

# @ NE VERC

Spring 2013 Edition

## New England VERC Advisory Board and Strategic Planning

(Janis Hersh)

### New England VERC Advisory Board

In our proposal for funding, back in 2008, New England VERC envisioned an Advisory Board to assist with the growth and success of our program. This vision was realized and as our VERC began to build, we invited our first Advisory Board members in early 2011. The Board members provide guidance on strategies to accomplish mission and strategic goals, approaches to sustainability, assessment of program impact, and advice to New England VERC leadership and staff.

The Advisory Board has been co-chaired by Michael Mayo-Smith, VISN 1 Network Director, and Vinod Sahney, former Chief Strategy Officer at Blue Cross/Blue Shield of Massachusetts and Senior Fellow at IHI. Quarterly board meetings are held. The following individuals have held positions on the Board:

- Michael Lawson, *ex officio*, Director, VA Boston Healthcare System
- Lori Pelletier, Director of Performance Improvement, UMass Memorial Health Care
- William (Ike) Eisenhauer, *ex officio*, Director, National VERC Program
- Carol Jones, Director of Performance Improvement and Quality, Beverly Hospital / Lahey Health
- Lynne Cannavo, Director of Quality, VA Boston Healthcare System
- Bradley (Vince) Watts, Psychiatrist and National Center for Patient Safety, White River Junction VA Medical Center
- Russell Barton, Senior Associate Dean and Professor of Industrial Engineering, Penn State University

The Board's impact has been felt in the area of developing specific New England VERC metrics, which we have developed and improved over the last three years. They encouraged us to have a customer-oriented approach and provided examples from the

private sector as to how project requests can be prioritized. The Advisory Board members challenge us to think outside of the box (and VA) and to identify the impact we make on Veterans.

### Strategic Planning

The development of VHA and VISN 1 strategic goals has created a framework for New England VERC to establish a long-term strategic plan. We utilize our strategic plan to make decisions about project requests and to develop project areas for focus. After reviewing those of VHA and VISN 1, we began drafting a mission and vision for New England VERC.

### New England VERC Mission

To contribute to VHA through the application of a systems-based engineering approach to improve healthcare delivery and operations, so that VHA can efficiently, effectively, safely, and reliably provide exceptional care.

### New England VERC Vision

- New England VERC is seen as a program of experts in applying engineering methods to healthcare, which enables the VHA workforce to provide excellent care to patients.
- We are a customer focused, collaborative and multidisciplinary program, both in terms of the approaches we use and our staff and partners, which include academics, researchers, clinicians, and operations staff.
- We are a continuously learning, dynamic organization, seeking to anticipate needs for VHA, New England VERC makes an impact on how the VHA workforce thinks about their roles, bringing systems thinking into their everyday work.



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Veteran Engineering Resource Center

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An essential element of the work was to gather input and create shared vision of the work, particularly with a growing staff of engineers and improvement specialists. We accomplished this via an approach called “catch-ball”. This term comes from the formal lean concept known as *Hoshin Kanri*, which provides a method for communicating between all levels of employees, keeping everyone focused on meeting the organization’s goals. In this case, we used this method to build knowledge of the goals, and gather input about what they meant to staff, so that this would be instrumental in guiding future work.

In a relatively small setting, this method was easy to implement. Sessions were held where the basic definitions of mission, vision, goals and objectives were reviewed, and staff reacted to earlier drafts of the strategic plan. We cycled the drafts through staff, leadership, and the Advisory Board.

We have since used a formalized strategic planning process to guide the work in FY13. The goals also organized our reporting structure and project request process. In planning for FY14, we have begun to revise our objectives for each of the goals.

To see how the delineation of a strategic goal can guide the work, here is an example of the specific objectives for Goal 1:

Goal I: Develop sustainable improvements and innovations in operations through the application of systems engineering methods that are well aligned to VHA

- Focus on **clinical systems and administrative** processes,
- Partner with national and VISN program offices and service lines,
- Create **tools and models** to enabling staff to manage their work more effectively and accurately, and
- Develop **innovations that can be applied easily** in new settings.

We have focused our work in mental health over the course of FY 13, and aligned it using Strategic Goal 1. New England VERC has a long standing interest in mental health, and VISN 1’s Mental Health Service Line Director, Craig Coldwell, has a background in improvement. We committed to this focus area by first embarking on several smaller projects to understand clinical operations and creating linkages with national program



offices. This work has resulted in a larger role working with the Office of Mental Health Operations on the implementation of consults and the general mental health team model.

Similar work has taken place on the administrative side, in developing strong knowledge in the area of Logistics/Supply Chain with its potential to reduce costs in a budget constrained environment. VISN 1 identified efficiency as one of their Strategic Focus areas in FY12, and our engineers got to know the logistics staff while working together. New England VERC has a growing portfolio in logistics.

### **New England VERC Strategic Goals for FY 2013-2016**

Goal I: Develop sustainable improvements and innovations in operations through the application of systems engineering methods that are well aligned to VHA.

Goal II: Develop systems thinking, engineering capability and continuous improvement culture in the workforce.

Goal III: Promote research and academic relationships.

Goal IV: Spread successful innovations.

## **Supporting VISN 1’s Strategic Planning**

(Jordan Peck)

Every fiscal year, VISN 1 leadership meets to discuss strategic plans for the following year. This includes renewing old goals and/or rethinking our process completely. This year, strategic planning leadership decided to adopt a new process for setting our strategic goals. They adopted the Enterprise Strategic Analysis for Transformation (ESAT) Process developed by MIT’s Lean Advancement Initiative, a New England VERC Academic Partner. New England VERC has been facilitating the use of ESAT for over five years within VISN 1 and VHA, covering areas

such as VA Boston Mental Health, VISN 1 Transportation, and VHA National Traveling Veterans. These initial analyses often turn into long-term projects.

Because of New England VERC’s experience with ESAT, Engineer Jordan Peck (an MIT-LAI graduate) and Fellow Tom Rust guided VISN 1 leadership through process elements at the strategic planning retreat. Now that leadership has gotten a taste for how systems thinking can enhance the planning process, New England VERC is a key participant in this year’s strategic planning!

# Streamlining New Item Approvals within Logistics

(Coby Durham)

In a recent New England VERC project for the Logistics Department within VA Boston Healthcare System (BHS), a need was identified for a solution to the issue of identifying and approving new items for all of BHS Logistics. According to a GAO mandate, all stations are required to have a Clinical Product Review Committee (CPRC) that reviews all newly requested products and determines if they should be approved for use. The mission of this committee at BHS is “Through standardization, we constantly strive to improve the quality, efficiency, effectiveness and costs of commodities purchased for the VA Boston Healthcare System”, and their vision is “To standardize wherever operations will allow the commodities of the VA Boston Healthcare System in order to provide a consistent and high grade of care to our Veterans.”

## Original Process

In order to manage this process, a rudimentary InfoPath form was built that was manually emailed in by the submitter. Next, the form was emailed out to subcommittees for approval, and then finally all CPRC members for approval. During this process, all of the information was stored in the process manager’s Outlook account. Requestors could not determine the request status without emailing the process manager resulting in an abundance of email traffic.

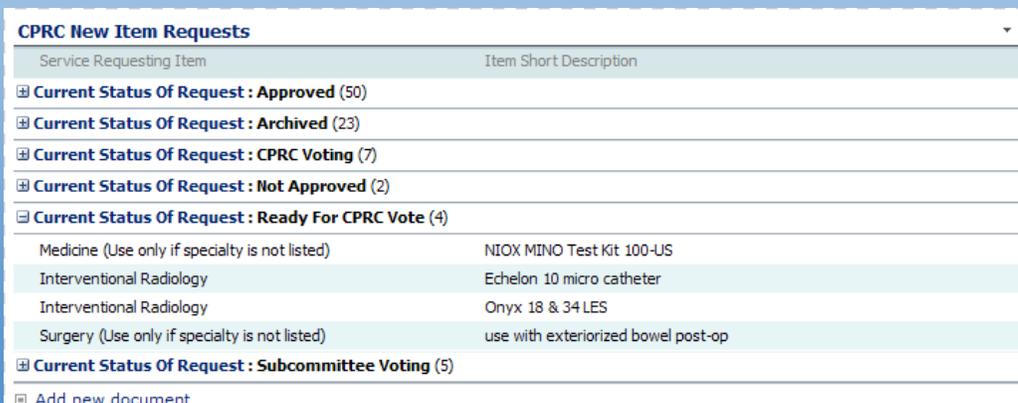
## New Process

In order to streamline this process, New England VERC created an InfoPath/SharePoint solution, which combined a multi-view

InfoPath form with basic workflows on SharePoint. The InfoPath forms were housed on the CPRC SharePoint site where any requestor could go and open a new request form. The requestor is asked to select appropriate subcommittees to evaluate the request. After submission, the form automatically notifies the various subcommittees that there a form is waiting for their approval. After subcommittee review, the process manager is notified and he emails the form out to the CPRC members using Outlook’s Approve/Reject option. This allows for a quick and easy way to get all 32 members of the committee to review the item.

## Status Updates

Throughout this entire process, the status is updated on SharePoint to allow requestors to monitor their item status without additional assistance or emails. The status has also helped identify waste and bottlenecks in the system and allowed for Logistics staff to devise the appropriate countermeasures. Due to the high influx of new products to BHS Logistics, this has resulted in a reduction of an estimated 48 staff-hours over the last four months, which have been redirected to other opportunities for improvement work.



Service Requesting Item	Item Short Description
[-] Current Status Of Request : Approved (50)	
[-] Current Status Of Request : Archived (23)	
[-] Current Status Of Request : CPRC Voting (7)	
[-] Current Status Of Request : Not Approved (2)	
[-] Current Status Of Request : Ready For CPRC Vote (4)	
Medicine (Use only if specialty is not listed)	NIOX MINO Test Kit 100-US
Interventional Radiology	Echelon 10 micro catheter
Interventional Radiology	Onyx 18 & 34 LES
Surgery (Use only if specialty is not listed)	use with exteriorized bowel post-op
[-] Current Status Of Request : Subcommittee Voting (5)	
[+] Add new document	

Status View for the Multiple Steps within the Process

## New England VERC Engineer Recently Elected to the Society for Health Systems Board of Directors

In March 2013, Senior Industrial Engineer and VERC Fellowship Director Ashley Benedict was elected to the Society for Health Systems (SHS) Board of Directors for 2013-2016. She has been a member of SHS since 2003 and has most recently served as day coordinator. Ashley has attended every SHS Conference since 2004 and presented five of those years.

As a board member, she is the liaison to the Academic/Student Committee that is focused on expanding SHS’s reach to students and faculty members. New England VERC Engineer Jordan Peck serves as co-chair for this committee. While industrial engineers are needed in healthcare, there seems to be a gap between students awareness of

healthcare as a job opportunity and their ability to gain experience.

Ashley often says that getting her first job as a healthcare industrial engineer was pure luck because she had no prior experience and did not even realize that this career path was an option. After her first job, Ashley has not looked back. She seeks to share her experience and knowledge in healthcare industrial engineering and hopes to continue encouraging industrial engineering graduates to pursue healthcare.

More information about SHS can be found [here](#).



**SOCIETY FOR HEALTH SYSTEMS**  
LEADING HEALTHCARE IMPROVEMENT

# How Does Exceed Expectations?

One of the most frequently asked questions of cast members (i.e., employees) at Disney's Magic Kingdom® Park is, "What time is the 3 o'clock parade?"

Duh. It starts at 3pm. But, a flippant response goes against Disney's second core quality standard of Courtesy (Safety is the first core quality standard). What does courtesy look like? What does it mean to exceed expectations? Here are some potential responses a cast member could give to the guest asking, "What time is the 3 o'clock parade?"

**Meets Expectation:** "It starts right at 3pm from the castle and goes down Main Street."

**Maybe Exceeds Expectations:** "It starts right at 3pm from the castle and then goes down Main Street. But it gets crowded, so to have a good view, find a spot by about 2:30pm."

**Exceeds Expectations:** "It starts right at 3pm from the castle and then goes down Main Street USA. But it gets crowded, so to have a good view, find a spot by about 2:30pm. It'll be hot, so make sure to be on the shady side of Main Street, and try to get a spot by a doorway to one of the shops. They'll prop the doors open during the parade and the air conditioning will help keep your family cool."



Wow! What if all employees were this helpful to patients when asked for information? How can we incorporate the notion of exceeding expectations into our daily interactions with Veterans?

In April 2013, New England VERC supported Stephanie H. Chan in attending the Disney Institute's training on, "Building a Culture of Healthcare Excellence." More stories about her experience with Disney are available [here](#).

Here is a [YouTube video about Disney Industrial Engineering](#).



## WPI Seniors Gain Real World Experience at VA Boston

Linen is a "behind the scenes" service that is critical for a hospital to function. **A Worcester Polytechnic Institute (WPI) team of seniors - Joaquín Serrano, Silvia Zamora-Palacios, Xuanya "Bill" Zhang - supported the Environmental Management Services (EMS) department in improving the linen distribution system for VA Boston Healthcare System-West Roxbury Campus.** The system optimizes the use of linen by utilizing lean concepts to improve efficiency and ultimately to provide the best patient care. Their system was pilot tested to identify future recommendations for implementation.

The 21-week project was filled with site visits, interactions with staff, meetings with the New England VERC project liaison and WPI advisors, and extended discussions amongst the team. Throughout the process, the team encountered strong support from all involved. The project provided the WPI team with the opportunity to apply the knowledge they gained throughout their four years at WPI to a real world problem. Reflecting on the 21-weeks of project work, there were many valuable lessons learned. **One of the most important takeaways from this experience was learning that a systematic approach is vital to obtaining successful outcomes throughout the project.** This approach provided the team with a clear goal and identified the necessary steps to accomplish it even when they encountered unpredictable and uncontrollable situations.

The implementation pilot provided the team with an understanding of what is required to have a successful testing phase. It was important to understand the role that a process improvement team should take for a project of this

nature. The team facilitated the improvement process, which involves empowering the process owners, making sure their concerns are considered, and implementing their ideas. The team recognized the impact of a supportive project champion. It is vital to gain the trust and cooperation across the entire system in order for any progress to be made. The team gained experience of interacting with people from different backgrounds and responsibilities within the organization, and the team realized what it took to gain their trust and cooperation.

The project provided the team with the opportunity to apply a variety of Lean and Six Sigma tools learned in their Industrial Engineering classes. **Being able to implement them in a real world setting and observing their impact in the process was a rewarding experience.** Overall the project went smoothly, but of course a few obstacles were encountered by the team. Working to resolve these obstacles provided the team with new insight for understanding what the tools were and how they could be applied.



Click [here](#) for their final presentation. The WPI team placed second at the Institute of Industrial Engineers Regional Student Conference and second at the WPI School of Business Presentation Day.

# New England VERC Fellow Tom Rust Completes PhD!!!



Tom Rust successfully defended his doctoral dissertation on “Dynamic Analysis of Healthcare Service Delivery: Application of Lean and Agile Concepts” at Worcester Polytechnic Institute on April 24, 2013. Tom has been a health systems engineering fellow with New England VERC since October 2010. Congrats on this accomplishment Tom!!!



## Prosthetics Clinician Ordering Project *Midwest Mountain and New England VERC Collaborative Effort*

(TeChieh Chen)

### **Background**

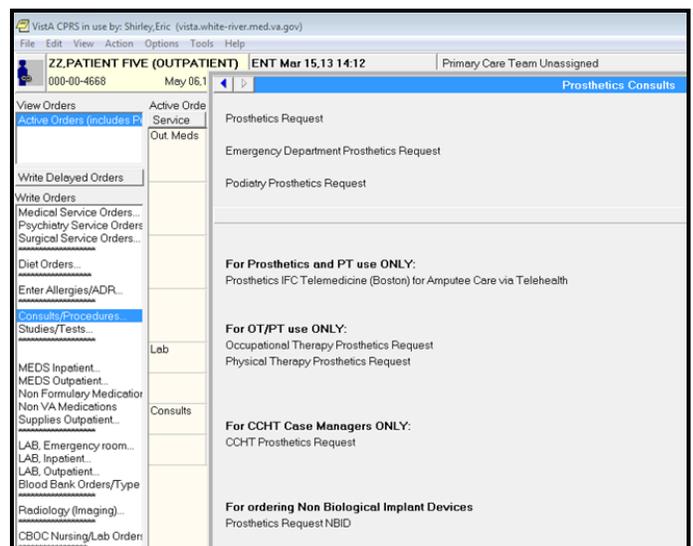
The process of providing a prosthetic item for Veterans accessing care throughout VHA is wrought with difficulties around ordering these items. Prosthetic items can range from diabetic socks to wheelchairs. Examples of waste for the ordering process include consults sent to the wrong service line and orders lacking information, which results in rework and delays in getting prosthetic items to Veterans who need such supplies.

A national committee along with a Management Guidance Team of the Prosthetics Clinician Ordering Project was formed to assess and improve the situation. The Management Guidance Team is chaired by Midwest Mountain VERC Engineers Debra Warner and Bob Kutter. The additional team members include physicians and other key personnel from prosthetics, ambulatory care, and physical therapy across multiple VISNs. White River Junction (WRJ) VA Medical Center was selected as a pilot site to identify areas and methods for improvement in the prosthetic ordering process.

### **Collaborative**

Prior to the pilot, New England VERC was contacted by Midwest Mountain VERC to collaborate on the project. As collaboration between different VERCs is always welcome, New England VERC is represented on the Management Guidance Team by Health Science Specialist TeChieh Chen.

Dr. Eric Shirley, VISN 1 Primary Care Service Line Director, is leading efforts at WRJ to improve the prosthetics ordering process through the Computerized Patient Record System (CPRS). The hope is that if the initial ordering screens in CPRS are more streamlined and provide clearer instructions to people ordering prosthetic supplies, less errors on the front-end of the ordering process will occur.



*Screenshot of CPRS Screen to Order Prosthetic Items*

**VA Prosthetic and Sensory Aids Service is the largest and most comprehensive provider of prosthetic devices and sensory aids in the world. Although the term "prosthetic device" may suggest images of artificial limbs, it actually refers to any device that supports or replaces a body part or function.**

### **Next Steps**

A baseline assessment of the current prosthetics ordering process will occur before implementing CPRS screen revisions. The assessment will determine the frequency and types of errors. Then, revised CPRS ordering screens will be implemented and staff will be trained on how to use them. After the revised CPRS screens have been readily used, a post-assessment will determine if the number and type of prosthetic ordering errors have declined. If the revised CPRS screens are deemed a success at WRJ, there is the potential to spread and roll out the revised screens on a national level.

# Development of a Central Line Insertion Simulation Curriculum

(Samantha Sissel)

## Central Venous Catheters (CVCs)

More than 5 million central venous catheters are inserted annually in the United States. CVCs are used to provide patient's medication and hemodynamic monitoring<sup>1</sup>. This procedure carries high failure rates and complications include arterial puncture, pneumothorax, injury to vital structures, infections, and thrombosis<sup>1,2,3</sup>. To alleviate complications due to operator inexperience and failure to use ultrasound guidance, patient simulators were used to allow learners to develop and build confidence in technical skills in a controlled environment without any impact on patient safety at VA Boston Healthcare System (BHS).

## Simulation Curriculum Development

A BHS patient safety team (including a New England VERC fellow) developed a simulation curriculum for CVC insertion that provides "just-in-time" training for residents during their intensive care unit rotation. The curriculum provides a safe and practical alternative to the traditional apprenticeship model of "see one, do one, teach one" training that could impact patient safety and increase potential CVC complications<sup>4</sup>. The development of the training program focused on the educational materials and procedure steps.

Training materials include a course manual, an illustrated standard operating procedure (SOP), an evaluation checklist, tutorial videos from the New England Journal of Medicine, pre- and post-tests, and a trainee survey. The curriculum was further developed using the Lean tool Plan-Do-Study-Act (PDSA). Each cycle of the PDSA was a training session with an attending physician (instructor) and resident (trainee). The training was conducted in an ICU room with ultrasound available for guided central venous access.

## PDSA 1

The first training session was deemed too long. It was determined that tutorial videos, the trainee survey, and the pre-test would be emailed to the trainees and completed



before the training session. Additional steps were added to the SOP and the Training Course Manual was created after this session.

## PDSA 2

Several of the steps were changed from being "spoken aloud" to actually being simulated in the second session. For example, the trainees will now practice sterilizing the ultrasound probe rather than just saying aloud that this needed to be done. These steps were found to be overlooked in other trainings, and residents found it useful to practice.

## PDSA 3

The third session showed that it was difficult to get a clear picture of the vein and artery after sterilization of the ultrasound. However, both the trainee and instructor agreed this increased the realism of the



simulation. Trying a different ultrasound machine increased the image clarity, therefore, this step is still being simulated. During this cycle, we also introduced BHS's CVC "bundle" (evidence-based practice), which emphasizes procedure time-outs and infection prevention. The trainee found this useful as it familiarized him to what BHS actually uses for this type of procedure.

## Challenges

There have been challenges with finding protected time for trainees to run the simulation given their busy and complex ICU rotations. However, early results show that residents value simulation-based procedural teaching. In particular, they find the realism in environment and equipment is effective and practical to their clinical care experience.

## References

1. Preventing complications of central venous catheterization. (2003). DC McGee and MK Gould. N Engl J Med 348: 1123-1133.
2. Simulation-based mastery learning reduces complications during central venous catheter insertion in a medical intensive care unit. (2009). JH Barsuk, WC McGaghie, ER Cohen, KJ O'Leary, DB Wayne. Crit Care Med 37(10):2697
3. Central line simulation: a new training algorithm. (July 2007). RC Britt, SF Reed, LD Britt. The American Surgeon 73:680.
4. Cost savings from reduced catheter-related bloodstream infection after simulation-based education for residents in a medical intensive care unit. (2010). ER Cohen, J Feinglass, JH Barsuk, C Barnard, A O'Donnell, WC McGaghie, DB Wayne. Simul Healthcare 5(2):98-102.



# Farewell to Chiragi Shah - Our Favorite AO

Chiragi Shah has been an integral part of New England VERC as administrative officer since December 2009. Chiragi has been instrumental in taking New England VERC from infancy to the well organized, fully staffed operation that it is today! Her dedication, strong sense of respect for all, and total commitment to our goals is deeply appreciated and she will be missed.



Chiragi and her husband Vishal are moving to Philadelphia in June. She plans to take some well deserved time off before seeking a new position within a healthcare setting. New England VERC is going to miss Chiragi!!!

## Did you know?

Philadelphia is the largest city in Pennsylvania, the second largest city on the East Coast, and the fifth-most-populous city in the United States.

Popular nicknames for Philadelphia are Philly and The City of Brotherly Love, the latter of which comes from the literal meaning of the city's name in Greek "brotherly love".



## New England VERC

Primary Business Address  
150 S. Huntington Ave.  
Building 9  
Jamaica Plain, MA 02130  
[www.newengland.va.gov/verc/](http://www.newengland.va.gov/verc/)

For more information about New England VERC, please contact:

- Janis Hersh, Director
  - Cliona Archambeault, Deputy Director
  - Ashley Benedict, Fellowship Director
  - Jim Schlosser, Director, VISN 1 Improvement Resources Office
- or Visit our [SharePoint site](#).



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