

Quality Enhancement Research Initiative Implementation Roadmap

Toward Sustainability of Evidence-based Practices in a Learning Health System

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Background: Learning Health Systems strive to continuously integrate innovations and evidence-based practices (EBPs) into routine care settings. Few models provide a specified pathway to accelerate adoption and spread of EBPs across diverse settings.

Objective: The US Department of Veterans Affairs Quality Enhancement Research Initiative (QUERI) Implementation Roadmap facilitates uptake of EBPs in routine practice by aligning research and health system priorities.

Methods: The Roadmap is based on earlier iterations of the QUERI translational research pipeline, incorporating recent advancements in quality improvement and implementation science. Progressive, dynamic phases were operationalized to form an implementation process that promoted a participatory approach which enables stakeholders (health care consumers, clinicians, administrators, and leaders) to systematically plan, deploy, evaluate, and sustain EBPs using implementation strategies within a Learning Health System framework.

Results: The Roadmap consists of Preimplementation, Implementation, and Sustainment phases. Preimplementation identifies a high-priority need, selects EBPs to address the need, engages stakeholders to build implementation capacity, specifies needed EBP adaptations and evaluation goals, and activates leadership support. During Implementation, clinical and research leaders use implementation strategies to promote EBP

technical competency and adaptive skills to motivate providers to own and sustain EBPs. Sustainment includes evaluation analyses that establish the EBP business case, and hand-off to system leadership to own EBP implementation maintenance over time.

Conclusions: The QUERI Implementation Roadmap systematically guides identification, implementation, and sustainment of EBPs, demystifying implementation science for stakeholders in a Learning Health System to ensure that EBPs are more rapidly implemented into practice to improve overall consumer health.

Key Words: implementation science, quality improvement, veteran health

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The mission of the US Department of Veterans Affairs (VA) Quality Enhancement Research Initiative (QUERI) is to improve the health of the US military veterans by accelerating the adoption of evidence-based practices (EBPs) into routine health care settings.¹ EBPs are clinical innovations, interventions, or programs derived from randomized controlled trials showing a positive impact on the quality, timeliness, and efficiency of care for patients (consumers). Research programs such as QUERI that are embedded in health system operations are especially valuable in promoting direct implementation of EBPs. This embedded research-operations model is essential to reduce the gap between research evidence and routine practice. Currently, <1 in 5 EBPs are adopted in routine health care settings,² wasting millions of health care dollars that would otherwise benefit consumers.³ The reasons for this gap are well-documented and are mainly attributed to: failure to adapt EBPs to new populations without adequate input from stakeholders including frontline clinicians, administrators, and consumers; inadequate resources for frontline clinicians and administrators to implement EBPs effectively; and limited organizational strategies beyond health care leadership endorsement to integrate EBPs into routine care processes and workflows.⁴

Since its inception in 1998, QUERI has accelerated the implementation of EBPs into routine care settings through unique partnerships between research investigators and health system leaders.^{1,5,6} Established in 1998, QUERI supports investigators employed by the US Department of VA across

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over 40 centers in the United States to implement EBPs and evaluate the results of these efforts.^{5,6} QUERI has also led the development and application of implementation strategies, or theory-based methods designed to reduce barriers to EBP uptake in routine care.⁵⁻⁹ Over 70 implementation strategies have been identified^{8,9} with the most effective strategies including a combination of technical and adaptive skill application.^{10,11} Technical skills such as performance metrics, policies, and provider training “push” the EBP throughout the health system by supporting the capacity of frontline providers to deliver the EBP with quality and competence. Adaptive skills promote “pull,” or intrinsic motivation among frontline clinicians to use the EBP by enhancing their ownership of the local implementation process while ensuring their efforts remain strategically aligned with stakeholder priorities.¹²⁻¹⁴ QUERI-funded investigators employ a combination of technical and adaptive skills to scale-up and spread EBPs. As of mid-2019, QUERI centers have collectively implemented over 60 EBPs and trained over 3500 clinicians, directly serving close to 100,000 veterans across the United States.

To date there are no comprehensive, pragmatic approaches for researchers and health system leaders to apply implementation strategies to reduce barriers to EBP adoption. This is primarily due to limited awareness of their value and limited opportunities to evaluate them without access to multiple health care sites. The advent of the Learning Health System framework,¹⁵ which uses data and technology to identify gaps in quality and reduces care variation by deploying and monitoring improvement efforts over time, has led to the realization that specific implementation strategies are required to reduce barriers to EBP implementation. Traditional approaches to quality improvement, which are mainly derived from manufacturing processes,¹⁶ may be inadequate for implementing EBPs without implementation strategies that encourage multiple stakeholder buy-in to overcome barriers to EBP uptake.¹²⁻¹⁴

This paper describes the QUERI Implementation Roadmap, designed to support stakeholders (health care researchers, consumers, clinicians, administrators, and leaders) in systematically planning, deploying, and sustaining EBPs in routine health care settings. The Roadmap pays particular attention to pragmatic approaches for frontline clinicians and administrators to overcome barriers through implementation strategies.

METHODS—ROADMAP DEVELOPMENT

The Roadmap was commissioned by QUERI leadership to extend the previous “pipeline” framework for implementation that reflected a traditional, linear research process.¹⁷ It originated from an increased demand in health systems to have a more user-friendly approach for planning implementation of EBPs in routine care, especially for frontline clinicians and administrators.⁶ The Roadmap is based on a review of current implementation and quality improvement frameworks described below, a recent evidence review of implementation strategies used in real-world health systems to improve adoption of EBPs,¹⁸ and the experience of the 15 QUERI programs.⁶ Overarching observations from these resources were summarized by the QUERI Center for

Evaluation and Implementation Resources (CEIR) to form the QUERI Implementation Roadmap. The Roadmap incorporates 3 key lessons from QUERI’s experience in implementation of EBPs. First, implementation is a dynamic process that incorporates multiple stakeholder input in the process of identifying, implementing, and sustaining EBPs. Second, EBP uptake requires ongoing implementation strategies that motivate and empower frontline providers and administrators. Third, the Roadmap assumes that implementation is an iterative process, whereby new questions are generated over time.

QUERI ROADMAP OVERVIEW

The Roadmap is comprised of 3 phases: Pre-implementation, Implementation, and Sustainment. Figure 1 depicts the overarching questions/issues facing each phase. These phases and functions map onto the Learning Health Systems framework’s 3-part cycle of integrating data and new evidence into practice of: (1) data to knowledge; (2) knowledge to performance; and (3) performance to data.¹⁹ Each phase of the implementation process requires active participation of stakeholders including consumers, frontline clinicians, health care administrators, and leaders/policymakers. During Preimplementation (Fig. 1), health care leaders endorse system-wide priorities that are identified across stakeholders, and secure institutional commitment to apply EBPs to address these priorities. Throughout Implementation, knowledge is put into action by using implementation strategies to support the scale-up and spread of EBPs, and metrics of success are chosen based on clinical benchmarks relevant to the health care setting and stakeholders. Consumers and frontline clinicians are essential to ensuring that the implementation strategies fit within local contexts. In the Sustainability phase, the impact of EBP uptake is demonstrated with regard to benefit to stakeholders and steps are taken to transition the EBP to leadership for ongoing

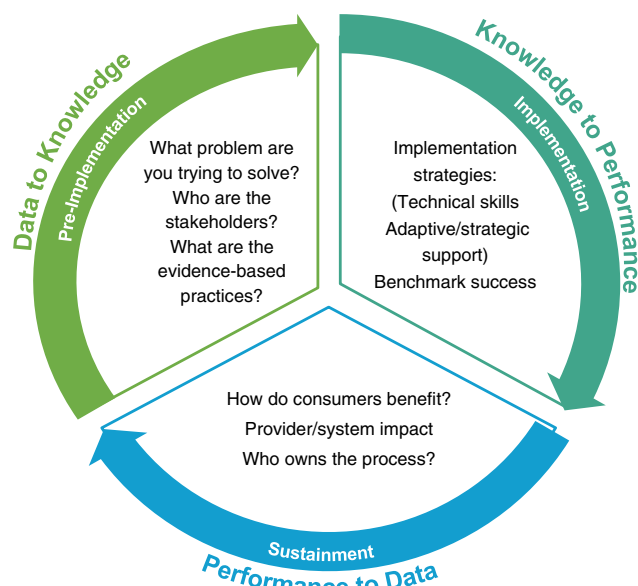


FIGURE 1. Quality Enhancement Research Initiative Implementation Roadmap.

TABLE 1. Categories of Common Implementation Benchmarks and Data

Data Categories	Description
Clinical	Consumer (patient)-level outcomes, including processes of care and clinical and functional outcomes chosen based on which outcomes the evidence-based practice was designed to impact such as symptoms, functioning, and satisfaction ^{3,11}
Implementation	Implementation includes outcomes related to the deployment of the evidence-based practice, primarily from the perspective of consumers and providers, eg, acceptability, adoption, utilization, appropriateness, costs, feasibility, fidelity, penetration, and sustainability ^{3,11} Implementation data also ascertain the process by which implementation strategies are used to deploy the evidence-based practice. These can include formative data that can be fed back to adjust the implementation strategies, and summative data to determine the extent to which the implementation strategies were used to deploy the EBP. Both quantitative and qualitative data (eg, interviews, field notes, focus groups) are often used ⁴
Fidelity	Fidelity is assessed using measures of the extent to which core elements of the evidence-based practice were deployed by providers, often in the form of checklists completed by a third party based on direct observations of the providers, or via self-completed provider surveys Fidelity to the implementation strategies is also measured using similar methods, where a third party directly observes the implementation trainer, consultant, or mentor responsible for teaching, guiding and/or mentoring providers in the use of the evidence-based practice, and monitor the use of local adaptations to the evidence-based practice or implementation strategies ^{21,22,29,31}
System	Indicators of the population impact that pertain to the impact of the evidence-based practice on: access, utilization, timeliness, efficiency, safety, effectiveness, equity, patient centeredness, or other aspects of quality such as overuse, underuse, or misuse of care delivery ¹¹ System outcomes also include potential unintended consequences of implementing a new evidence-based practice such as patient harms from overtreatment or undertreatment, or the decreases in care in other domains due to providers diverting attention to the new practice ⁹
Economic data	Includes cost of implementing the evidence-based practice at the patient and health system level, predictions of cost changes as the practice is scaled up, and return on investment, ^{3,21} and the costs of the implementation strategies at the clinic or system levels to determine their value to health system leaders ³³

maintenance. Efforts to evaluate and sustain EBPs can also lead to new questions and discovery of knowledge related to performance gaps in an iterative cycle of continuous improvement through implementation and spread.

ROADMAP THEORETICAL ORIGINS

In addition to the Learning Health System framework,¹⁹ the Roadmap is based on previously established implementation theories that describe an iterative, multiphased process to adapt and adopt EBPs. The Roadmap reflects the concepts from the Interactive Systems Framework for dissemination and implementation,²⁰ which emphasizes processes that accelerate the integration of EBPs into routine care through interactive and supportive strategies among frontline clinicians and employees. Roadmap components are also based on implementation process frameworks such as Replicating Effective Programs,²¹ the Dynamic Adaptation Process,²² and Interventional Mapping.²³ These frameworks describe systematic approaches to planning, packaging, deploying, and rigorously evaluating effective innovations with stakeholder input to ensure their sustained use over time. They also emphasize methods to maintain fidelity to core EBP components while allowing for provider-driven adaptations that allow for variation in resource constraints and capabilities across sites and settings. The Roadmap also incorporates concepts from the Evidence-based System for Innovation Support framework,^{20,24} which recommends tailoring implementation strategies^{5,7,8} to local contextual factors that build local stakeholder capacity to deliver EBPs effectively.

ROADMAP ADDRESSES BARRIERS TO IMPLEMENTATION

A core function of the Roadmap is to support the deployment of the implementation strategies that target multi-level contextual factors that may act as facilitators or barriers to EBP uptake. Several implementation frameworks²⁵ can be used to help identify barriers to EBP uptake.^{22,24,25} The

Theoretical Domains Framework²⁶ focuses on provider-level behavioral barriers to EBP adoption. The Consolidated Framework for Implementation Research²⁷ identifies implementation barriers and facilitators across 5 domains: characteristics of the EBP, inner setting of the implementing organization, factors outside the implementing organization, individuals involved in the implementation effort, and the process of implementation itself.

INCORPORATING USER-CENTERED DESIGN, DEIMPLEMENTATION, AND EBP ADAPTATION

The Roadmap is also based on emerging implementation practices such as user-centered design,²⁸ which enable consumers and frontline clinicians to own the EBP implementation process by adapting EBPs to local contexts.^{21,24,29,30} Given the increased demands on clinicians to implement more EBPs, the Roadmap also considers deimplementation of low-value care as an important implementation strategy to consider. Deimplementation represents a situation when an established practice should be reduced and stopped because it is ineffective, harmful, inefficient, or no longer necessary even in the absence of a specific superior alternative practice.³¹ The Roadmap also assumes that the adaption of EBPs and implementation strategies should happen routinely given different contextual factors. Key frameworks that inform adaptation processes for both EBPs and their implementation strategies include the Dynamic Adaption Process,²² Dynamic Sustainability,²⁹ Intervention Mapping,²³ and the Wiltsey-Stirman frameworks.³²

ROADMAP: CONTINUOUS IMPLEMENTATION EVALUATION

The Roadmap also supports demonstrable improvements in clinical outcomes based on a continuous evaluation of the implementation process using common measures^{3,32} (Table 1). The key frameworks for identifying measures of implementation success at a population-level impact include RE-AIM (Reach,

	Pre-implementation	Implementation	Sustainability
What is being implemented?	Identify a problem and solution <ul style="list-style-type: none"> Identify high-priority need and goals Agree on evidence-based practices (EBP) and settings Clarify EBP core elements, adaptation options (consumer, provider input) 	Implement an intervention <ul style="list-style-type: none"> Select implementation strategies Tailor strategies to local settings Disseminate implementation plan and support tools 	Sustain an intervention <ul style="list-style-type: none"> Develop business plan to continue EBP Monitor for changes in EBP, whether different EBP is needed Weigh costs of maintaining EBP
Who and what settings are involved?	Engage stakeholders <ul style="list-style-type: none"> Cultivate leadership/stakeholder support Assess capacity, including barriers and solutions to EBP delivery Package EBP with delivery adaptations 	Activate implementation teams <ul style="list-style-type: none"> Convey top-down practice support “push” to local sites from leadership Empower bottom-up “pull” to enhance stakeholder buy-in at local level Create stakeholder feedback channels 	Transition ownership to stakeholders <ul style="list-style-type: none"> Provide management support Plan and budget for resources Support continuous learning and innovation in local stakeholder teams
How is it being measured?	Develop measures and data <ul style="list-style-type: none"> Design evaluation to match goals Identify measures of success and data sources Establish baseline performance 	Monitor implementation progress <ul style="list-style-type: none"> Report progress to stakeholders Make data accessible to stakeholders Adjust plan based on feedback 	Ongoing Evaluation and Reflection <ul style="list-style-type: none"> Consumer outcomes Delivery of EBP (fidelity vs. adaptation) Provider and system costs

FIGURE 2. Quality Enhancement Research Initiative Implementation Roadmap Components.

Effectiveness, Implementation, Adoption, and Sustainability)³⁴ and COINS (Cost of Implementing New Strategies).³³ A business case analysis is also recommended for implementation,³⁵ which determines the overall impact of the implementation process on the health care setting. A business case analysis focuses on perspectives across multiple stakeholders (eg, provider turnover, consumer satisfaction, in addition to health care costs), which can facilitate ownership for EBP implementation maintenance by health system leaders or policymakers over time.

QUERI ROADMAP COMPONENTS

Each phase (Preimplementation, Implementation, and Sustainability) of the Roadmap is detailed in Figure 2. Each phase is organized around 3 questions regarding activities necessary to: (1) support uptake of the EBP; (2) activate stakeholders and delivery capability; and (3) optimize the use of data and measures to assess progress. Each phase is linked by iterative cycles of experimentation and refinement consistent with rapid-cycle testing.^{9,13,32} A use case for how each Roadmap phase was operationalized is also provided below, based on the QUERI-Veterans Integrated Service Networks (VISN, the regional health care systems within the VA) Partnered Implementation Initiatives.

PREIMPLEMENTATION

Preimplementation¹⁸ focuses on the problem to be solved, identifies stakeholders who will select and prepare EBPs for deployment, and establishes measures to assess success. In this phase, consensus is reached among leaders, clinicians, and consumers regarding the clinical priority area and goals (metrics) for improvement and an EBP is identified (solution) to address this quality gap.^{9,21} In identifying a high-priority need, the clinical problem should be clearly defined, and measures of success aligned with existing performance goals within the organization’s mission.^{13,23,24,27,36}

When selecting EBPs, it is important to conduct an evidence review of relevant clinical trials, including the clinical

settings of the studies. In almost all cases, EBPs will need to be adapted to the health system’s population and settings.^{21,22,29,31} It may also be helpful to assess capacity to implement EBPs^{20–22,24,31} at the consumer (eg, age, medical complexity); provider/staff (eg, skills, knowledge, attitudes, and provider mix); organization (leadership, culture, space, and resources); and health system levels (eg, policies, funding).^{22,37} Practice fidelity and adaptability concerns need to be balanced to respond to these unique multilevel contextual factors.^{22,29}

Preimplementation also includes the development of EBP toolkits or resources to address implementation barriers and facilitators, and frontline clinicians are often the best source for this information. Toolkits specify the EBP core elements, which are the components of the intervention that achieve its desired effects on outcomes. They also specify the process by which clinicians are trained to use the EBP, common barriers to implementation and how to overcome them, and opportunities to adapt the EBPs without compromising the EBP’s core elements.^{29,32} The toolkits also include measures of success to demonstrate EBP impact (Table 1).

Finally, during preimplementation, it is vital for stakeholders to establish open lines of communication related to the implementation process³⁸ and have a shared understanding of the populations affected, implementation plan, resources required, and persons who will “own” implementation efforts over time.^{21,38,39}

PREIMPLEMENTATION EXAMPLE: EMBEDDED FUNDING OPPORTUNITY

In 2018, QUERI established a VA funding mechanism (Partnered Implementation Initiative) based on the Roadmap to support implementation projects embedded within the health system that are co-led by implementation scientists and health system leaders, to scale-up and spread effective practices addressing clinical priorities. Regional VA health

system (VISN) leaders were very receptive to this initiative because they were able to choose the clinical priorities collectively. Moreover, it enabled more rapid buy-in because the goal of the initiative was to promote direct implementation EBPs to improve clinical performance.

In November 2017, regional health system leadership teams, including the VISN Director, their Chief Medical Officers, Quality Management Officers, and local facility leaders within the region were asked to submit nominations for clinical priorities which could benefit from additional implementation support. During a live voting session, regional health system leaders selected 3 priorities from a list of the top 10 nominations as targets for enhanced implementation support. The priorities chosen were access to medication-assisted treatment (MAT) for opioid use disorder treatment, implementation of suicide prevention services, and effective care coordination models for community care. In addition, regional health system leaders indicated a preference to select which of the 3 priorities they would like implementation teams to focus on for their region.

Subsequently, QUERI requested applications for the Partnered Implementation Initiative from implementation scientist-health system leadership teams. The application had to describe how the team would implement EBPs to address the regional health system's selected clinical priority using implementation strategies, and the national quality measures for which they would benchmark success. Applications were rigorously peer reviewed by content experts. Seven implementation teams from 6 regional health systems were funded in 2018–2019, focusing on opioid use disorder/pain treatment and suicide prevention.

Overall, selection of clinical priority areas by VISN leadership encouraged local ownership of the initiative while allowing for a collective understanding of common national clinical priorities. Measures of implementation success were directly derived from the regional leaders' performance plan criteria (eg, number of patients with opioid use disorder receiving MAT). This enabled regional leaders and investigators to have a shared understanding of the problem and work together to deploy implementation strategies to scale-up and spread the EBPs at sites with the most significant gaps in quality based on VHA performance metrics. The Partnered Implementation Initiatives also benefited from national VA leadership endorsement of the EBPs, including provider training and technical support in using the EBPs.

IMPLEMENTATION

A core component of the Implementation phase is the selection and deployment of an implementation plan that applies implementation strategies to enhance EBP uptake. There has been limited guidance on how to systematically match barriers and facilitators with these strategies to optimize EBP uptake.⁴⁰ However, recent research has proposed methods to select and tailor implementation strategies,^{18,31,40} and that a combination of strategies that use technical (transactional) and adaptive (transformational) leadership skills is ideal for addressing organizational barriers.^{31,41,42} Described by Avolio et al,⁴³ transactional skills develop delivery capacity⁴⁴ by aligning EBP implementation with organizational performance metrics and by adjusting

implementation strategies to improve performance. Transactional strategies typically involve methods such as EBP tools/toolkits development, provider training, technical assistance, provider incentives, or audit and feedback^{20,24} so that clinicians are encouraged to meet performance targets.⁴⁵ Adaptive, or transformative, leadership skills are instrumental in bringing stakeholders together via a shared vision to implement the EBP and help engage frontline clinicians in owning the EBP implementation process (via "pull" motivators to change). Transformational strategies include skill development to encourage innovation and fostering ownership among frontline clinicians in the process of implementing EBPs.^{13,45,46}

Ultimately, implementation plans should include operationally defined implementation strategies, identification of persons who will deploy the strategies (and mentor other clinicians in implementation of the EBP), development of a guide for using the strategies, and operationalization of measures to benchmark success which can be fed back to operations leaders and frontline clinicians to adjust implementation as necessary.^{41,47}

IMPLEMENTATION USE CASE

For the QUERI-VISN Partnered Implementation Initiatives that focused on opioid use disorder, the primary implementation strategy chosen to scale-up and spread EBP delivery was Facilitation. Developed by QUERI investigators, Facilitation was selected for the Partnered Implementation Initiatives in partnership with national VA leadership. Facilitation helps providers improve the uptake of effective practices by teaching them strategic thinking skills to overcome organizational barriers.^{42,48} Selection of a common implementation strategy across the Partnered Implementation Initiatives programs that was endorsed by national VA leadership enabled the opioid use disorder teams to use a learning collaborative to share information, including common implementation approaches and outcome measures. Facilitation was also selected due to its flexibility in promoting EBP adoption across multiple care settings (eg, inpatient, outpatient, telehealth).⁴⁸

Facilitation for MAT was deployed with QUERI support after the VA national program office responsible for the EBP disseminated a toolkit and training program in the EBP. Providers were selected by each VISN to receive the EBP toolkit on opioid stepped care and MAT and to attend a national training on EBP opioid stepped care. The toolkit included tools designed to allow frontline stakeholders to plan and implement MAT (eg, suboxone), the training content, and measures of success including number of eligible consumers receiving MAT.²⁴ QUERI also provided supplemental support to the Partnered Implementation Initiatives to hire Facilitators to work with the VA national program office responsible for MAT national policy, to help consult frontline clinicians in the implementation of MAT prescribing in sites in need of additional support.

SUSTAINMENT

Sustainment (*performance to data*)¹⁸ includes an assessment of the performance of the EBP, the decision of whether the EBP will be sustained over time, and the creation of a plan to support ongoing EBP delivery. This phase also

involves identification of an EBP maintenance “owner” once external funding for implementation ends.⁴¹ Sustainment includes continuous monitoring of EBP fidelity, quality, outcomes, system impacts, and return-on-investment (eg, how much will it cost to maintain implementation over time per site) of the EBP over time. The goal of this phase is for the EBP to be maintained internally without the need for external support or management. For the EBP to be sustained, leaders should be provided with guidance for how to encourage EBP sustainability, including program monitoring and resourcing, independent of outside support.

SUSTAINMENT USE CASE

To promote sustainment across the QUERI VISN Partnered Implementation Initiatives, the QUERI CEIR established the learning collaborative to facilitate the sharing of implementation best practices and the discussion of shared process and outcomes metrics. This collaborative supported the development of a regional health system consortium focused on opioid/pain stepped care. Further, CEIR established an evaluation toolkit and program evaluation training resource which include information on joint expectations among the Partnered Implementation Initiative stakeholders and clarifies key roles, responsibility, timelines shared resources, deliverables, and preferences for ongoing communications and products within the PII teams. Finally, the QUERI VISN Partnered Implementation Initiative required common benchmarks to assess ongoing implementation, including those derived from VA national performance metrics, to allow leaders to see the added benefit of implementing the EBP in their regions and conduct a business case analysis.

Other health systems can apply common elements of the QUERI-VISN Partnered Implementation Initiative approach which seek to leverage multilevel partnerships to tailor clinical practices and implementation approaches to meet regional needs while aligning with national priorities. Notably, it was helpful to have an internal funding program (QUERI) support request for applications and engage the regional health system leaders by having them proactively identify and select clinical priorities to focus funding efforts. Second, the requirement that the Partnered Implementation Initiatives be co-led by a health system leader and implementation scientist ensured that the project goals were aligned with local stakeholder needs. It also ensured that the implementation methods were demystified and practical for the regional health systems to deploy and that implementation efforts focused on nationally endorsed performance plan measures to which the health system was accountable. Third, having a central resource center (CEIR) provide implementation and evaluation consultation throughout the Initiative ensured a sound business case for the implementation plan and hand-off to leadership. Finally, having the national health system endorse both the use of the EBPs and the implementation strategies (Facilitation) ensured ongoing ownership.

CONCLUSIONS

The QUERI Implementation Roadmap provides the implementation guidance beyond traditional research-to-practice frameworks by emphasizing collaboration and alignment of leadership support with frontline employee

engagement and consumer needs. The Roadmap also enhances the evolution of the Learning Health System by providing a guide for ongoing deployment and evaluation of implementation strategies to scale-up, spread, and ultimately sustain EBPs in routine care. Implementation strategies that focus on engaging frontline clinicians are vital to implementation success because top-down directives, training, or performance metrics alone are insufficient to change clinical practice. The Roadmap provides a process to support EBP implementation which involves both top-down and bottom-up implementation strategies, and modification of interventions and assessment to meet clinical priorities, and evaluation of the business case for EBP sustainment based on multiple stakeholder input. These are all essential components of an effective practice spread plan but are rarely presented together or within a unifying framework.

The Roadmap is also a practical tool for other large health systems that face challenges in implementing and sustaining EBPs. Specifically, the key lessons learned from the QUERI-VISN Partnered Implementation Initiative were integrated into this Roadmap and are applicable to other health systems. First, it is vital to specify expectations from health system leaders in terms of resources, support, and measures of success, especially for long-term maintenance of the EBP. In support of the Partnered Implementation Initiatives, the VA national program office responsible for substance use treatment made opioid stepped care a clinical priority and rolled out a toolkit before the Partnered Implementation Initiatives were launched. Second, regional leaders interested in implementing EBPs should ensure a process to garner buy-in from their frontline clinicians, especially through their administrators (middle managers) so that the EBP is viewed as acceptable and feasible at the clinic level.⁴⁹ National VA leadership asked each regional health system to send clinicians to be trained in the EBP which helped to garner frontline buy-in. Finally, the evaluation of EBP implementation should include the estimated costs of maintaining implementation support, including provider training, toolkit updating, technical assistance, and where necessary, consultation (eg, Facilitation) to promote adaptive skills to ensure leaders provide adequate support to its sustainability.

Over time the QUERI Implementation Roadmap will be enhanced by further research on the use of implementation strategies to improve uptake of EBPs and care quality. Much of the research on implementation strategies to inform Roadmap components is emerging within VA’s Health Services Research and Development Program, and other federal funding agencies such as the Agency for Health Care Research and Quality, the Patient Centered Outcomes Research Initiative, and increasingly, health systems themselves. Like other implementation frameworks, further work will be needed to better specify each phase and to develop common metrics of contextual factors, uptake, and outcomes where appropriate.⁵⁰

Overall, the QUERI Implementation Roadmap is a practical, user-friendly guide for frontline clinicians, administrators, consumers, and researchers to plan out EBP implementation approaches. It serves to demystify implementation science for these stakeholders by outlining the specific steps to

drive development and execution of an implementation spread plan which is informed by the unique characteristics of the problem, the stakeholders, and the priorities of the health care setting in which the practice is to be implemented. Currently VA leaders have sought out QUERI training implementation strategies based on the Roadmap, and more health system leaders have invested in QUERI implementation strategies such as Facilitation and Evidence-based Quality Improvement⁶ as tools to scale-up and spread their practices and policies nationally. The QUERI Implementation Roadmap systematically guides identification, implementation, and sustainment of EBPs to ultimately improve overall quality of care for consumers.

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