perfectly bland. The follow-up question came after learning about a patient's current prescription drug use, which totaled 25 medications. I asked, "Can you tell me what those medicines are for?" The response was a simple and direct "No."

I asked that question as part of my summer experience working as a research assistant for Project RED (Re-Engineered Discharge). Future doctors are taught first and foremost how to diagnose and treat. However, cost control measures in wake of rapid increases in healthcare spending mean that healthcare teams will soon be under pressure from hospitals to meet performance metrics that go beyond choosing the correct medicine. An increasingly popular metric is the 30 day readmission rate, which is a statistic that describes how often patients are readmitted for the same condition to a hospital or emergency room within 30 days of discharge. The use of the readmission rate as a performance metric has its faults, as shown by a recent Cleveland Clinic study that found that some hospitals that did "better" in terms of 30-Day readmission rate achieved that "better" result by having a higher 30-Day mortality rate. That meant that patients at those hospitals died more frequently after discharge, thus decreasing the odds of those patients making it back to the hospital. Nonetheless, the Patient Protection and Affordable Care Act established that the readmission rate will be used to set payments to hospitals. (continued page 3)

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INSIDE THIS EDITION

Making House Calls:
Bringing Health Care to the
Patient

What is The Future
Physician?

The Need for Teams: A Need
for Synergy in the Delivery of
Health Care

Case Study: Christian
Medical College and
Reimbursing the Poor

Making Health Care "Lean" (Sahil Jain, MD/MBA Candidate 2012)

Lean Operations, modeled after Toyota's Manufacturing System, are a set of business management principles that strive for improvement in operations by focusing on efficient workflow, mixed level operations, pull execution, quality at source, and continuous improvement. With hospitals striving for cost-effective and high quality healthcare, many institutions like Seattle Children's Hospital, Beth Israel Deaconess Medical Center, Virginia Mason Medical Center and others have now started to seriously consider the analogies of these factory-management principles in the healthcare delivery system. The following are some major principles of Lean Operations and examples of how they can (and have) been instituted in institutions across the country.

- 1) **Cut batch size of each processed resource to allow for faster processing of any object in a chain-of-use.** For example, if you clean and stock an instrument, cleaning and stocking a batch of 50 might be better than 500 at a time as it would allow for quicker use of the 50.
- 2) **Synchronize with demand so that you can have what is needed, when it's needed, where it's needed and how much is needed.** For example, Seattle Children Hospital implemented a system where a particular type of supply was stocked only when an empty box was sent to the supply-room, instead of keeping 3-4 boxes of supplies on a hospital floor. By rotating between 2 boxes (one on floor stocked, other being used or being stocked) they could achieve the same amount of efficiency but keep less inventory.
- 3) **Maintain highest quality at the source, i.e. realize the impact of each error compounds as it moves down the value chain, so keep quality at the root high.** For example, obtaining highest quality patient history and physical exam information right at admission might reduce the number of redundant visits needed to obtain a comprehensive history and benefit both patients and providers. (continued page 2)

New Writers/Editors Welcome! – If you would like to share your insights, thoughts, or opinions on physician leadership, health system change, and the future of health care, please email Neil Nadkarni(nan9@bu.edu) for queries.

Making Health Care Lean (continued from page 1)

4. Have flexible resources i.e. cross train staff and leverage IT services. For example, in a private practice, doctors often find it useful to have assistants with a broad set of skills (IT, legal, administrative) than a specialized person for each type of activity. Again, the amount of flexibility desired depends on the task at hand, but it's often helpful to keep staff cross-trained for resources that may be bottlenecks (like residents being trained to withdraw blood for lab orders instead of waiting for phlebotomy)

5. Reduce wastage of resources. For example, in case of high-predicted ER demand (long weekends, ball game days etc.) a NYC hospital found helpful to direct floor attending doctors and residents to

rotate in the ED if the floor demand is below a certain level. This reduced their idle-time on the floor and increases the rate at which patients are attended to the ED.

6. Try and predict a range of demand and the probability for each demand value.

During a particular season like spring, hospitals may benefit from looking at previous year's patient visits from illnesses such as the flu and prepare some initial predictions for the current year and the probability for each prediction. For example, the pediatrics department may ascertain that it is 90% likely that flu related hospital visits may be as much as last year and 70% likely that they would be 10% more or 20% less. This would help prepare staff and resources optimally and maintain a desired service level.

7. Synchronize different operations across each resource. The attending doctor may benefit more by spending time with both teaching residents and students daily, rather than teaching residents some days in a row and then teaching medical students for the remaining days in the week. This integration reduces repetition of information and also allows each of the learning groups to interact with each other and further enhance their learning.

The principles of Lean Operations seem like common sense - and they are. With growing complications in health care, there are success stories every day. What is hard is determining where in the delivery chain they can be applied to improve healthcare and how to convince more health institutions to adopt these standards.

I Feel The Need The Need for Teams (Marcel Tam, MD/MBA Candidate 2012)

Throughout the course of their stay, a patient is visited by multiple health professionals operating within the hospital system, including: attending physicians from multiple specialty teams, x-ray technicians, residents, phlebotomists, floor nurses, and perhaps even the lowly medical student. All of these well-intentioned individuals make up the health service group for that patient. Yet, despite the high-level organization of this working group, the patient can still receive mixed information. "Things are looking good. I imagine you will be home tomorrow," says one specialist. Twenty minutes later, the floor nurse comes in, "I just heard that you'll have some more tests tomorrow, so you won't be able to go home tomorrow." The primary attending physician enters the room to say, "We are waiting to hear what the other teams decide before letting you go home." Each professional acts from their best knowledge and with the best intentions of the patient in mind, but the result is clearly sub-optimal. By the end, everyone is left confused about the care plan and the quality of the patient's care suffers as a result. This brief anecdote, and many like it, may be found scattered throughout the US health care delivery system.

So why is this the case? Shouldn't smart, highly-educated individuals be more likely to create high-performing teams? In a recent article in the Harvard

Business Review, Dr. Thomas Lee, network president of Partners HealthCare System, says "the problem with health care is people like me" - referring to physicians trained to maximize individual quality and efficiency. These physicians, now in leadership positions, were bred to be autonomous. The trouble is that advances in medical care have overburdened the fragmented system (Stange, 2009) and physicians are now forced to work in groups that require them to surrender autonomy. In order to best care for their patients, they must work in teams.

You will notice that, although the health professionals mentioned in the above example were organized as a group of care providers, I did not refer to them as a team. In the field of Management, it is well known that there is a distinct difference between a "group" and a "team" (see Table 1; Katzenbach & Smith, 1993). While a working group of professionals may be organized and efficient, their performance is still less than

or equal to the sum of their individual skills. In a group, the physician knows their role and holds themselves accountable to their professional standards. The nurse knows their domain and fulfills it to the best of their ability. Yet their activities remain autonomous. The primary distinction of a team, on the other hand, is that a team works towards a set of common goals with mutual accountability, making the outcome of their efforts *greater* than the sum of their parts. In this scenario, the physician may, for example, delegate decision-making responsibilities related to the coordination of patient care to another health care professional, yet they each will be held mutually accountable to the other to complete their respective roles of focused healer and care coordinator. Only in this way will patients harvest the most benefit from our expansive medical knowledge and vast resources.

Table 1. The Differences Between a Group and a Team

(Katzenbach and Smith, 1993)

Working Group

- Strong, clearly focused leader
- Individual accountability
- The group's purpose is the same as the broader organizational mission
- Individual work products
- Runs efficient meetings
- Measures its effectiveness indirectly by its influence on others
- Discusses, delegates and delegates

Team

- Shared leadership roles
- Individual and mutual accountability
- Specific team purpose that the team itself delivers
- Collective work products
- Encourages open-ended discussion and active problem-solving meetings
- Measures performance directly by assessing collective work products

House Calls (by Jonathan Lichkus MS2, jlichkus@bu.edu)



I couldn't hear it. I tried closing my eyes and pressed the stethoscope firmly against the patient's chest, over the heart, but I could barely hear a thing. Instead, I heard the mother talking to the doctor and the nurse, the dog barking furiously at me, and the nearby sheep. I was on a series of house calls with the local doctor and nurse, and had been asked to listen to the patient's heart. In the U.S., I would perform such an exam in the privacy and comfort of an exam room. Here, on a warm June morning in Cacha, Ecuador, we sit on whatever is available—amidst the patient's family and farm animals. I had never done a house call in the US, but had spent the past four weeks doing them here. While I may not have gotten the hang of it, the medical teams I shadowed did seem effective. Why didn't we do house calls in the US?

Only when I returned did I learn that house calls are still an influence in medical care in the U.S. The Geriatrics Home Care Program at Boston Medical Center (BMC),

created in 1875, is currently the oldest in-house medical service in America. Like my experience in Ecuador, the Home Care Program employs a team approach, composed of a physician and a nurse case manager at every visit. To qualify, patients must be 70 years or older, be homebound in the city of Boston, and have a BMC Geriatrics Services primary care physician. Why have such a program? In a 2008 Journal of the American Medical Association article called "Programs Bring Care to Homebound Seniors," Dr. Eric Hardt, Director of the BMC Home Care Program, stated, "On home visits we get better data about functional status, compliance with meds, the family situation, and we're more efficient in implementing our plans. We think it's easier to understand and manage the conditions of our patients when we see them at home than if we saw them in the clinic."

Across the country, nearly four million seniors live at home with multiple chronic illnesses and are too ill or disabled to see their doctor when needed. Consequently, such patients forgo important preventative visits and check ups, which leads to ER and inpatient hospitalizations. Despite comprising only 10% of all Medicare beneficiaries, this group accounts for two-thirds of Medicare's expenditures. To make matters worse, this cohort is expected to grow in the coming years—by 2025, 6-8 million people are expected to be living with multiple chronic conditions.

To combat these rising costs and improve the quality of life for such patients, the "Independence at Home" provision was signed into law in March 2010 as part of the Patient Protection and Affordable Care Act (also known as Health Reform). The provision will afford 10,000 Medicare beneficiaries a chronic care coordination benefit as part of a three-year demonstration project. Participating physicians and health care providers will be accountable to produce: 1) good outcomes, 2) patient/caregiver satisfaction, and 3) a minimum savings of 5% annually. The program is based on successful examples throughout the country. For example, the Virginia Commonwealth Medical Center reduced hospital costs by 60% for very ill patients through its house call program. Similarly, the Veteran's Administration's Home-Based Primary Care program received an 82.7% patient satisfaction rating—the highest rating ever received for a VA program.

Only time will tell if home-based care becomes a more ubiquitous part of our nation's health care system. For now, I will remember my time in Ecuador, visiting patients in their homes, observing the environment in which they live, and seeing the combined look of happiness and relief when they answered the door and realized that the doctor was there to see them.

Project RED (continued from page 1)

(from page 1) Historically, hospitals have had no incentive to limit readmissions because they get paid a lump sum with each patient visit, just as a theme park has no incentive to dissuade people from coming back if the park gets paid the same amount with each return visit. With readmissions of Medicare beneficiaries costing the program over \$15 billion a year and some studies suggesting that over half of readmissions are preventable, the potential cost savings are huge. As soon as 2012, hospitals will receive smaller Medicare payments for readmissions within 30 days, so hospitals are searching for solutions.

Cue Project RED. Medicine noncompliance, lack of outpatient follow-up after leaving the hospital, and errors in the discharge process such as incorrect prescriptions are all preventable causes of readmissions. The initial Project RED intervention required trained nurses, called discharge advocates (DA), to be in charge of several tasks throughout a patient's hospital stay. These tasks included teaching patients about their condition, setting up follow-up appointments, reviewing prescriptions, reviewing with patients what to do in the event of problems, and giving the patients a written discharge plan, called the After Hospital Care Plan, that is easy to understand. A randomized control trial found that readmissions were reduced by 30% and associated costs fell 33% for patients who received the intervention. Due to the promising results, a new intervention was created that kept all of those tasks but also included the use of computer characters named Louise and Elizabeth that helped explain the discharge information using text-to-talk software on a touchscreen computer that was brought into the patient's room. The computer characters acted as "virtual nurses" that could explain the basic discharge information, thus saving the DA's time and allowing them to focus on answering patient's questions. In addition, a pharmacist would give a patient a call after they left the hospital to go over their medicines.

The results from the second RED trial are still pending, but a new trend has been set. The BMC HealthNet Plan insurer has requested that the RED intervention be used for all BMC patients with BMC HealthNet Plan insurance. The cheapest way to limit readmission of patients with chronic conditions is by minimizing medical errors, improving patient education, and ensuring follow-up outpatient visits. Those goals are best achieved with nurses and pharmacists that prepare patients for discharge and double-check doctors. The task of doctors is to adapt to the greater roles of these players in healthcare teams.

Case Study: "Robin Hood" Reimbursement at Christian Medical College (Daniel Kao, MS2)



Christian Medical College & Hospital

Walking about the grounds of the Christian Medical College (CMC), one notices immediately the tremendous mass of people swarming in and out of buildings. Dozens of security guards and rows of metal partitions attempt to funnel the whirlpool of patients to their next destination. Gurneys wait at cross walks for rickshaw taxis to zip by. The CMC may be the very definition of organized chaos. To keep a hospital of this magnitude and prestige going, a lot of good people with creative thinking are required.

The CMC is a 2000-bed hospital located in Vellore, a small city in southeast India. Widely considered one of the best hospitals in the country, it boasts such satellite institutions as the Community Health and Development Center (CHAD), the Rural Unit for Health and Social Affairs (RUHSA), and my personal favorite, the Low Cost Effective Care Unit (LCECU). Seeing over five thousand outpatients a day and with a maxed out cluster of inpatient wards, it is hard to imagine how a non-air conditioned, five-story hospital could competently treat so many people.

Though CMC's doctors are top class and provide high quality treatment, what is their incentive to do so? How does a religiously based hospital with a salary scale that pays the doctors not much more than the nurses maintain such a high level of care?

To address the financial aspect, the CMC is a hospital that subsidizes all patients it admits to the general ward and gives free treatment to many others. To put this subsidy in perspective, the cost of seeing a primary care physician at the LCECU, an institution reserved for Vellore's poorest individuals, is ten rupees - 20 cents in USD. So where does the financing come from?

One interesting strategy the CMC has undertaken is the utilization of medical tourism. Under this scheme, the patients who can afford to pay for their treatment are required to do so. Commonly referred to as a 'Robin Hood' style of payment, this generally will target wealthier foreigners who visit the CMC for treatment.

The profits that are derived from the patients who pay full price will go on to subsidize the treatment for many others. For instance, a single unsubsidized bone marrow harvest done in the Hematology department can go on to subsidize many other such procedures for needier patients. In this and many other ways, the CMC has found ways to sustain itself.

Finally, what of the doctors who take substantial pay cuts to work at the CMC? What would drive Dr. Benjamin Joseph, the head of Orthopedics Unit 2 at CMC, to live in an apartment most college students in the US might cram into their senior year? Some of that may be explained by the Bible verses that adorn nearly every wall of the hospital. Scribbled on a dry erase board in the ENT surgical department is this verse: "If anyone would come after Me, he must deny himself and take up his cross and follow Me." While not every doctor may be a person of strong faith, the overall sentiment is clear. Denying oneself of worldly riches and bringing good works to those in need are values that run strong in the CMC's culture and the lives of doctors who work there.

What can be taken away from the CMC may simply be this. While medical success can be had by cutting edge technology and complicated medical procedures, these methods alone may not ensure complete effective health care. Instead, it may be the compassionate and innovative nature like that of the doctors at CMC which will ultimately heal the people of India, and eventually the rest of us as well.



Editor's Note on the Future Physician

Dear Readers,

We hope you enjoyed the Volume 3, Issue 1 of "The Future Physician". For those are new, the "Future Physician" aims to facilitate discourse on the health care system as a whole. We do this by discussing health care reform, innovation, and case studies of both local and international institutional models. Over the course of the newsletter, we will not only have medical student articles – but investigation from students in other professional schools (School of Public Health, School of Management), professors, and MDs. By doing so, we hope this leads to insight and awareness of the radical changes happening right now in the medical profession.

Naturally, we are looking for others to help on the Newsletter Team for 2010-2011 and beyond (especially first-years!). Please let me know if you'd like to be a writer (either regular or free-lance) or editor as we aim to promote peer-review and academic treatment of the subject material. This newsletter requires a team-effort!

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