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FORUM

translating research into quality healthcare for Veterans

VA



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Commentary

Building a Culture that Fosters, Rewards, and Spreads Innovation

Ryan J. Vega, MD, MSHA, Kristopher Teague, and John D'Adamo, MPH, all with the Veterans Health Administration

There continues to be mounting pressure for health systems to deliver high quality care on the “customer’s” terms, while improving the overall health of the populations they serve—our nation’s Veterans deserve nothing less. To achieve this, the concept of the health system as a purpose-driven learning and improvement organization has recently taken hold.

We believe a learning health system is one in which information from each patient-provider encounter and experience is used to globally advance clinical care and operational processes, positioning the health system to deliver patient-centric care that is safe, timely, efficient, and equitable. Building such a health system requires a culture that values and practices continuous improvement, learning, and innovation.

In the past, the importance of fostering an innovation culture in health systems has often taken a back seat in favor of more traditional improvement methodologies, like Lean and Six Sigma, as tools to drive organizational change. While improvement infrastructure is necessary, it remains just one piece of the puzzle to realizing a learning health system. “People-focused” methodologies are equally important. Components of human-centered design, health informatics, entrepreneurship, change management, and the constructs of implementation science are essential building blocks to a well-designed learning system. Health systems must equally invest

in the capacity to identify, scale, and spread innovation and evidence-based best practices, which often take years to reach patients.¹⁻²

Building a culture of innovation remains challenging for health systems, with the opportunity cost of change, tendency to cling to the status quo, limited resources, lack of influential champions, and the complexity of innovations all hindering the growth of an innovation culture and slowing the spread of adoption.¹⁻³ The VHA Innovation Ecosystem is proactively changing and achieving progress, reducing and eliminating such barriers.

At the core of the Innovation Ecosystem, the VHA Innovators Network and Diffusion of Excellence Initiative (DEI) operate at distinct stages of the innovation cycle but together form the connective tissue of an ecosystem that is building a culture of learning and innovation. These two initiatives create opportunities for VHA staff to ideate, test, and spread both innovations and best practices through financial support, frontline empowerment, and a collaborative network of peers. Through a shared vision, this network is making innovation actionable and impactful. Both initiatives have visible support from senior leadership, a crucial aspect to building or changing any organizational culture.

We believe there are five key elements to replicating and sustaining an innovation culture.

1. Empower the Frontline

We believe frontline employees are the most familiar with VHA’s challenges and best positioned to solve them, but aren’t always the best equipped. Innovators Network and DEI proactively support employees who drive innovation by providing training, resources, and networking opportunities. To date, 448 VA staff have implemented projects through the Innovators Network, and close to 4,000 frontline staff at over 140 medical centers have helped implement DEI practices.

2. Exercise the Innovation Muscle

The Innovation Network’s Spark-Seed-Spread Innovation Investment program encourages field employees to submit solutions that address high-priority Veteran health outcomes in new and sometimes unconventional manners, such as a practice focused on 3D printing for pre-surgical planning. The program has funded 185 projects to date. Through the VHA Shark Tank competition, the DEI offers an engaging and meaningful opportunity for frontline employees to “pitch” their ideas to VISN and medical center directors, who then bid resources to implement. It is a source-agnostic model for merit-based selection and enterprise replication of promising practices submitted by field employees. Across three competitions, the VHA Shark Tank has identified 36 promising practices out of over 1,000 applications. More than 600 applications have been submitted for the ongoing 2018 competition.

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DIRECTOR'S LETTER



As a medical resident, I heard Barry Marshall, the Australian physician and Nobel Laureate, describe the difficulty of publishing his revolutionary thesis that *H. pylori* caused peptic ulcer disease. All of us dream of coming up with a research finding that truly overturns conventional wisdom, but the reality is that getting truly innovative research funded or published is usually a hard slog. Why is that, and how might we change it? The first reason is that the peer review process can be inherently conservative. Although innovation and impact are explicit review criteria

for VA proposals, the reality is that peer reviewers are trained to look for all the reasons a research idea might fail, rather than the potential payoff should the idea succeed. Facing the reality that only one in five proposals get funded, reviewers may focus on the many liabilities presented by innovative studies: the use of unfamiliar methods or concepts, lack of a well-worn road to success, and/or limited preliminary data. The second is that there aren't good metrics for innovation—the definition is still largely in the eye of the beholder. Because we haven't encouraged true innovation, too many researchers are used to claiming that testing a well-established intervention in a slightly different population is innovative. The final barrier is that many funders are conditioned to fear failure. We think more like traditional bankers, giving out safe loans to familiar businesses, when we need to be more like venture capitalists, providing seed money to the most exciting ideas and doubling down on those that succeed.

This issue of *FORUM* includes a variety of interesting perspectives on innovation in a learning healthcare system. What is clear is that innovation doesn't only occur in research, it can be facilitated or impeded by features of the organization, and that it is critical to being a learning healthcare system. Learning systems monitor and implement best practices based on what we already know, but they also need to test out new ideas and scale those that work. Dr. Naomi Tomoyasu, Deputy Director of HSR&D, also describes the outlines of a new innovation initiative that HSR&D is launching this fall. The aim of this initiative is to encourage investigators to bring forward exciting and untested ideas by simplifying the initial application process—and to create a system to increase our investment in those innovations that seem to be succeeding. While we tried to build on the experiences of other funders in this space, we like to think this initiative is, itself, innovative. We aren't afraid of failure because the payoff for success is so big.

David Atkins, MD, MPH, Director, HSR&D

3. Design to Fail Forward, Scale Big

Supporting employees and identifying innovations is critical, but it is also important to test small, fail small, and scale big. The Innovators Network and DEI scale resources and support for innovations and promising practices as they are validated. In addition, we focus on early problem validation to ensure innovations are solving the core problem, and not just a symptom.

For instance, through the Spark-Seed-Spread Innovation Investment program, VHA employees can receive different levels of funding to design, develop, scale, and spread their innovative practices based on the practice maturity, with larger awards for practices with a demonstrated potential.

Meanwhile, the DEI provides a small step-up in dedicated resources for a six-month facilitated replication of promising practices to test the feasibility of spread.

4. Build Collaboration and Connection

Collaboration is pivotal to driving organizational change that is required for the successful adoption of innovation. The Ecosystem leverages internal and external partnership models to develop and spread innovations, decrease cost and time to market, with demonstrable outcomes and impacts. Collaboration also supports the co-design of solutions with the key stakeholders from the beginning in order to co-ideate and co-create innovative approaches and solutions.

Internal collaboration includes partnerships with relevant national program offices or VHA change implementation groups such as QUERI, whose work is vital to developing an innovation culture. External collaboration includes alliances with other agencies, private sector entities, or academic institutions to bolster expertise, support, and resources, and promotions for VHA innovation. For instance, Innovators Network has an ongoing relationship with human center design experts from the University of Virginia.

5. Celebrate Small Wins that have Big Win Potential

In addition to collaboration, we understand that acknowledging the efforts of frontline employees to improve VHA and the care that Veterans receive is vital to sustaining an innovation culture that encourages and supports fresh ideas, learning, and, ultimately, transformation. Leadership recognition of frontline VA employees for their time, effort, and challenging work is integral to creating ownership and an attitude for success. For example, Innovators Network practices have impacted around 124,900 Veterans, employees, and caregivers since the network's inception in 2015, and generated \$3.3 million in cost savings to VA in FY16. DEI practices have produced cost savings of more than \$22.6 million and engaged over 96,000 Veterans.

A culture of innovation and learning must be fearless, risk-taking, and willing to take on the toughest challenges. Building this culture is challenging but also critical to fostering a learning healthcare system that ultimately delivers better care to its patients. While it continues to evolve, the VHA Innovation Ecosystem is proactively creating a culture that values discovery, promotes and accelerates innovation, and keeps our customer, the Veteran, front and center in terms of measurable impact.

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Response to Commentary

Achieving Substantial Real-World Impact on Veteran Care: From Innovation to Implementation

Amy Kilbourne, PhD, MPH, Director, VA Quality Enhancement Research Initiative (QUERI), Washington, DC

The VA Diffusion of Excellence and Innovation Ecosystem are some of the biggest efforts in the United States to foster innovation at the local level, and to take the best practices resulting from these efforts to national scale. In his commentary article, Dr. Vega describes the goals of the Diffusion of Excellence and Innovation Ecosystem, which are to empower frontline providers to think “outside the box” in order to solve common problems that vex large healthcare systems, while at the same time giving participating providers critical leadership experience in quality improvement. QUERI is actively partnering with the Diffusion of Excellence and Innovation Ecosystem, bringing to the table deep knowledge regarding evidence-based implementation strategies to help take these best practices to the next level.

Despite the success of these initiatives, more efforts are needed to hand off innovations for further study and implementation. Innovations generated through the Innovation Ecosystem, as well as through VA research funding, require further development and adaptation for successful implementation in real-world practice so that Veterans may benefit. Without attention to the strategies that encourage both implementation and sustainability, many effective clinical treatments will never reach the patients who can ultimately benefit from them. Greater attention is needed toward feasibility, fidelity, and end-user acceptance during treatment development and testing, as well as toward post-trial implementation strategies that ensure Veterans obtain quick access to the most effective treatments.

To this end, VA’s Chief Research and Development Officer recently commissioned the Research to Real-World (R2R) workgroup, whose mission is to develop recommendations that lead to substantial real-world impacts of research. R2R includes representatives from the Office of Research & Development (ORD), Office of Academic Affiliations (OAA), VHA Reporting, Analytics, Performance,

Improvement, and Deployment (RAPID), Clinical Operations (10N), Diffusion of Excellence, and the VA Innovation Ecosystem. The goal of R2R is to ensure that Veterans benefit from advances being made across the spectrum of VA research, ranging from genomics and other advancements in the basic sciences, to rehabilitation and technology, and clinical and implementation research.

The workgroup ultimately wants to encourage researchers and practitioners in the field to work together and develop novel treatments or interventions that have a direct benefit for Veterans. As with the Diffusion of Excellence and Innovation Ecosystem, researchers can benefit from working directly with other practitioners and Veterans in developing novel treatments, thus enhancing the “pull,” or ownership of the discovery and implementation process, as opposed to the more top-down “push” of evidence-based practices into routine care. Many of these innovations in turn can be further developed through rigorous implementation and evaluation as they are scaled up and spread via randomized designs. QUERI is currently working on a new funding opportunity to support implementation and evaluation of the national rollout of Gold Status best practices selected by VHA leadership through the Diffusion of Excellence Initiative.

Partnerships with the Diffusion of Excellence and Innovation Ecosystem can also help researchers disseminate and translate their discoveries to wider audiences, particularly by adopting measures that are similar to those used by clinicians and VHA operations leaders to assess impact on patient care and return on investment. In a similar effort, ORD and HSR&D updated their impact metrics to comprehensively assess productivity (e.g., technology transfer—including number of invention disclosures), stakeholder involvement (e.g., communications to key decision-makers), market reach (e.g., number

R2R Workgroup Recommendations

- Promoting flexible mechanisms to rapidly validate and implement research innovations in routine practice;
- Developing crucial linkages to real-world practices by more directly measuring research impacts on VHA care; and
- Supporting VA efforts to develop a workforce that utilizes research and discovery concepts in day-to-day practice.

of providers adopting intervention, number of patients receiving intervention beyond the study), and policy change (e.g., whether interventions were adopted by national organizations or led to new legislation).

Finally, QUERI and the Diffusion of Excellence are teaming up to promote funding, training, and career development opportunities in innovation, product development, and implementation science. These opportunities focus on clinician career paths that encourage problem-focused or practice-based research (e.g., Learning Healthcare System) through greater partnerships with researchers to address common, high-priority health goals. Most recently, QUERI is establishing Implementation Training Hub sites to provide practical implementation skills to the DEI Gold Status Fellows.

Ultimately, researchers and clinicians benefit from the strong partnerships forged through the establishment of the Innovation Ecosystem, which combines a top-down with a bottom-up approach to innovation and implementation—an approach that seeks both to reduce the research-to-practice gap and to deliver substantial real-world impact of research on Veteran care.

New Initiative Seeks to Understand Factors that Influence Innovation

George L. Jackson, PhD, MHA, Durham VA Center for Health Services Research in Primary Care; Sarah L. Cutrona, MD, MPH, Bedford/Boston VA Center for Healthcare Organization and Implementation Research; Ryan J. Vega, MD, MHSA, VA Diffusion of Excellence; Saurabha Bhatnagar, MD, VA Acting Assistant Deputy Under Secretary for Quality, Safety & Value; and Laura J. Damschroder, MS, MPH, VA Ann Arbor Center for Clinical Management Research and Personalizing Options through Veteran Engagement (PROVE)

In October 2015, VA's Under Secretary for Health (USH) initiated the VA Diffusion of Excellence Initiative (DEI). The DEI has been institutionalized as part of the broader VHA Innovation Ecosystem within the Veterans Health Administration. The objectives of the DEI are to: 1) empower employees to develop promising practices in care and administrative processes; 2) institutionalize the process for implementing and spreading promising practices; and 3) minimize negative variation in promising practices across VA.

The DEI process begins by soliciting promising clinical or administrative practices from frontline VA staff that address key priorities of the VA Secretary and USH. Submitted practices must have been successfully implemented with positive results at one or more VA medical centers. So far, 1,676 practices have been submitted for the first four rounds of solicitations and have covered a wide range of topics from a computer icon for employees to quickly and easily report their annual flu shot, to tracking staff competencies in environmental management services, to enhancing delivery of prosthetic services, to enhancing the role of chaplain and mental health services in reducing suicide risk among Veterans.

Submitted applications are reviewed by subject matter experts and frontline staff who select approximately 20 finalists per round. Finalists create a short video that introduces their practice followed by two-minute presentations to VA facility and network directors who volunteered to be "Sharks" during a virtual "USH Shark Tank." The Sharks make bids for the opportunity to implement a practice. Bids are often multi-faceted and have included a wide range of support from dedicated personnel time to travel support. The winning Shark is provided with facilitated implementation support to get the practice in place at their facility within six months. A

Governance Board (comprised of the USH, Deputy USHs and other senior VA leaders) designates winning practices as "gold status practices." One to three Sharks and their facilities are chosen per practice. Following selection, a two-day VA Diffusion Summit is convened with "gold status facilities" (facilities that submitted the gold status practices) and "implementing facilities" (facilities whose Sharks won bids to implement the gold status practices). These teams work together with their implementation facilitator to develop implementation plans and materials.

An overarching goal of DEI is the development of plans and strategies to spread practices that are successfully implemented at new facilities. These efforts involve a range of potential options including developing tools to "market" the practices to facilities looking for potential solutions to challenges, partnering with VA program offices to facilitate implementation, and receiving direct support from the DEI. This support aims to place a practice in all appropriate facilities. In sum, the DEI seeks to support the potential for frontline staff to provide bottom-up solutions that may be implemented with the assistance of top-down support from high-level VA leaders—solutions aimed first and foremost at improving care and services for Veterans while enhancing the experience of patients, caregivers, and employees.

Evaluation Goals, Methods, and Initial Observations

A multidisciplinary team of QUERI investigators from the Durham, Ann Arbor, and Bedford/Boston HSR&D Centers of Innovation actively partnered with DEI leaders to develop a mixed-methods evaluation of the DEI, anchored by implementation science theory. The result is the peer-reviewed Spreading Healthcare Access, Activities, Research, and Knowledge (SHAARK) QUERI Partnered Evaluation Initiative (PEI).

Key Points

VA has launched several initiatives to empower and expand the innovative work of its 325,000 person strong workforce.

- The VA Diffusion of Excellence Initiative's (DEI) mission is to identify clinical and administrative innovations adopted by frontline VA staff—and to spread those innovations across VA's 1,000+ sites of care.
- A related initiative is the peer-reviewed Spreading Healthcare Access, Activities, Research, and Knowledge (SHAARK) QUERI Partnered Evaluation Initiative (PEI), a multidisciplinary team of QUERI investigators who worked with DEI leaders to develop a mixed-methods evaluation of the DEI.
- Applying implementation methods and science, the SHAARK PEI is working to not only evaluate the work of the DEI, but also to help achieve the DEI's goal of rapidly spreading innovations across the VA system.

The SHAARK PEI seeks to better understand: 1) the decision process of VA facilities and individuals related to participation in DEI; 2) criteria used by facilities in deciding whether to bid on a "gold status practice"; 3) barriers and facilitators to implementation of practices; and 4) factors that influence spread across VA. The Consolidated Framework for Implementation Research (CFIR),¹ Theory of Organizational Readiness for Change,² and Theory of Diffusion of Innovation³ guide the SHAARK evaluation.

The SHAARK team is conducting semi-structured interviews with individuals who developed gold status practices (known as "gold status fellows"), individuals with

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operational responsibility for implementing gold status practices during the six-month facilitated implementation period (termed “implementing fellows”) and other implementation team members, VA directors who are eligible to be “Sharks,” and individuals who facilitate implementation. These interviews provide insights into reasons for developing practices, the process of applying to have a practice spread through the DEI, and how and why facilities decided to bid on the practice in the Shark Tank and then adopted it as part of their everyday workflow. We are also able to gain an in-depth understanding of practice features that may impact initial implementation and spread. Interviews are supplemented by structured observations of VA Diffusion Summits, virtual focus groups with Sharks, and surveys of Sharks.

The 110 interviews that have been conducted to date have offered a number of key insights. For example, VA facilities were motivated to participate in the Shark Tank process when staff communicated an issue to the potential Shark, read about an effective practice in published literature, and/or desired to improve performance measures. To successfully implement and sustain a new practice, it is important for key staff members to recognize a need to implement a practice. Furthermore, the practice needs to be compatible with existing workflows and have sufficient resources (e.g., dedicated time, space). External facilitation provided by DEI and in-person meetings, starting with the Summit, to develop and execute implementation plans were key facilitators to work around or address potential implementation barriers.

A significant area of interest impacting all stages of the DEI process is how and why facilities make decisions to adopt promising practices and innovations. In addition to the methods described above, we will be working with VA facility directors and frontline staff to better understand how they categorize practices by key characteristics such as expected outcomes, stakeholders who may benefit, and the impact on workflow.

Lastly, we are evaluating the nature and magnitude of practice spread across VHA. In collaboration with the VA Office of Strategic Integration and the DEI project management team, we are helping to evolve systems through which facilities report implementation activities and analyze implementation data. As of January 2018, VA medical centers across the nation have initiated approximately 774 projects to implement the 37 gold status practices identified through the first three rounds of the DEI process. Early observations indicate that practices with the broadest dissemination share several characteristics, including a longer time since introduction through the DEI, a concretely-defined tool, a clear national VA leadership expectation for implementation, and, finally, a focus on high-priority VA goals. To explore potential factors that may also impact practice spread, we are combining information on spread with available VA data on employee workplace perceptions, patient satisfaction, and quality of care.

Practical Impacts for VA

A core goal for SHAARK, as with the QUERI program, is making a practical and positive impact within VA, including the operation of the DEI. The SHAARK team is developing decision grids to convey practice features

that may impact Sharks’ decisions to bid on practices; developing methods to help facilities quickly identify potential solutions to organizational challenges; and helping to identify and ensure involvement of key stakeholders throughout the innovation process. Multiple components of the QUERI program, as well as SHAARK PEI, are utilizing expertise in evaluating evidence, identifying implementation strategies, and selecting data-driven measures of innovation impact. These components complement our DEI partners’ expertise in identifying and spreading practices to: 1) evaluate evidence behind potential DEI practices; 2) increase knowledge of frontline staff about implementation science, implementation strategies, and evaluation; and 3) provide help linking practices and VA data.

As the largest integrated delivery system in the United States, VA seeks to empower and expand the innovative work of its more than 325,000 employees to provide high-quality, Veteran-centric care across more than 1,000 sites of care. The DEI seeks to be a catalyst for identifying and spreading these innovations. Applying implementation methods and science, the SHARRK PEI is working to understand how to maximize DEI impact and achieve its goal to rapidly spread innovations across the system and best serve our nation’s heroes.

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Evaluation Reveals Middle Managers as Key Influencers in Lean Implementation

Ryann L. Engle, MPH, and Martin P. Charns, DBA, both with HSR&D's Center for Healthcare Organization and Implementation Research (CHOIR), Boston, Massachusetts

One approach to transforming into a learning healthcare organization is through the implementation of Lean management systems (LMS), which incorporate methodical approaches into visualization-driven process improvement and standardization.¹ This transformation goes beyond using tools and techniques to thinking of the organization as a socio-technical system—and recognizing the importance of the social system in influencing the behavior of organizational members. Lean scholars have noted that the basic approach to management and culture must change, yet the field knows little about what is required to achieve such transformation. What is well established is the importance of executive leadership support and frontline staff engagement. Even though middle managers play key roles as the bridge between senior leaders and frontline staff, relatively little attention has been given to their roles in implementation.

Over the past three years, CHOIR and HSR&D's Center for Innovation to Implementation (Ci2i) investigators evaluated a VA pilot program involving 10 VA medical centers (VAMCs) implementing LMS. Building on earlier work on organizational transformation² and the role of middle managers,^{3,4} we identified several unique middle manager actions in sites that made greater progress in Lean transformation from those with less progress. These actions were viewed through the lens of middle manager theory³ which posits four domains, each with a number of subcomponents.⁴

Information Diffusion

How do middle managers provide employees with necessary information about innovation implementation? Middle managers in all sites utilized similar communication mechanisms (e.g., huddles, meetings) and styles (i.e., open and multidirectional) to implement Lean. However, in comparison to low implementation sites, middle managers in

high-implementation sites exhibited a style that was non-punitive.

Information Synthesis

How do middle managers synthesize information to provide relevant examples to help employees understand innovations?

Middle managers in all sites personally participated in Lean improvement activities (e.g., Value Stream projects), sought to improve implementation of Lean and break down barriers to Lean by requesting staff input on process, and garnered staff involvement by soliciting staff input about Lean. In comparison to middle managers in low-implementation sites, those in high-implementation sites empowered frontline staff to take leadership roles in Lean, encouraging their peers to participate and share ideas via the huddling process. Additionally, they used data to identify areas for improvement and monitor goals. Middle managers in high-implementation sites also addressed staff barriers to data, including access to data and the ability to use data to reflect improvements. Further, middle managers in low-implementation sites talked in less specific terms about continuous improvement, often describing a “just fix it” mentality, and exhibited an initial resistance to Lean participation that was not present in high-implementation sites.

Strategy/Day-to-Day Mediation

How do middle managers mediate between strategy and day-to-day activities to give employees the tools needed to implement innovations? Middle managers in all sites faced challenges providing resources (e.g., time, staff) for Lean implementation and mentioned use of “trickle down” training, introducing Lean through everyday work. Several middle manager actions were unique to high-implementation sites, including middle managers that coached and mentored each other on how to best use Lean. Middle

Key Points

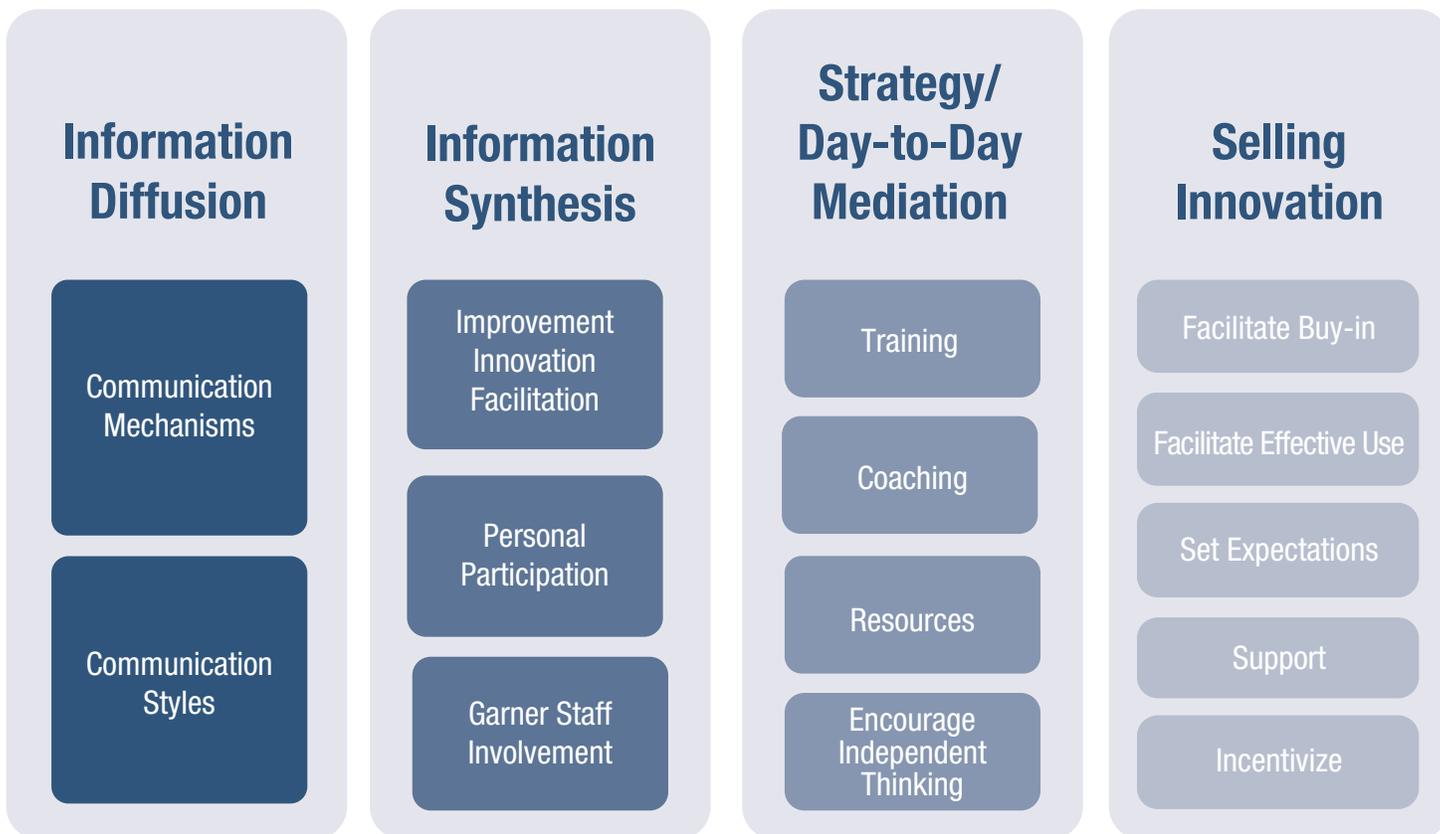
A recent evaluation of a VA pilot program in 10 VA medical centers highlights the significant contributions that middle managers can make in transforming their organization into a learning healthcare system.

- To date, little attention has been given to the role of middle managers in the implementation of Lean management principles as a means of creating learning healthcare organizations.
- In fact, middle managers can take several concrete actions to increase the uptake of Lean management principles:
 - provide support after training,
 - encourage staff to participate, and
 - empower staff to own Lean.

managers in high-implementation sites shifted resources to create coverage or protected time for staff involvement. These middle managers encouraged staff to attend formal Lean training, and coached staff to use their knowledge and skills. Middle managers in high-implementation sites also fostered independent thinking and staff ownership of Lean by having staff generate their own projects and run huddles. Conversely, middle managers in low-implementation sites were often unable to find resources or creative solutions to carve out protected time for staff involvement, contributing to decreased staff involvement in Lean overall. Although low-implementation sites offered Lean training, middle managers did not clearly convey permission or ability for frontline staff to attend such training. While middle managers in low-implementation sites allowed participation in Lean activities when staff showed interest and resources were available, there was less middle manager support and coaching. Finally,

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Middle Manager Influence in Lean Implementation



middle managers in low-implementation sites did not encourage staff ownership of Lean.

Selling Innovation

How do middle managers encourage employees to consistently and effectively use innovations? Middle managers in all sites sold Lean by emphasizing its impact on care to Veterans, using Standard Work (Lean tool that provides structure to processes and roles), and providing recognition of staff participation and achievements in Lean. All middle managers faced challenges in selling Lean to frontline staff, including setting formal Lean expectations (e.g., performance reviews) and incentivizing use of Lean (e.g., awards). High-implementation site middle managers facilitated buy-in by providing feedback on the importance of the work, using early successes, and clarifying staff roles in Lean. Middle managers in high-implementation sites also discussed the need to identify meaningful

rewards for Lean participation. Finally, high-implementation site middle managers sold Lean by providing verbal/morale support toward the goal of staff empowerment and ownership. In contrast, middle manager support in low-implementation sites was limited to providing information without the goal of empowerment and ownership. Contrary to other low-implementation sites, one outlier was able to use financial incentives (e.g., goal sharing) to recognize Lean staff achievements.

Although there were similarities in the roles and actions of middle managers in the high- and low-implementation sites, distinct differences were found that may explain the greater extent of implementation. In response to these findings, there are some concrete actions middle managers can take to positively influence the uptake of Lean: 1) provide support after training, 2) encourage

staff to participate, and 3) empower staff to own Lean. Recognizing these key middle manager actions may contribute to Lean implementation success.

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Accelerating VA's Prominence as a Learning Healthcare System Despite Shifting Tides

Elizabeth Yano, PhD, MSPH, HSR&D Center for the Study of Healthcare Innovation, Implementation, and Policy, VA Greater Los Angeles Healthcare System, Los Angeles, California

Having been a health services researcher in VA for nearly 30 years, I have observed that the system appears under constant duress, some times more than others. Every President taps new VA leadership, and we await their mission and vision, and how to operationalize that vision into serving Veterans. Congressional relationships run hot and cold, especially in election years when VA can be a target for political ambitions, while we speculate on the prospects of the next year's federal budget for VA and VA research. For those of us who conduct partnered research with national program offices in the hopes of fostering evidence-based practice and policy, we observe these recurring events with apprehension as operations funding for evaluation and quality improvement ebbs and flows in often unpredictable ways. Ultimately, we never know if the funds or, for that matter, our partners will be there the next year. This has become standard operating procedure.

What is less standard are the pressures and threats to the system that have perhaps unexpectedly moved VA toward being a learning healthcare system (LHS). When I started at VA—the same year as the release of Tom Cruise's *Born on the Fourth of July*—there was no national primary care program. Veterans had become inured to the hours-long waits in walk-in clinics as residents repeatedly asked them the same questions visit after visit because their paper medical records were often not available. A few years later, prospects of healthcare reform under then President Clinton led VA to assess Veterans' likely response to getting a "national healthcare card," which would have enabled them to seek care elsewhere should the reforms go into effect. Data suggesting that some three of four Veterans would leave VA created a survival threat to the system.

Instead of folding, VA rapidly implemented primary care teams, using data from an HSR-designed national survey as a roadmap for designing new models of care. Thereafter,

then Under Secretary for Health Kenneth Kizer transformed the system through strategic planning and supportive legislation that reformed eligibility, capitated funding, launched VA's electronic medical record (EMR), created accountability through executive performance plans with explicit metrics, and involved HSR&D researchers in system evaluation and research. The result was a national LHS without parallel in the United States, as evidence mounted that the resulting VA system outperformed Medicare and private-sector care.

Within roughly 10 years, VA's pre-eminence was thought to have languished with the advent of patient-centered medical homes and broader implementation of EMRs, integrated healthcare delivery systems and other innovations outside VA. In reality, VA's quality advances had led to large increases in Veteran utilization without the proportionate budget increases needed to accommodate demand, increasing pressure on the system and leaving less organizational slack for innovation. In the late 2000s, VA primary care leaders began planning in earnest for VA's medical home model—Patient Aligned Care Teams (PACT)—with HSR-driven innovation and evaluation embedded in every step of implementation through the operations-funded PACT Demonstration Laboratory Initiative.

Initial funding for PACT was taken off the top of VA budgets, with funds returned to facilities when required changes (e.g., 3-to-1 staff-to-provider staffing ratios) were made. Guidance on how to make these changes at the outset, however, was limited and training resources variable, while the total number of VA quality metrics had grown to more than 750 red, green, and yellow boxes in massive spreadsheets that local managers had to weed through. PACT rollout was also challenged by variable implementation, provider burnout, and less-than-hoped-for early outcomes, but this early evidence drove national adjustments and redesigns reflective of an LHS in action. Subsequent analyses

have demonstrated impacts of higher levels of PACT implementation on patient and provider experience, quality, and use. By 2014, the "access crisis" increased pressure on PACT providers to see more patients in the absence of full implementation and resources.

Legislation aiming to solve access problems through expanded use of community care has been tied to political agendas supporting privatization of Veterans' care, reflecting VA's latest survival threat. At the same time, comparative studies demonstrate that VA care is, by and large, still better than care in the community. How VA ultimately weathers the current storm is yet to be determined, but VA's integration and alignment of science with informatics, incentives, and culture dedicated to systematic improvement on a national scale may yet propel VA to the full promise of an LHS. As Nietzsche said, "that which does not kill us makes us stronger," as each jolt to the system appears to awaken new waves of innovation.

HSR&D's focus on LHS research, in addition to provider behavior and Veteran engagement, should come as no surprise. VA's embedded research program has provided the foundation for innovation, implementation, and opportunity for 90 years, first as an incentive to attract highly-qualified physicians, and later, with the advent of VA's HSR&D Service, to establish the groundwork needed to generate relevant evidence and innovation for ongoing system improvement. HSR&D can serve as the substrate for transformational evidence-based change and concomitant improvements in population health, if we can communicate our scientific findings in ways that the many stakeholders in Veterans' care can easily understand and use. VA HSR&D researchers must further develop their competencies in multilevel stakeholder engagement and in communication of evidence and LHS principles to preserve our continued value, relevance, and impact.

Continued on next page

We have been testing these strategies for several years now through the VA Women's Health Research Network (WHRN), which is comprised of a national consortium of researchers and clinician educators, a practice-based research network (PBRN), and a multilevel stakeholder engagement initiative. WHRN provides training, technical support, and dissemination to advance VA's women's health research agenda, leading to briefings to diverse audiences within and outside VA. Now spanning 60 VA medical centers and over 300 community-based outpatient clinics, which together serve half the women Veterans seen in VA, the PBRN facilitates multisite research, which is often required to include sufficient numbers of women Veterans. As women's health research and PBRN use grew, the importance of multilevel stakeholder engagement in conducting practice-based research became more apparent, resulting in recently completed work to better understand what it will take to more consistently reach LHS goals. Initially, we relied on top-down research deployment, but true PBRNs provide engagement opportunities for frontline employees.

We began fielding practice scans (brief surveys about local care arrangements) and card studies (anonymous 1-page feedback surveys to women Veterans in clinic) that are collected in a few weeks rather than a few years, with

summary results shared with participating sites and national program offices. We launched a Collaborative, where 25 sites voted to adopt already tested innovations from a prior PBRN trial, without additional resources, with the exception of training and technical support provided by WHRN at a distance. Lessons from implementation science and engagement are being redeployed to train frontline providers and staff how to implement evidence locally, and how to communicate more effectively with their teams, local facilities, and VISNs. The external evidence and support we bring are, in turn, being systematically integrated with local data and experience as they deliver care in real-time. Our trial evidence suggests improved team functioning and lower burnout, resulting in built-in champions for ongoing innovation, dissemination, and spread. Frontline providers' testimonials and hands-on support of their colleagues go well beyond what we as researchers can often provide. Next, we are working on engaging women Veteran patients as members of the learning team, leveraging local grassroots groups and our national Women Veterans Council.

Whether these efforts bear fruit or not, we see the elements of VA's already-present LHS in everything we do and observe: a workforce dedicated to LHS principles if only given the opportunity to learn and share; infrastructure and informatics capable of rigorous internal

evaluation and formative feedback; and a shared mission and vision to bring evidence to bear on improving Veterans' health outcomes and quality of life. At VA Research Day on the Hill, Dr. Carolyn Clancy recently described VA's research program as the system's "crown jewel," not only because of the promise of scientific discovery, but also the tacit knowledge of our roles as key players in VA's prominence as a LHS. In the months and years ahead, we will weather the shifting tides together, as we have before, by bringing our collective efforts to bear on priority problems faced by VA and the Veterans we serve, bridging the gap between innovation and implementation, and turning challenges into opportunities for science to contribute meaningful solutions.

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Evaluation of Innovators Network Aims to Understand Why Innovations Succeed, and If They Can be Scaled and Spread

Anita Vashi, MD, MPH, MHS, HSR&D Center for Innovation to Implementation, Palo Alto, California; George L. Jackson, PhD, MHA, HSR&D Center for Health Services Research in Primary Care, Durham, North Carolina; Anais Tuepker, PhD, MPH, HSR&D Center to Improve Veteran Involvement in Care, Portland, Oregon; Sarah Cutrona, MD, MPH, HSR&D Center for Healthcare Organization and Implementation Research, Bedford, Massachusetts

In 2015, the VA Center for Innovation (VACI) launched the VA Innovators Network program. The goals of this program are to foster a culture of innovation and to continuously improve the care and experience of care encountered by Veterans. Innovators Network addresses these goals by empowering VA employees to test new ideas and by encouraging collaboration with stakeholders across VA programs. Specifically, the Innovators Network builds the innovation capacity of VA by: 1) teaching and training VA employees on innovation-related competencies (e.g., human-centered design, entrepreneurship); 2) creating an innovation development and funding pathway to generate novel ways of serving Veterans; and 3) supporting the VACI Diffusion of Excellence initiative by encouraging the identification and implementation of promising practices at VA Innovators Network sites. This work aligns with the overarching mission of the VACI which is to identify, test, and evaluate new approaches to meet the needs of Veterans through innovations rooted in data, design-thinking, and agile development.

The Innovators Network investment has yielded a diverse set of local leaders and projects. The ground-level leadership of Innovators Network is a team of Innovation Specialists embedded in 33 VA Medical Centers nationwide, who receive training and financial support through VA Innovators Network. Trained in core competencies including quality improvement, human-centered design,¹ and implementation science, these specialists represent a broad range of backgrounds and job descriptions and work directly with employees and Veterans to support innovation. Complementary to this support for local leadership development, Innovators Network also supports projects initiated by frontline employees through the Spark-Seed-Spread Investment program. This is a three-tiered funding model which, to date, has awarded approximately \$10 million in Innovation Spark-Seed-Spread grant funds

for more than 300 projects across 33 VA sites. The interventions supported by the Innovators Network include clinical, administrative, educational, and health information technology initiatives. They range from the development of new technology (e.g., through 3D-printing) to development of new programs, and to the reorganization of clinical and administrative workflow. A broad array of professionals are implementing these projects across a range of VA medical center environments.

In partnership with the VA Innovators Network and VA Quality Enhancement Research Initiative (QUERI), investigators at Bedford, Boston, Durham, Palo Alto, and Portland have joined forces to plan and conduct a national evaluation of the Innovators Network. Our mixed-methods, multi-site evaluation will address three key questions: 1) who participates in Innovators Network? 2) why do they participate? and 3) what is the impact of Innovators Network participation? These three questions guide the selection of the evaluation strategy. The evaluation further seeks to understand why a particular innovation was successful, and how and in what settings it can be scaled up and spread, recognizing that not all innovations are a perfect fit for all settings.

While the diversity of projects and settings is a considerable strength of the Innovators Network, it also poses challenges to effective evaluation. With such a large number of highly varied projects, it is not practical to perform a separate, customized evaluation for each awardee. Further, the lack of common metrics inherent in such an approach would hinder comparisons of performance across projects, making it more difficult to identify common success factors, challenges, and unintended consequences. We have attempted to address these and other challenges in designing the evaluation strategy and share a brief overview of our planned approach here.

Key Points

- The VA Innovators Network builds innovation-related competencies among VA employees, while also creating development and funding opportunities for those innovations that will best serve Veterans.
- A comprehensive evaluation of the VA Innovators Network will assess its impact and inform methods to better support a culture of innovation across the VA workforce.
- This evaluation seeks to understand not only who participates in the VA Innovators Network and why, but also what factors make a particular innovation successful.

Our evaluation, which began in April 2018, is seeking to understand who participates in the Innovators Network, and why. We will pursue quantitative analyses to identify organizational factors associated with applying to be an Innovators Network site and factors associated with subsequent applications for Spark-Seed-Spread grants. Additionally, through qualitative analysis of interviews with site leadership, Innovation Specialists, and select project leads, we will explore expectations for participation and how and whether they were met. Results from these analyses will allow Innovators Network leadership to anticipate how characteristics of sites may affect participation in the Network and will provide the foundation for defining the long-term impact of participation.

After examining who participates and what they hope to achieve through participation, we will study the impact of Innovators Network participation on individual sites. Qualitative data from interviews with Network participants

will help identify and understand site-level impacts and experiences. Interview questions will explore the perceived impacts, benefits and challenges of Network participation, and observations of systemic or structural supports either observed or desired in order to sustain these impacts. Qualitative data will be triangulated with site level data with a focus on employee satisfaction, psychological safety, autonomy, and participation in decision making measures to examine the impact that participation in the Innovators Network has on employee experience.

Finally, for selected Innovators Network projects, we will measure impact, including factors associated with success, sustainability, and return on investment. Interviews with selected Network participants will identify perceived project impacts for Veterans, for VA employees, and for the VA system as a whole. Interviews will explore sites' use of specific metrics to track project impacts as well as successes and challenges. Where available, we will work with Innovators Network and project leaders to capture and interpret these metrics to gain a deeper understanding of project success. A business case framework will guide the return on investment (ROI) analysis for

select innovation awardees. A business case for quality in health care can be defined as a financial ROI to the entity that invests in the intervention, in a reasonable time frame, that can be realized as real dollars, as a reduction in losses for a given program or population, or as avoided costs. A business case analysis differs from other types of economic analysis (e.g., cost-benefit, cost-effectiveness, cost-utility), which often measure costs and benefits from a societal perspective. The perspective of business case analysis is purposely narrow since its primary goal is to determine the sustainability of quality-focused innovations from the investing organization's perspective.

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Innovation Update

HSR&D's New Innovation Initiative: The Big, the Bold, and the Innovative!

Naomi Tomoyasu, PhD, VA HSR&D Central Office, Washington, DC

About 2 years ago (which in dog years is about 14 years), I started my new job as the Deputy Director of Health Services Research and Development (HSR&D). Having begun my professional career in VA research many moons ago, I already knew that the heart and soul of HSR&D, or any research group, are the investigators! Hence, one of the first things I wanted to do as part of my learning curve was to visit with as many of our wonderful researchers as possible. Since I had limited time and travel funds, it was suggested that I start with Centers of Innovation (COINs) since I could meet with a group of investigators with diverse research interests and experiences.

At each COIN, I asked everybody what kinds of new programs or funding changes they would like to see within HSR&D? Interestingly, the most common response was that they wanted the opportunity to be innovative, creative, try new ideas, take chances, and have the flexibility to make course changes in the research if needed. Most importantly, they wanted to make a difference in the lives of our Veterans in big bold ways. I don't know why this surprised me as these were Centers of Innovation!

Two years later, in response to the requests of our investigators, we are finally ready to release a brand new Innovation Initiative Request for Application (RFA) that will provide a unique opportunity to support and promote innovative, high-risk, high-impact research that contributes to meaningful transformations in Veteran care while also making substantial contributions to the field of health services research. We are planning to release this RFA in late August or early September of this year. The Innovation RFA will support big, bold, novel ideas that address national VA priorities where researchers will be rewarded for thinking outside the box and trying new ideas. We're also trying to be innovative in our funding methods, including the use of a phased approach so investigators can plan and test out their innovation ideas before they begin the full process of investigation. During the planning phase, investigators can test the feasibility of the innovation idea, check out new and interesting partnerships, investigate innovative design approaches, and identify and address implementation challenges.

The new Innovation RFA also will involve larger awards to test out big bold ideas and permit some flexibility in changing course if the innovation idea needs to be modified. We will use a cooperative agreement approach to support the innovation projects so that

investigators, funders, and operational partners can work closely together to leverage new information, disseminate and implement findings and products earlier, and quickly adapt to changes in a dynamic, complex learning healthcare system. This is a major paradigm shift from our current funding process, as reviews within HSR&D and VA's Office of Research and Development (ORD) often give more weight to elements that are easier to assess such as the experience of the study team, the existence of preliminary data, and the rigor of the study design, rather than the level of innovation of the study question and the ultimate impact of the idea on healthcare outcomes, practice, and policy.

Lastly, the Innovation Initiative constitutes an experiment for HSR&D that will enable us to encourage and support big, bold, novel ideas and to permit flexibility in the implementation of those ideas that will improve the lives of Veterans. As with anything new, there is a bit of anxiety of the unknown, but the excitement of starting a new funding venture, especially one that promises to result in changes in healthcare practices and policies that are truly innovative and impactful for our Veterans will be the ultimate goal for HSR&D and ORD.

Innovate Away!!

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We believe the energy and strength of the Innovators Network stem from the diversity of Network participants and sites nationwide, and from the broad range of projects led by frontline employees. To assess impact, therefore, we must begin by ascertaining the goals and motivations of participants, then use this knowledge to understand the variety of successful outcomes sought and achieved. This is a three-year evaluation funded through March 2021 and we anticipate preliminary results in 2019. The VA Innovators Network is a potentially transformative initiative whose

goal is to improve the care delivered to our nations' Veterans and to improve the workplace experience for those who serve them. This comprehensive evaluation of the VA Innovators Network will assess its impact and inform further operationalization and sustainability of processes to better support a culture of innovation and enable implementation of innovation development pathways across VA nationally.

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