Original Work

Application of Dissemination Science to Implement Interprofessional Telehealth Visits for Veterans

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Abstract

VA Video Connect (VVC) is a national initiative by the Department of Veterans Affairs (VA), developed to improve access to care for veterans, using a video-based telehealth modality. This initiative is crucial for providing access to high-quality care for veterans living in rural communities with long drive times to VA facilities, and is even more important in light of the COVID-19 pandemic. Despite the benefits of the initiative, site-specific challenges to VVC implementation exist. This evaluation uses core tenets of dissemination and implementation (D&I) science, specifically the Replicating Effective Programs (REP) model, to determine barriers to and facilitators of VVC implementation at a VA clinic in Madison, Wisconsin. Through analysis of VVC implementation, the evaluating authors designed a training package for clinicians, aimed at increasing VVC use during care transitions for veterans. Knowledge gained from expanding VVC has the potential to be applied to other sites across the VA and the private sector to design training aimed at addressing local challenges to telehealth implementation. With the COVID-19 pandemic impacting the way care is delivered, this evaluation provides a case example of how dissemination science can be used to promote adoption of telehealth best practices.

Telemedicine presents an opportunity to increase access to care for patients, especially rural Americans who are on average older, sicker, and poorer than their urban counterparts.[1,2] Among the nation's aging Veteran population, two in five Veterans Affairs (VA) health care enrollees currently reside in rural areas, and on average 45% of Veterans living in areas classified as "highly rural" travel more than an hour to get to their nearest VA facility.[3] As the largest integrated health care system in the United States, the VA provides care to at least 2.7 million rural Veterans, and telemedicine can offer unique advantages to further enhance care provided to Veterans across the country.

VA Video Connect (VVC) is a national initiative that has been developed to promote video-to-home telemedicine.[4] Veterans enrolled in VVC use a personal computer, tablet, or smartphone from their home to connect with VA care teams over a secure, live video session using the VVC application. The VVC telehealth initiative was designed for Veterans with geographical limitations to healthcare access, those who lack time to regularly attend in-person appointments, or those who do not require hands-on physical examination.[4]

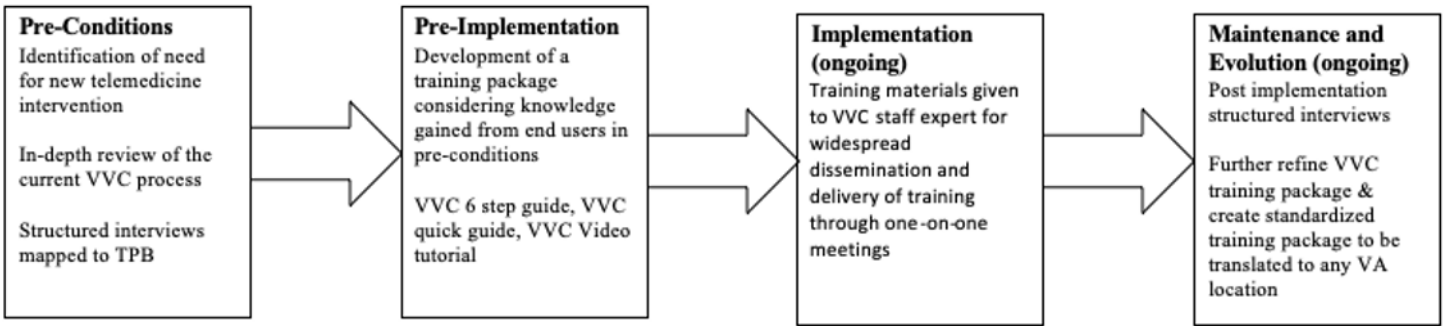
On March 11, 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as a pandemic. In response, healthcare systems needed to explore alternative strategies for providing care, to help reduce the risk of transmission of the virus. For healthcare systems without integrated telemedicine, the COVID-19 pandemic is a call to action to adopt the necessary framework to support adoption of telemedicine modalities.[5]

In Wisconsin, there are currently 38 VA outpatient clinics that serve 700,000 Veterans receiving care across the state.[6] This evaluation identifies some unique challenges and opportunities for VVC implementation at one VA outpatient clinic in Wisconsin, with the goal of developing a training package to address challenges that affect VVC use. This clinic location serves on average 11,400 Veterans annually, presenting an opportunity to positively impact care for a large Veteran population locally.[7]

While VVC holds great promise to improve Veteran access to care, opportunities exist to improve Veteran enrollment in the program. Authors used core tenets of Dissemination and Implementation (D&I) science, which is defined by the National Institutes of Health as "the effective delivery of proven clinical interventions within clinical practice."[8] D&I science has emerged over the past 25 years as a growing field of study that examines the process by which scientific evidence is adopted, implemented, and sustained in a setting.[9] VVC expansion is an ideal initiative wherein to incorporate D&I science principles. This evaluation applied the Replicating Effective Programs (REP) framework, which is a D&I science framework initially adopted by the Centers for Disease Control and Prevention (CDC) for human immunodeficiency virus (HIV)-related interventions.[10]

On average, it takes 17 years for best practices to be translated into interventions that benefit patients.[11,12] This research-to-practice gap illustrates the challenges that exist in spreading best practices, and arguably, a similar gap exists for expansion of telemedicine services across the United States. It has been demonstrated that D&I

FIGURE 1. This figure outlines the Replicating Effective Programs (REP) process as it can be applied to health care interventions for expanding VA Video Connect (VVC) utilization



science, which promotes systematic uptake of research findings into routine practice, plays a crucial role in supporting these efforts.[12] The VVC process outlined in this manuscript is a quality improvement initiative, demonstrating how principles from D&I science can be leveraged to (1) identify barriers to and opportunities for VVC expansion and (2) design a training package that best meets the needs of VVC end users. Such an approach can be replicated at other medical centers across the VA and private sector to incorporate best practices into routine clinical care.

Methods

The REP framework includes four specific components: (1) pre-conditions, (2) pre-implementation, (3) implementation, and (4) maintenance/evolution (Figure 1). The pre-conditions phase aims to identify the needs of the project by completing an in-depth review of current VVC processes, and interviews to identify key barriers and effective interventions that can be used to implement this best practice. Pre-implementation incorporates the knowledge gained from the pre-conditions phase to develop a training package to fit the local setting where the intervention will occur. The implementation phase is where training and materials are distributed to support the desirable practice change. The final phase of the REP framework, maintenance/evolution, is designed to better understand the effectiveness of the training program, as well as how future training can be modified for future implementation work. This evaluation specifically considers the first two components of the REP framework (pre-conditions and pre-implementation) as an approach to develop, implement, and evaluate a training package for interprofessional clinicians who are tasked with adopting VVC. Using the REP framework in training design is intended to keep in mind specific barriers learners have identified, and serves as a case-study example for how D&I science can be applied to incorporate best practices.

Pre-Conditions: Identify barriers to and interventions for VVC expansion

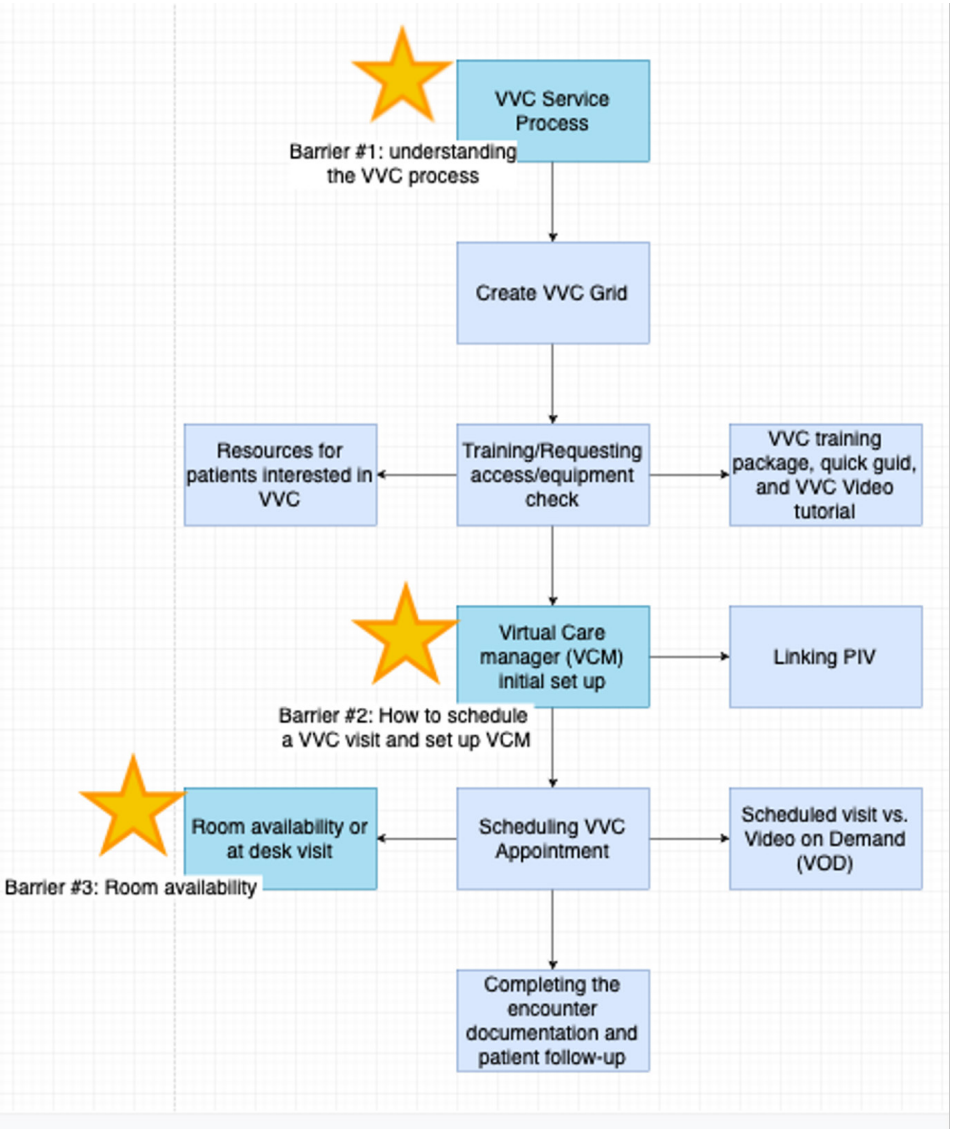
During the pre-conditions phase, the authors first considered barriers and facilitators to VVC expansion within the local setting where the intervention will occur. The authors used a mixed-methods approach, including direct-observation, mapping of the VVC process, structured interviews with clinic staff, and a brief pre-conditions questionnaire. These questionnaires were used to obtain staff input on further VVC incorporation and ideas for quality improvement initiatives. Structured discussions consisted of individual meetings with nurse care managers (RNCM) and clinical pharmacy specialists (CPS) practicing in the clinic. Staff members provided an in-depth explanation of the current VVC process and access to resources for VVC use.

The Theory of Planned Behavior (TPB) was used to guide the design of six questions on the pre-conditions questionnaire (Table 1), aimed at better understanding clinicians' perspectives on VVC.[13] The questionnaire included six fixed-choice items where clinicians ranked their confidence performing elements of the VVC process, using a seven-point Likert scale. In addition, clinicians were asked three free-response questions. The authors used the TPB

TABLE 1. 6-item questionnaire mapped to the Theory of Planned Behavior (TPB). Clinicians ranked their confidence performing elements of the VA Video Connect (VVC) process using a seven-point Likert scale. (1=Very low confidence, 7= Very high confidence) The TPB elements are shown in italics.

Structured Interview Question mapped to TPB Element	*Mean*	*Median*
I am confident that I can easily complete all steps necessary to coordinate a VVC visit *(Perceived behavioral control)*	4.47	5
Many of us at the clinic are having difficulty increasing VVC utilization *(Subjective norm)*	4.94	6
My team and colleagues are supportive of me completing VVC visits *(Subjective norm)*	6.25	7
I intend to increase VVC visit utilization over the next 6 months despite potential challenges *(Intention)*	5.06	6
I will be just as effective serving Veterans during VVC visits as during face to face encounters *(Attitude)*	5.59	6
Our Veterans would benefit from receiving care using VVC *(Attitude)*	5.94	6

FIGURE 2. Process map designed to gain clear understanding of VA Video Connect (VVC).



Stars indicating the top three barriers to implementation and facilitation. This process map was simplified for the purpose of widespread dissemination.

because it focuses on respondents' attitudes, confidence, and beliefs. Three evaluation team members reviewed notes from discussions and reconciled discrepancies to determine the final, overarching themes clinicians had described. These themes, which focused on the barriers and facilitators to the VVC process, were then added to the developed process map to gain a clearer understanding of where challenges and opportunities might occur during training development (Figure 2).

Pre-Implementation: design a training package that best meets the needs of VVC end users

The second phase of the REP framework, pre-implementation, involved the development of a training package designed to address the barriers and facilitators detailed in the first phase. This training package was shared with CPSs and RNCMs at the clinic for feedback.

Expert Recommendations for Implementing Change (ERIC) strategies were also considered, to ensure that dissemination science approaches were being used to guide training package design.[14] ERIC strategies are "methods or techniques used to enhance the adoption, implementation, and sustainability of a clinical program or practice." The ERIC strategies that were heavily emphasized include (1) make training dynamic (2) identify early adopters and (3) shadow other clinicians.[14] These ERIC strategies helped develop a training that is informed by the clinician team and enjoyable to view.

Results

Pre-Conditions

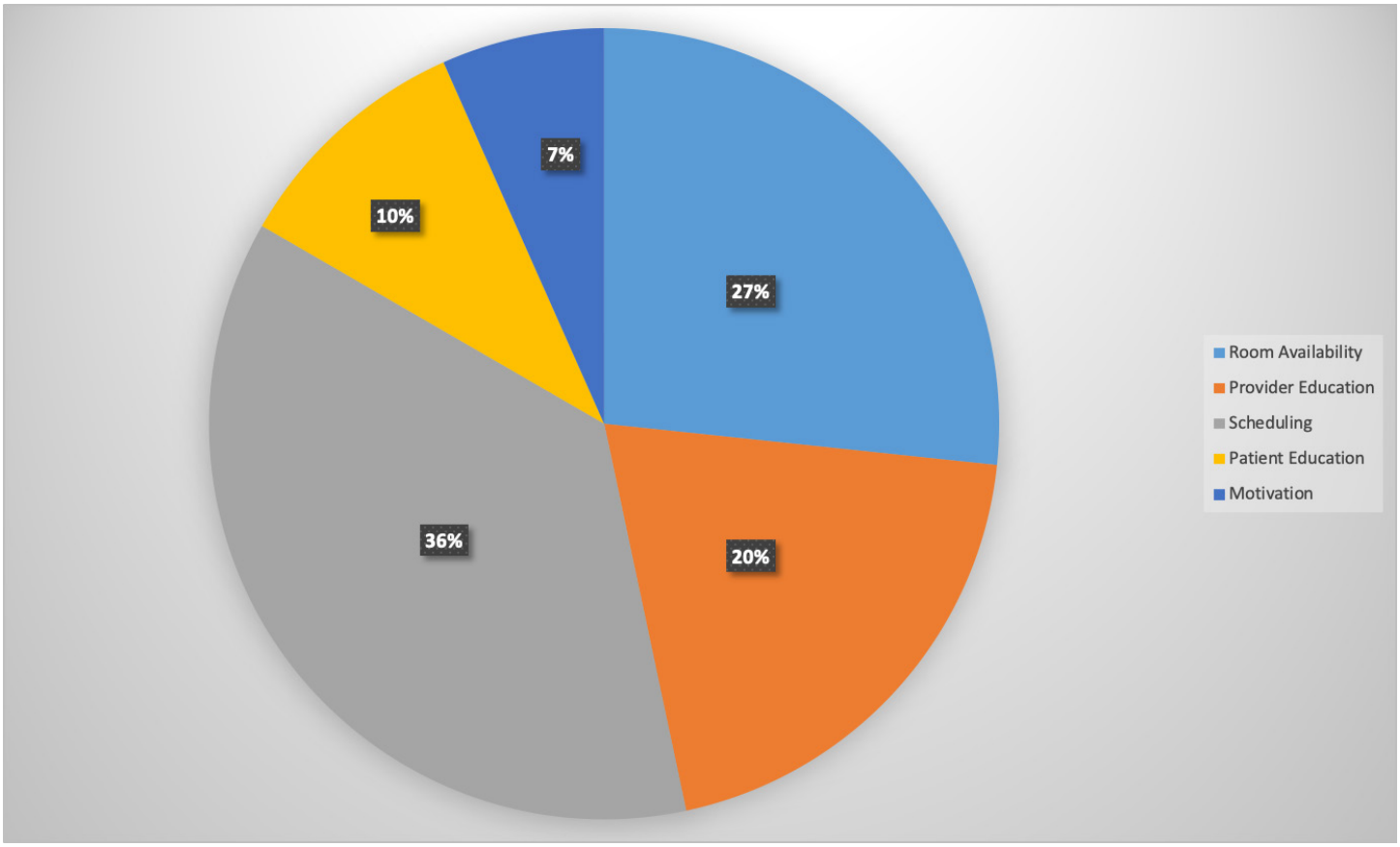
Seventeen clinicians, including both CPSs and RNCMs, were available to discuss the VVC process and completed the pre-conditions questionnaire. Clinicians had on average 13.5 years of practice experience and had variable experience completing VVC visits. The top barriers to VVC use identified through survey analysis is shown in Figure 3, and included: visit scheduling (36% of the respondents); space for visit completion (27% of respondents); and complexity of the current VVC process (20% of respondents). Clinicians who had completed prior VVC visits indicated that their largest use of VVC was for diabetic care (33%), followed by medication management (20%) and hypertension management (20%).

Results from the pre-conditions questionnaire showed an average of 0.35 VVC visits for every 10 patients seen in-clinic, per clinician. Clinicians, however, believe that on average 2.3 of every 10 patients would benefit from a VVC visit. On the Likert scale, providers responded with the least confidence to "I am confident that I can easily complete all steps necessary to coordinate a VVC visit." This question had a wide range of responses, with an average score of 4.47 out of 7. The highest Likert scale item, where providers felt most confident, was "My team and colleagues are supportive of me completing VVC visits," with an average score of 6.24 out of 7.

Pre-Implementation

Using information from the first phases, the authors created training materials: (1) VVC Quick Guide, (2) VVC Step-by-Step Guide, and (3) VVC Video Tutorial. Materials were reviewed and approved by key clinician stakeholders. The VVC Quick Guide is an accessible quick reference, detailing how to access training documents, troubleshooting resources, a brief overview of the VVC visit, and help desk support information (Box 1). The VVC Step-by-Step Guide is a compilation of all VVC training information. It includes information on requesting access to equipment, scheduling

FIGURE 3. Current VA Barriers for Providing VVC. Pie graph depicting provider-identified barriers (n=17) for VA Video Connect (VVC) utilization.



an appointment, successfully completing a visit, and troubleshooting resources. Lastly, the 10-minute VVC Video Tutorial is a visual version of the information in the Step-by-Step Guide.

There were varying viewpoints among clinicians, in that some felt comfortable providing VVC visits from their desks, while others felt this could be distracting due to background noise. The team proposed encouraging and allowing VVC visits to be completed at clinician's desks, to help reduce the need for clinic room availability (one barrier to VVC use). In addition, the authors developed a new workflow for requesting room access when scheduling a VVC visit, for those clinicians who still wish to use a clinic room.

Discussion

This case study presents an example of how D&I science can be leveraged to identify barriers to and opportunities for the expansion of a best practice, with the design of a training package to best meet the needs of VVC end users. Using the REP model as a guide, we found that the key barriers to implementing VVC were scheduling, room availability, and understanding the VVC process. Training package development was guided by addressing each of these barriers.

VVC Process Understanding

It was clear from clinician feedback that the process of scheduling a VVC visit can be complex. Through discussions with early adopters of VVC, the authors discovered which current processes are successful, and where issues needed to be addressed. The different modalities of training materials (guides and video) were intended to fit the varying learning styles of clinicians just beginning the VVC process. Box 1 outlines the six step process for VVC scheduling"

The authors found that clinicians were motivated, and wanted to use VVC. In the preconditions survey, providers thought there was much more value that patients could get out of VVC delivery than what was currently being delivered.

The need for VVC and telemedicine has been amplified during the COVID-19 pandemic. VVC and telemedicine tools require proper training, and without this, it is difficult to get buy-in from staff. D&I science helps identify evidence-based interventions that can be successfully adopted, implemented, and maintained in a health care setting with the ultimate goal of caring for patients. This same approach can be replicated at other medical centers across the VA and private sector to increase the spread of this best practice.

Limitations

One clinic location was selected for this evaluation, rather than multiple, to help better understand the unique challenges and opportunities that exist in implementing VVC, with the goal of tailoring a training package to address this clinic's specific work processes. It is not currently known whether the training materials created during this study would fully translate to other locations. Due to the fact that VVC

is part of a national mandate currently being implemented by the VA, some of the developed training materials might be applicable at other VA facilities. Without an understanding of the differences in workflow, staff behavior, and VVC processes at different VA locations, it remains unclear how this training might need to be adapted to fit other settings.

This evaluation was completed during one academic school year. The exact amount of time spent in the pre-conditions and pre-implementation phases was not collected by the authors. Limited time and/or personnel to complete similar initiatives could be potential barriers to widespread dissemination.

Future Directions

Implementation, Maintenance & Evolution

With the effort to expand care to Veterans who are living in rural settings, the training materials were provided to VA staff for widespread dissemination, via one-on-one meetings with CPSs, RNCMs, medical scheduling assistants, and other clinicians. One-on-one training allows for a deep dive into the VVC process, addresses the individual concerns of the trainee, and makes space for technical assistance.

Pre-conditions & Pre-Implementation

Using a well-established telemedicine modality will continue to be a best practice moving forward. The D&I science framework can be applied at other medical centers across the VA and private sector to better understand barriers and facilitators that exist at that location. For future expansion to other outpatient clinics within the VA, a similar process should be considered, since it is likely that unique barriers might exist at each clinic location; retrospective analysis of multiple locations could lead to the creation of one single training package within a health system.

Conclusions

The REP framework can be used to design and evaluate user-centered training for expansion of the VVC telemedicine services within the Department of Veterans Affairs. The knowledge gained from this evaluation, as well as the approach taken by the authors to expand patient reach using telemedicine, has the potential to be applied to other areas of practice to expand telemedicine opportunities. Opportunities exist to further explore the application of D&I science to spread innovative telemedicine services across VA facilities.

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BOX 1: VA VIDEO CONNECT (VVC)

VA Video Connect (VVC) quick guide outlines the six step process for VVC scheduling:
https://qrco.de/bbT6MN