

# **A Conceptual Model of VA Implementation with a Focus on Heart Failure and the Role of QUERI**

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## **Purpose**

A primary goal of the Quality Enhancement Research Initiative (QUERI) of the Veteran's Administration is to implement best practices leading to improved care for veterans. The VA has made significant advances in systematically implementing evidence into practice (1). QUERI have begun to understand the process of implementation – breaking open the "black box" to understand the contextual factors, barriers, facilitators, and moderators and to describe these with models of the improvement process (2).

However, the term implementation is not always clear. It has been used in general terms to describe adoption of guidelines by a medical community; but also for such specific activities as software installation of an electronic medical record. One purpose of this document is to define implementation as used by the Chronic Heart Failure (CHF) QUERI.

A second goal is to describe our view of the process of implementation of quality improvement interventions in the VA system. While several models describe the process of implementation in general, we feel there is a need for a VA specific model that outlines the common facilitators and barriers that may be unique to the VA. We feel this is a useful adjunct to the Implementation Guide available on the QUERI website which provides tools for implementation and discusses several theoretical models used by other QUERI investigators.

Finally, we discuss how our view of VA specific implementation fits with existing theories, in particular Roger's Diffusion of Innovation Theory and the Promoting Action on Research and Implementation in Health Services (PARIHS) framework. We discuss

how these fit with our goals for implementation science. Others have noted that QUERI has moved ahead in implementation science but has lacked in sharing their knowledge with others outside the VA (3). It is our goal with this document to make more explicit CHF QUERI's approach to implementation.

### **First and Second Order Implementation Research**

Implementation can be considered broad (implementation of new evidence) or specific, (implementation of clinical reminder to increase use of a particular drug). While many conceptual frameworks have taken the broad view (PARIHS) we feel the process is clearer if broken down into stages of implementation. The process begins after new evidence has been created for a treatment or diagnosis. An example is a large randomized trial of Drug A for patients with heart failure that demonstrates a mortality benefit. The first stage is for research and clinical leaders to recommend Drug A through published guidelines. For those treatments lacking a recommendation from a reputable guideline, one should reconsider the value of efforts at implementation. Once a formal recommendation is made by a reputable guideline, health services research (HSR) interventions can be used to facilitate adoption of Drug A. Examples of these HSR interventions include: passive distribution of literature, clinical reminders in the medical record, audit and feedback programs, and pay for performance (both to the provider and the Director of the facility). Development of these interventions is traditional health services research. They are best evaluated in randomized trials which can be thought of as **first order implementation research**.

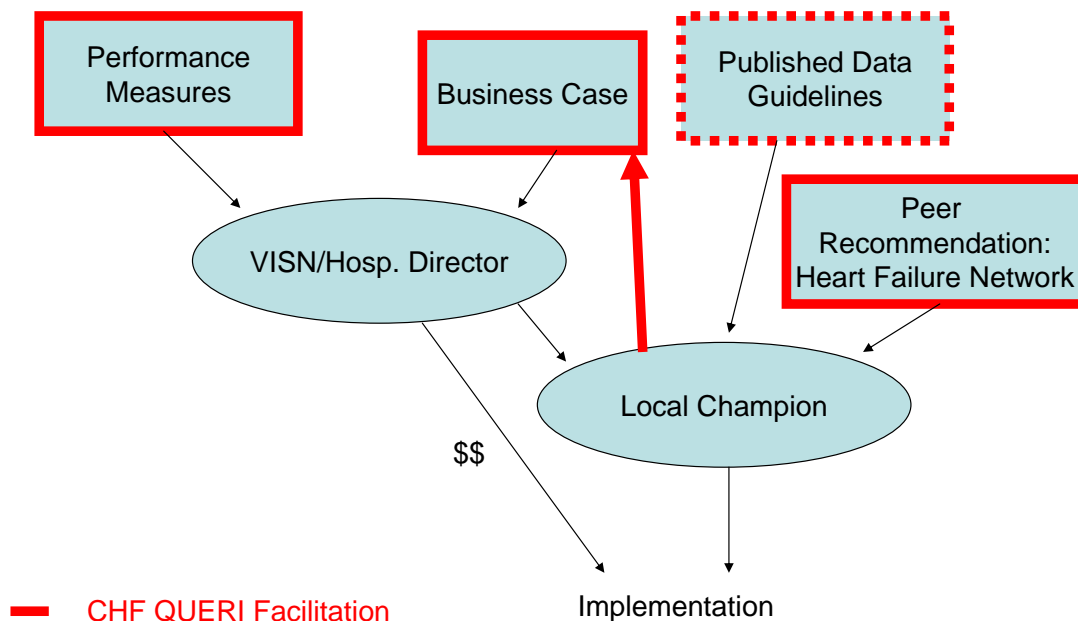
Understanding the process leading to adoption of an HSR intervention (e.g. a clinical reminder to increase use of Drug A) by a facility or other target can be considered **second order implementation research**. Traditionally, this type of implementation research has not been conducted using randomized trials. Instead, evaluations have been performed during or following implementation (often without a control group) and the information is then used to for future interventions (process evaluation) or to modify the current intervention while it is being implemented (formative evaluation). While this research methodology has been the tradition, we believe controlled trials, including randomized trials should be used whenever possible for evaluating second order implementation efforts.

While QUERI centers may play a part in synthesizing evidence and creating guidelines (steps 1 and 2), we feel the primary role of QUERI should be to identify or develop specific health services interventions (first order implementation research) and understand the process of implementation in the VA system (2<sup>nd</sup> order implementation research).

**Conceptual Model of VA Implementation for Heart Failure**

Our model of VA implementation focuses on heart failure (**Figure 1**). It was developed using comments from multiple facility leaders, providers, and administrators from VA Central Office.

## VA CHF QUERI Implementation Model



**Figure 1.** Conceptual model of implementation of heart failure related interventions within the VA system is shown along with the areas of facilitation by CHF QUERI. A key component is the Heart Failure Network which will serve to educate providers on successes and barriers at other facilities. Other impacts of CHF QUERI include the creation of quality indicators/performance measures and the development of the business case for each intervention, both general and individualized for the institution.

The model describes the facilitators and potential barriers to care. For any given intervention it is obvious that funding will act as a facilitator or barrier depending on the amount. A local champion is also a major facilitator for local implementation. This champion will be directly influenced by her/his superior (Facility Director), peers, and available data including guideline recommendations. In turn the Director is influenced primarily by established performance measures and funding. If an intervention is expected to be cost-savings, or to positively impact one or more performance measures, it will have the support of the Director. If not, a business case will need to be highly persuasive. CHF QUERI can impact implementation through multiple mechanisms. The Heart Failure network (described below) that CHF QUERI created can serve as a source of peer recommendation. CHF QUERI can help individual champions develop a business case for their center. To be successful it is important to understand an organization's readiness for change. As pointed out by Greenhalgh (4) there is relatively little systematic research on the development of readiness for change (i.e., the steps and organization can take to assess and anticipate the impact of an innovation), as well as sustainability (making an innovation routine until it reaches obsolescence). In terms of top-down facilitation efforts, CHF QUERI is working with the Office of Quality and Performance to advise them on development of future performance measures for heart failure care.

### **VA Specific Model and Prior Theories and Frameworks**

Our conceptual model of implementation for the VA (**Figure 1.**) incorporates the elements of the **Promoting Action on Research Implementation in Health Services (PARIHS) Model** (5,6) and **Rogers' Diffusion of Innovation Theory** (7). Specifically, implementation is explained as a function of a dynamic, simultaneous relationship between evidence (research, clinical experience and patient preferences), context (culture, leadership and measurement) and facilitation (characteristics, role and style). Kitson, Harvey and McCormack (5) suggested that the most successful implementation occurs when evidence is robust, the context is receptive to change and where the change process is appropriately facilitated.

Evidence for effectiveness is crucial for provider (and local champion) acceptance, and development of performance measures, while evidence for cost-effectiveness (a

component of the business case) will be needed for acceptance by the medical center Director. The creation of the business case requires knowledge of the local organizational context or environment and will vary depending on the complexity and cost of the intervention. CHF QUERI will facilitate implementation of optimal heart failure care through development and promotion of appropriate performance measures (e.g. for beta-blockers or aldosterone antagonists), promotion of heart failure guidelines and peer recommendations through the VA Heart Failure Provider Network, and development of the business case for each intervention (external facilitation). Members of the HF Network act as “internal facilitators” who influence other providers at their facilities.

### **The Heart Failure Network and Diffusion of Innovation**

In July 2006, the CHF QUERI formed the Heart Failure Provider (HF) Network which, in the model (**Figure 1**), fills the role of peer recommendation. Formation of the HF Network is based in part on **Rogers’ Diffusion of Innovation Theory** (7). Rogers defines **innovation** as an idea or practice that is perceived as new by individual or a unit of adoption. **Diffusion** is seen as spread of ideas by individuals, largely by imitation. It involves the social system which has a direct effect on diffusion through its norms and other system-level qualities, as well as an indirect influence through the behavior of its individual members. **Opinion leaders** through informal leadership influence other individual’s attitudes or overt behavior. They serve as a model for innovation behavior of their followers. According to Rogers, the opinion leaders are unique and occupy an influential position in their system's communication structure and are center of interpersonal communication within the network. Change agents often use opinion leaders in a social system as their “lieutenants” in diffusion activities.

Mittman and colleagues (8) have also focused on social influence describing it as the process in which “the behavior of one person has the effect or intention of changing how another person behaves, feels or thinks about something” (9). They state that compared to traditional models of practitioner behavior, the social influence perspective includes decisions, actions and behavior that are often not influenced by cost/benefit evaluations of alternative actions relative to explicit goals, but instead are guided by habit and custom; by assumptions, beliefs and values held by peers; and by prevailing practices and social norms that define appropriate behavior.

While the HF Network is not yet self-sustaining, CHF QUERI's facilitation has led to current membership of over 510 multidisciplinary providers from 155 VA facilities.

**Future work: Implementation Science Goals.**

CHF QUERI's ten implementation science goals listed below are also stated in our Strategic Plan. The goals include a better understanding of how evidence is viewed by VA providers, how facility characteristics (context) impact implementation of heart failure interventions, the ability to identify and activate opinion leaders to improve care, and the use of a network of heart failure providers (the VA HF Network) to improve care.

The goals listed are designed to fit with planned implementation projects. The implementation projects are chosen based on our primary QUERI goals (e.g. reducing admission rates), and sub-projects relating to implementation research are then designed to meet one of the 10 implementation science goals within **Table 1**.

**Table 1. Implementation Science Goals**

<b>CHF QUERI Implementation Science Goals</b>			
<b>IS Goal</b>	<b>Description</b>	<b>Number of Projects Related to the Goal</b>	<b>Time Frame</b>
<b>Evidence</b>			
Goal 1	Improve our knowledge of the relative importance to providers of published guideline recommendations and VA performance measures in the adoption of life-prolonging therapy for heart failure in the VA system.	5	1-2 years
<b>Context</b>			
Goal 2	Determine the characteristics of the heart failure programs (structural, leadership, personnel and resources) that act as barriers or facilitators to implementation of evidence based practices.	3	1-2 years
Goal 3	Understand how characteristics of the patient (e.g. disparities), provider, facility and VISN characteristics (e.g., structural, leadership, interpersonal) influence the use of evidence based treatments for heart failure.	3	1-2 years
<b>Facilitation</b>			
Goal 4*	Evaluate the effectiveness of a community/network of heart failure providers in facilitating implementation of evidence based strategies.	3	1-2 years
Goal 5	Understand the effectiveness of the My-HealthVet platform to improve knowledge and self-management of patients with heart failure and their caregivers.	>5	3-5 years
Goal 6	Understand the effectiveness of national campaigns (e.g. 5 Million Lives Campaign, Hospital to Home Initiative, both by the Institute for Health Care Improvement) to impact VA care.	3	3-5 years

Goal 7	Test specific facilitation interventions in: Goal 7a. Randomized designs	>5	3-5 years
	Goal 7b. Non-randomized designs		
Goal 8	Understand the costs and cost-effectiveness, and business case of different implementation interventions for evidence based heart failure treatments.	3	3-5 years
Goal 9	Determine facilitators and barriers of implementation of appropriateness interventions (eliminating non-recommended care) and see if these differ from those for traditional quality improvement strategies (increasing recommended care).	1	3-5 years
Goal 10*	Understand the impact of opinion leaders on implementing evidence-based practices in the VA.	2	3-5 years

\* addresses Diffusion of Innovation Theory by Rogers.

The CHF QUERI has an implementation research portfolio that covers a broad spectrum of implementation science (IS) goals and sub-goals. All 10 goals and their sub-goals cover the 4 phases of implementation ranging from pre-implementation, clinical research, and mainstream health services research, implementation research and implementation policy as well as the six-step QUERI process model (referenced in the CHF QUERI Strategic Plan).

### **Opinion Leaders**

One of our next efforts for understanding and improving the Heart Failure Network is to identify and hopefully influence VA clinical opinion leaders as part of implementation of the Hospital-To-Home (H2H) Initiative of the Institute for Health Care Improvement and the American College of Cardiology (details provided in the CHF QUERI Strategic Plan). Grimshaw et al (10) have stated that the concept of opinion leadership has a good theoretical basis and strong face validity. CHF QUERI plans to use the HF Network to identify such opinion leaders at each facility. Providers who are opinion leaders at a facility can exert tremendous influence without having a formal position or status in the



system; rather by their own technical competence, social accessibility, and conformity to the system's norms.

### **Summary**

In summary, we have described CHF QUERI's view of implementation and implementation research within the VA. We have noted our VA model for implementation and how it relates to other frameworks of implementation. Finally we have provided our goals for implementation science including our aim to test our VA model of implementation whenever possible. While we do not believe our model will fit all implementation scenarios it has been useful to us as we pursue our implementation efforts with the VA Health Care System.

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