Implementation and Evaluation of Referral System Between Carilion Healthcare System and Virginia Cooperative Extension for Balanced Living with Diabetes Program

Laura Reasor

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Dr. Carlin Rafie, Committee Chair

Dr. Madlyn Frisard

Kim Butterfield

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Abstract

The purpose of this project was to implement and evaluate a pilot referral process between Carilion Healthcare System and Virginia Cooperative Extension for the Balanced Living with Diabetes Program. Both institutions expressed interest and need for this system, and the Plan, Do, Study, Act tool was utilized to carry this project. Through the creation of a core team from both institutions, with communication via email and virtual meeting platforms, a compliant fax referral form was developed to relay referral information and to achieve synergy across both the healthcare and community organizations, with the goal of developing a model that would increase access and utilization of community-based services by individuals who have a type 2 diabetes diagnosis. This pilot referral process was conducted from March – July, 2022 with multiple programs in place for implementation. During the mid-project review, no referrals had been received. In response to no referrals, program rack cards were then distributed to two Carilion Family Medicine Practices as an additional strategy for referrals. Overall, the limited timeframe for this project was a barrier for complete facilitation. Both institutions worked well together in this pilot study and plan to continue the referral process after the completion of this project.

Acknowledgements

First, I would like to thank Virginia Cooperative Extension for this opportunity to continue my education. I would also like to thank my advisory committee, including Renee Beirne, for assisting and guiding this project. Lastly, my utmost gratitude goes to my family, who has supported me through this journey, just like every journey I embark on.

Table of Contents

Introduction

Background and Setting

Overall health needs include more than just traditional health care in hospitals and private practices. There are many factors that affect the health of individuals and their communities that include, but are not limited to, where people reside, work and play, in addition to their personal genetics and behaviors (WHO, n.d.). These factors can contribute to availability of full-coverage insurance, specialists, and wellness centers. In respect of health, the rural population consistently experiences more health disparities than the urban population Limited access to health care in rural areas is generally associated with the fact that there are fewer providers (Georgetown University, n.d.).

According to the Centers for Disease Control, more than 37 million Americans have diabetes (about 1 in 10), and approximately 90-95% of them have type 2 diabetes. Diabetes is the 7th leading cause of death in the United States and in the last 20 years, the number of adults diagnosed has doubled as the American population has aged and become more overweight and obese (CDC, 2021). According to the American Diabetes Association, the total estimated cost of diagnosed diabetes was $327 billion, which includes $237 billion in direct medical costs and $90 billion in reduced productivity in 2017. The majority of these figures are attributed to hospital inpatient care, and prescription medications to treat complications resulting from diabetes. On average, those with diagnosed diabetes have medical expenses approximately 2.3 times higher than those without. People with Type 2 diabetes without health insurance have 60% fewer physician visits than those with insurance, but have 168% more emergency department visits

(American Diabetes Association, 2018). In respect of rural areas, diabetes prevalence is approximately 17 percent higher than urban areas (Bolin & Ferdinand, n.d.). In response to the numbers around this chronic disease, community organizations have set out to address this concern.

The Office of Disease Prevention and Health Promotion (ODPHP) manages Healthy People 2020, a science-based agenda for 10-year national objectives for improving the health of all Americans. It has established benchmarks and monitored progress to encourage community collaboration, empower individuals to make informed health decisions, and measure the impact of prevention activities. It is noted that health and quality of life rely on several systems of community and not simply a health system (Office of Disease Prevention and Health Promotion, n.d.). Making changes within these existing systems can improve the health of the community.

According to the Centers of Disease Control (CDC), multiple barriers pose challenges for rural residents to access and use reliable health services, including locality, distance, weather, lack of financial resources, and specialty health care services. When compared to urban residents, rural residents have higher all-cause mortality rates, higher rates of premature morbidity and mortality, lower access to preventive health care services, and are more likely to engage in unhealthy behaviors (CDC, 2017). Community-based preventative and support services play an important role in these communities.

Statement of the Problem

Virginia Cooperative Extension (VCE) is committed to providing access to innovative services to residents of the Commonwealth (Extension Agent, Family and Consumer Sciences, n.d.). Family and Consumer Science programs provide valuable disease prevention and management programs that can support the efforts of community healthcare organizations. A system for bi-directional communication between primary care and community education was needed to link patients within healthcare networks to VCE community programs.

Purpose of the Project

The aims of this pilot project were to develop an electronic referral process to link individuals with type 2 diabetes who utilize Carilion healthcare services to a community-based health program offered by Virginia Cooperative Extension, the Balanced Living with Diabetes (BLD) program, and to evaluate the efficacy of the process for future utilization.

Project Objectives

This project evaluated the process of development and the effectiveness of a pilot referral system that links the delivery of diabetes education between a local healthcare system (Carilion Clinic) and Virginia Cooperative Extension. The focus of this proposal is to evaluate the process and outcomes of the development of a referral system to achieve synergy across the healthcare and community health organizations, with the goal of developing a model that increases access and utilization of community-based services by individuals who have a diagnosis of type 2 diabetes.

This project: 1) initiated conversation and documentation of meetings with community care managers and VCE Agents to outline the referral process needs, 2) developed a referral

process to electronically link type 2 diabetic individuals who have been identified to benefit from lifestyle change education with a scheduled BLD program in their community, and 3) evaluated the effectiveness and acceptability of the referral process from the perspective of both organizations.

Review of Literature

Virginia Cooperative Extension (VCE) helps lead the community engagement mission of Virginia Tech and Virginia State University, the Commonwealth's land-grant universities. This is accomplished by building local relationships and collaborative partnerships to help put scientific knowledge to work through learning experiences that improve economic, environmental, and social well-being (Mission and Core Values, 2014). Part of VCE includes Family and Consumer Science (FCS) Agents who plan, deliver, and evaluate research-based educational programs tied to the needs of the community and directed towards families and individuals (Extension Agent, Family and Consumer Sciences, n.d.). Programs have been developed around diabetes prevention and management to enhance this mission. There is an Extension service located in over 3000 counties in the United States, demonstrating that a referral system can be highly favorable in assisting individuals managing diabetes (Cooperative Extension History, n.d.).

A lifestyle management program, called Balanced Living with Diabetes (BLD), is a group-based program delivered by community-based educators, such as VCE FCS Agents. This program is grounded in social cognitive theory and has shown efficacy to modify dietary and physical activity behaviors and self-efficacy that improve glycemic control in participants with type 2 diabetes. Each class includes an interactive presentation, a food demonstration, and

personal goal setting, sharing, and practice. The program is conducted with a registered dietitian (RD) or certified diabetes educator (CDE) from the community, along with the FCS Agent (Rafie et al., 2021).

The BLD program has been successfully disseminated through VCE, and has shown efficacy in increasing diabetes knowledge and improvement in lifestyle management of the disease. In a study by Rafie et al. (2021), rural counties in Virginia were targeted for the dissemination of the BLD program to evaluate the program outcomes over a two-year period. There were 30 programs delivered, reaching 290 individuals. As a result, there was a significant increase in diabetes and food knowledge, fruit, vegetable, and whole grain intake, as well as diabetes self-management efficacy. It was also noted that A1c levels of the participants decreased significantly for those with diabetes (Rafie et al., 2021).

Linking Healthcare and Community Services

Collaborations between clinical, community, and public health organizations offer a win-win opportunity for organizations, clinical teams, and patients (Agency for Healthcare Research and Quality, n.d.). In 2019, the Center for Health Care Strategies conducted a national scan of partnerships between healthcare and community-based organizations to develop a series of tools that examine the components of successful partnerships. From this scan, partnership models, shared goals, agreements, and philanthropy played significant roles as tools in the success of these partnerships. Effective referral systems from health care facilities to communities are essential to save lives and ensure both the continuum and quality of care (Give et al., 2019).

As health care and social services organizations ultimately share the same goal in developing a healthy population, a project titled "*Partnership for Healthy Outcomes"* was designed in 2017 by the Center for Health Care Strategies (CHCS) to uncover successful key characteristics of cross-sector collaborations between health care organizations and community-based organizations, specifically those that serve low-income/vulnerable populations. This project included a national request for information to identify promising partnership models and better understand the challenges in building successful partnerships. Over 200 responses were collected, representing partnerships that served all 50 states. Of these responses, four detailed partnerships were analyzed into comprehensive case studies to delve more deeply into core partnership components. These four successful partnerships, as well as the other responses, revealed several success factors. These include: investing in relationships, engaging clients and other stakeholders in program design and management, build and support capacity of partners, share patient-level data, enhance outcome measurements, and sustain partnerships through in-kind contributions. These factors have been identified as necessary to create and spread successful partnerships (Supporting Health Care and Community-Based Organization Partnerships to Address Social Determinants of Health, 2019). This project supports the need to link health care organizations to community partners to enhance the lives of individuals and support the goals of each organization.

Mattessich et al., (2014) reviewed results from a 2013 national survey of practitioners in the community development and health fields that have produced health-promoting policies, systems, and environmental changes in communities. These organizations supported a vast spectrum of activities to address both social determinants of health and immediate community

needs. Of the 661 respondents, 297 reported that their initiatives had been successful and that their collaborations included direct service, promotion of policy change, infrastructure development, and education and awareness. For the topics related specifically to social determinants of health (access to health care, access to healthy food, high-quality early child care and education, opportunities for physical activity and active living, and promoting a culture of health and wellness), direct service was the most common strategy. This study showed that the collaboration produced positive measurable outcomes in many cases and supports the objectives of this project.

Models for Referral Systems between Healthcare and Community-Based Programs

In 2018, The National Recreation and Park Association created a guide called "*Increasing Referrals to Community-Based Programs and Services: An Electronic Health Record Referral Process"*. This guide was a result of a pilot implementation of an electronic health record (EHR) referral process to identify and refer individuals with arthritis from healthcare providers (HCPs) to evidenced-based programs offered through local parks and recreation. This referral system was implemented at two sites with 2,635 individuals referred. Their outcomes showed 696 individuals engaging in one or more programs (26% engagement rate). This system of referral showed positive outcomes between HCPs and community-based organizations when an EHR was used for referrals (Community Integrated Health, n.d.).

Salbach et al. (2018) conducted a study to understand the challenges and solutions to implementing a community-based exercise program (CBEP) for people with disabilities to help mitigate the negative consequences of balance and mobility limitations. The CBEP included a

healthcare-recreation partnership called “Together in Movement and Exercise (TIME)”. For this program, physical therapists train and support fitness instructors to deliver this program in community centers that are run by recreation organizations. This program involved a one-hour exercise class twice a week for 12 weeks. During a pilot study, the TIME model demonstrated safety, feasibility, and benefit. It was then facilitated over 28 community centers. 53 participating stakeholders provided feedback on program challenges to help inform the development of action plans to help implement and sustain the program. Their challenges in delivering the TIME program included cost and transportation for the participants, which were considered when planning new programs to make them more widely available. This study supports the partnerships between community and healthcare organizations to promote quality of life in the area, while identifying challenges for improvement.

A study by Give et al. (2019) explored barriers and enablers of referrals from health care facilities to a community in Mozambique. This study noted that the three stakeholders involved, clients/community members, community health workers (CHWs), and facility-based health care workers, were dependent on each other, which could present either a barrier or a facilitator of referrals. They conducted 22 interviews with CHWs, their supervisors, and community leaders and eight focus group discussions with 63 community members to understand their perspectives on the referral process. The common facilitator for this system was their referral slips used to expedite treatment. The slips allowed clients to be attended to at the health facility without following normal administrative procedures, such as registration. The slips were described as central to the referral system and to attract clients for continuation of care. With the same token, a barrier was the failure of those clients to receive preferential

treatment because of the referral slip. Their conclusion reported that improved communication and feedback between the stakeholders, along with active community engagement and feedback would be key to stimulate better referral services (Give et al., 2019).

A search of the literature did not find studies evaluating models for patient referral from healthcare providers to Cooperative Extension programs.

Framework for Project Implementation

This pilot project was conducted using the "Plan-Do-Study-Act (PDSA) Tool" (Figure 1) to implement and evaluate a referral system between Carilion Health System and Virginia Cooperative Extension. The PDSA Tool is used to create a plan to test a process (Plan), carry out the process (Do), observe and learn about the process (Study), and determine what changes should be made to improve the process (Act) (Institute for Healthcare Improvement, n.d.). Also known as the Deming Wheel, or Deming Cycle, it was first introduced to Dr. W.E. Deming by his mentor, Walter Shewhart of the Bell Laboratories (The Deming Institute, n.d.). It provides a structure for iterative testing of changes to improve quality of systems and is widely accepted in healthcare improvement (Taylor et al., 2014).

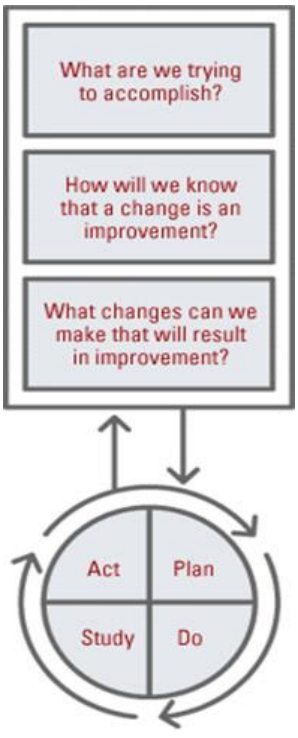


Figure 1 – Plan, Do, Study, Act Tool

During the “plan” phase, representatives from Carilion and VCE designed a referral process that they felt would work for both organizations. The process was implemented during the “do” phase, and outcomes were evaluated in the “study” phase. Finally, modifications to the process were recommended in the “act” phase.

Project Methodology and Design

This project followed the PSDA tool to collaborate on identifying the need for an electronic referral system, create and implement the system, evaluate the system once completed, and propose modifications to the system as appropriate. During the ‘plan’ phase, project team partners from VCE and Carilion met to create a referral system that is compliant for both parties during a month-long planning and meeting period. Once that system was approved by Carilion and the tools for its implementation were available, the system was implemented over a period of two months (‘do’ phase). Data was collected on the number of referrals received and successfully enrolled into the BLD program, and adjustments to the system were made as needed. Upon completion of the trial period during the ‘study’ phase, the partners reviewed the process and outcomes of the system and enumerated modifications to improve outcomes. A summary document of the process and outcomes, and recommendations for modifications to the system was created during the ‘act’ phase and provided to both partner organizations for future application.

All procedures related to the study were submitted for review and approval by Virginia Tech’s Institutional Review Board (IRB). A request for determination of not human subjects research was submitted and approved.

Project Evaluation

Data Collection

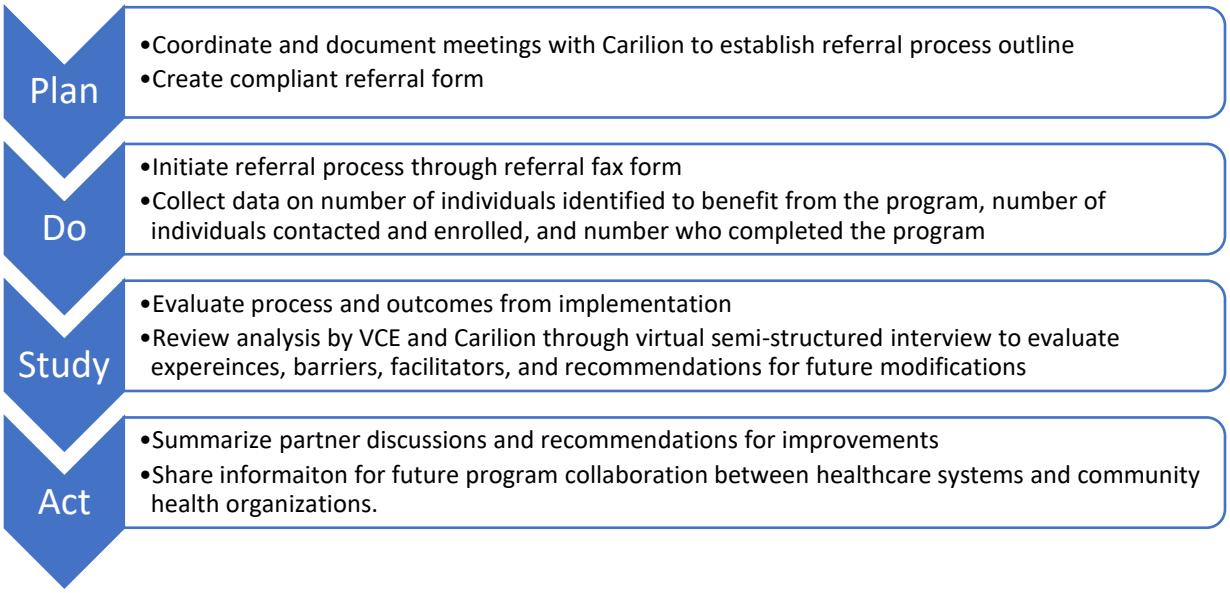
The PSDA tool guided the evaluation process (Figure 2). In the "plan" phase, data was collected from meetings between Carilion care coordinators and VCE to discuss referral processes that are HIPPA compliant to protect patient information. Meetings between the two parties were recorded through a virtual meeting platform to supplement notes collected during the meetings for future process evaluation. Attendance at the meetings were documented. The decisions made related to the system and process for patient referral, and the reasons behind those decisions were documented.

In the "do" phase, the referral process was initiated between Carilion and VCE. Data on the number of patients identified to benefit from the program and referred to VCE, the number contact by VCE and enrolled, and the number of those who completed the program was collected. Modifications to the system and the reasons for those modifications were documented.

In the "study" phase, information about the process and outcomes from implementation of the referral system was evaluated and a synopsis created. The analysis was reviewed by the VCE and Carilion partners during a semi-structured discussion conducted virtually to evaluate their experiences with the process, barriers and facilitators to referrals, and recommendations for modifications to the system. Notes were taken during the recorded discussion, and recordings were used to supplement notes for completeness.

Lastly, in the "act" phase, information from the partner discussion was summarized and recommendations made for improvements to the process, for ongoing referrals between the two institutions enumerated.

Figure 2



Data Analysis

The data collected from this project was utilized to adjust and create any necessary improvements and modifications to further implement and continue the referral process between Carilion Healthcare and Virginia Cooperative Extension. Data was evaluated for each phase of the PDSA framework (Figure 3). The data collected and method of analysis is outlined in Table 1. Qualitative data analysis was the primary method used to interpret patterns and themes of the process. Briefly, all meetings with the Carilion and VCE teams were recorded and notes were taken during the meetings. Immediately after each meeting, the recordings were used to supplement the notes to ensure that all pertinent information was captured.

Summaries of the major points of discussion and decisions made during these meetings were documented.

Data collected to evaluate outcomes of the "Do" phase were summarized and included the number of patients identified and referred by care coordinators, average time from referral to contact by the VCE contact, and enrollment and completion rate of referred patients in the BLD program. Any modifications to the systems were recorded, and information from correspondence, including email and phone conversations, were also documented and included in the summary document. Recordings and notes of the semi-structured discussion with Carilion included in the summary with key themes identified.

Data from the final meeting between VCE and Carilion project team members was used to create a synopsis of the teams' evaluation of the referral system and their recommendations for modification.

Figure 3 – Data evaluated through each PSDA phase

Cycle Stage	Data Collected	Evaluation
Plan	• Recordings and synopsis of team meetings • Referral compliance needs	• Decisions are made in the process • Reasoning behind decisions • Final proposed referral process
Do	• Number of patients identified and referred • Time of contact between referral and enrollment • Number of referrals enrolled in the BLD • BLD completion rate of referrals	• Program need, turnaround time, accessibility • Program retention
Study	• Process and outcomes from implementation	• Facilitators and barriers to referral process

	• Recording and notes of project team discussion	• Recommendations for improvement of referral process
Act	• Process and outcomes evaluations • Feedback from care coordinators	• Documentation of process and recommendations for future application

Summary of Outcomes, Discussions, and Recommendations

Project Outcomes

Plan Phase

Two meetings took place during this phase. The initial meeting between Carilion and VCE was held on March 24. Attendees included three representatives for the Carilion care coordination team (the Carilion Care Management Director (CCMD) and two care coordinator managers), three VCE representatives (the Family and Consumer Science Extension Agent serving two rural counties in the Carilion service area, an Extension Specialist, and an Extension Clinical Liaison), and a Carilion RD/CDE. The VCE team discussed the objectives of the pilot referral process with emphasis on the best mode of referrals that were compliant for both parties. Discussion was made between having referrals sent from physician offices or through care coordinators. The mode of referrals was discussed as well between Google Forms, email, electronic medical record referral, and a fax form. The attendees agreed that working towards a referral process between VCE and Carilion for patients with diabetes was a common goal. Next steps after the meeting were for the Carilion team to confirm compliance of a Google form for

referrals with their compliance team and communicate that information to the VCE team, as well as setting up a meeting with all care coordinators for VCE to discuss the BLD program.

After the initial discussion with the Carilion team, a meeting was scheduled on April 28 with the entire group of care coordinators during their regular weekly meeting. There were 40 individuals from Carilion present during this meeting, including the CCMD. Members from the VCE team present were the Extension Agent, the Extension Specialist, and the Clinical Liaison. The VCE team provided a presentation on the BLD program, which included a description of the program, supporting research studies on its effectiveness, and a description of which Carilion patients with diabetes would best benefit from the program. After the presentation, a discussion was conducted with the care coordinators about the best method for referrals of Carilion patients to the VCE BLD program. Referrals from the care coordinators using a referral fax form was decided as the best mode of referrals. Faxed referrals were commonly used and approved by the Carilion compliance team. The anticipated kickoff for referrals was set for May 23. Next steps after this meeting were for VCE to create a draft fax referral form and set dates for upcoming BLD programs in the area.

Do Phase

The CCMD was provided a draft referral fax form for approval (Appendix 1), as well as dates and locations for upcoming BLD programs to initiate the referral process that began on May 23 and continued through July 5. One of the BLD programs an in-person program set to begin on June 14th in Pulaski County and the second program was a hybrid program set to begin on June 28th. The hybrid class was available as an in-person option in Floyd County, Russell

County, and Lee County. VCE requested that the care coordinators collect three pieces of information for the project evaluation: the number of referrals with diabetes they received during the pilot study, the number of individuals they referred to the VCE BLD, and the number of individuals with diabetes who they were already working with who could benefit from the program. The CCMD noted that the additional requested information would be challenging to track. She noted that the care coordinators, who are working remotely, receive referrals from many different pathways and were functioning at capacity at this point. Because of this, she wanted the care coordinators to utilize this pilot study as a resource, not a burden. This request then became null, and we were unable to collect this information.

Experience with referrals and modifications

Over the course of the referral period, the number of referrals were monitored and actions taken as appropriate to increase referrals. A description of these actions follows and are summarized in Figure 4. No referrals were received in the first two weeks. The VCE project team contacted the CCMD with this concern and requested weekly email communication about referrals between the two teams and asked if it would be helpful for the VCE team to attend a future care coordinator team meeting. The CCMD indicated that one challenge was that the care coordinator team is strongly encouraged to send type 2 diabetic patients to their Diabetes Self-Management Education within Carilion services. She stated that she would reinforce with her team members the option for the VCE BLD program for clients that have completed the Carilion diabetes education who need ongoing lifestyle management support, or those unwilling to come to the diabetes education offered by Carilion. She also indicated that she would let the VCE know about attending one of their meetings to follow up. In addition to this

action, the VCE team delayed the start of the Pulaski BLD program by two weeks, set to begin on June 28th. The hybrid option was also pushed back to begin at a later date in September. The change of dates was provided to the CCMD who shared the information with her team.

These actions did not result in referrals to the VCE BLD. On June 30, the VCE team emailed the CCMD to request a phone call or virtual meeting to discuss an alternative referral strategy, i.e. placing BLD rack cards (Appendix 2) in Carilion Family Medicine offices working in the service area of the participating FCS Agent. This email generated an automatic reply indicating that the CCMD would be out of the office until July 25, and provided an alternate person to contact if assistance was needed before her return. This contact was a care coordination manager who was a part of the Carilion project team and who attended the initial meeting. The VCE team emailed her inquiring if she was available to discuss the rack card placement. She preferred to include the CCMD and anticipated she would see the email and respond. Despite a second email from the VCE team indicating that we would like to move forward with reaching out to local Carilion Family Practices, no response was received and a meeting to discuss this with the Carilion team became unattainable.

Due to the time constraints, a decision was made by the VCE team to execute the strategy despite not being able to discuss with the Carilion team. The FCS Agent presented the BLD rack cards to two Carilion Family Medicine Practices in the area, to an office in Pulaski on July 13, and in Giles on July 18. Along with the rack cards were Agent contact information cards, as well as a BLD handout that discussed the program and supporting research finding (Appendix 3). The front office manager at each location received this information and stated that they would relay this program information to their office physicians. One immediate issue that was

noted during these practice interactions were the current COVID-19 stipulations, which restricted most contact and provided a sense of urgency in the facilities.

Upon follow up with the family practices, the Pulaski office indicated that they placed the rack cards in the front waiting area, and provided them to their three physicians. The front office manager had not received any feedback from anyone, as she had been out of the office. She did state that several of the rack cards had been taken from the front waiting room. In the Giles location, the front office manager provided the cards to the eight providers on-site and had not received any feedback at this time. No patients had communicated with the VCE BLD contact from the two offices by the end of the project period.

Figure 4 – Description of Actions for Referral System

Date	**Method of Communication**	**Discussion**
March 24	Virtual Meeting	Pilot project discussion to two care coordinator managers and the care coordination director
April 28	Virtual Meeting	BLD program overview to all care coordinators to effectively identify potential program participants
June 3	Email	No referrals received; check-in with Carilion
June 17	Email	Notification of the change of program start date
June 30	Email	Request to meet with director with a new approach; email to care coordinator manager about director absence
July 6	Email	Reinforcement for meeting request
July 13	In-person	Distributed BLD rack cards to Carilion Family Practice - Pulaski
July 18	In-person	Distributed BLD rack cards to Carilion Family Practice - Giles
July 25	Phone Call	Obtained feedback on rack cards for both locations
August 4	Virtual Meeting	Follow-Up discussion about referral process with VCE team and CCMD

Study Phase

The FCS VCE Agent analyzed and created a summary of the evaluation data from the 'plan' and 'do' phases of the project, and presented it to members of the VCE and Carilion team during a virtual meeting, scheduled on August 4, after completion of the referral system testing period. Attendees at the meeting included the VCE team and the Carilion CCMD. Primary areas of discussion included the feasibility of each method for both organizations the reasons for lack of referrals from either referral method (direct patient referral from care coordinators, physician recommended self-referral from family practices offices), and recommended changes to increase referrals.

Key points from each discussion area

Feasibility of each method for both organization:

- Having dates and locations available were helpful for facilitation.
- The BLD presentation to the care coordinators was a good idea.

Reasons for lack of referrals:

- Carilion compliance team indicated that care coordinators must have a signed consent form from individuals to directly refer them to VCE. This is because VCE is not a "covered entity" to Carilion.
- Since care coordinators now work remotely, (as opposed to working directly in the physician offices), they receive fewer referrals of diabetic patients. The physicians are referring them directly to the Carilion education.

- Care coordinators have established referral patterns, meaning they will refer diabetic individuals to their Carilion education or to their Carilion RD through their electronic medical record

Recommended changes:

- Providing a small reminder card that can be available for care coordinators beside their desk or computer to reinforce the program availability
- Possible opportunity to mail out BLD information with Carilion's regular educational materials.
- Approach other Carilion healthcare teams that are educating and referring individuals with diabetes to education.

Act Phase:

The VCE and Carilion teams agreed to respond to the findings of the pilot trial of the referral system with the following actions:

1. Key modifications to the referral systems were documented and presented to the Carilion care coordinators at a future meeting
2. Referrals from Carilion care coordinators to the VCE BLD program will continue using the recommended modifications. The FCS Agent will continue to monitor and document referrals and BLD enrollments of those referrals.
3. The FCS Agent will maintain regular communication with the two family practices, supply them with additional BLD referral cards as needed, reminder cards, document referrals, and BLD enrollments from those referrals.

4. The VCE and Carilion teams will continue to meet on a quarterly basis to evaluate outcomes of the referral systems.

Recommendations

This pilot project provided a large learning curve for VCE and for any community-based organization interested in collaborating with a large healthcare organization. The PSDA tool supported this project in guiding the steps to create, implement, and evaluate a referral process between Carilion Healthcare and Virginia Cooperative Extension.

Both organizations in this pilot study were working with different priorities and expectations. Since Carilion made their internal diabetes program first priority, this pilot referral system could only be used as an additional resource. Because of the lack of referrals, placing the BLD rack cards directly into physician offices became an extra opportunity for the program information to become known in the community.

A major limitation for this pilot study was the restrictive timeframe. Although both organizations were excited about this project and expressed a need for it, more time was needed to see if the referral process would be successful. The primary form of communication for this project was email. It was difficult to maintain steady communication during this time, as both organizations are very busy and many stakeholders were out of the office for extended periods of time. This project took place in the midst of the COVID-19 pandemic, making communication and frequent meetings more difficult. Despite the difficulty in seamless communication, several email requests helped facilitate responses and brainstorming new routes of referrals provided extra exposure.

This pilot study should be a resource for other Virginia Cooperative Extension Agents and other community-based organizations that are interested in partnering with a healthcare organization for program referrals. Recommendations for others interested in a similar project would be to ensure all organizations involved understand expectations of each other. It is important to note that maintaining constant communication throughout is key. Depending on the length of the project, communication should be constant for completed assignments, set-backs, changes in route of completion, and if someone can no longer follow through with their assigned duties. Lastly, obtaining full disclosure of compliance needs for each entity involved is crucial to the success in referring individuals between organizations.

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Appendix 1 – Fax Referral Form

BALANCED LIVING WITH DIABETES

A PROGRAM FOR PEOPLE WITH TYPE 2 DIABETES & THEIR FAMILIES

Focus on Food & Fitness

Balanced Living with Diabetes Referral Form

Please complete the form and fax to 540-980-7769

We will contact the patient to enroll them into the next available program.

Patient information	
Name	*Optional Information*
Sex ☐ Male ☐ Female	Street Address
Birth date (mm/dd/yyyy)	City
Preferred method of contact ☐ e-mail ☐ phone	State
Phone	Zip code
E-mail	
Healthcare provider information	
Physician/NP/PA name	*Optional Information*
Practice name	Street Address
Phone	City
Fax	State
	Zip code

Date:_____ Referring provider signature:_____

Authorization for release of health information

Diabetes diagnosis: ____ Type 2 diabetes ____ Pre-diabetes

Height (inches): _____

Weight (pounds): _____

Blood test (as available):

_____ Hemoglobin A1C Date of test (mm/dd/yy): _____

_____ Fasting plasma glucose Date of test (mm/dd/yy): _____

☐ Confirmation of receipt of consent to release patient health information

Date: _____ Name: _____ Signature: _____

Appendix 2 – BLD Rack Card (Front and Back)

Virginia Cooperative Extension
BALANCED LIVING WITH DIABETES
Virginia Tech • Virginia State University

Have Type 2 Diabetes?

Do you want to lower your blood sugar and prevent complications?

JOIN

Balanced Living with Diabetes.

A **6 session program**, where you get support to eat healthier, be more active, and take control of your diabetes.

Balanced Living with Diabetes: *is a program for people with diabetes who want to eat healthier, be more active, and take control of their diabetes. The classes are taught in a group setting by qualified educators, and participants support each other in making simple behavior changes that will improve their diabetes control. The program has six classes and a reunion that are given over 12 weeks.*

During the classes you will:

- Learn about diabetes and how to keep your blood sugar in control
- Learn how lifestyle impacts your diabetes
- Manage your diets using a simple plate method
- Set and track activity goals using an activity monitor
- Get hands on experience preparing and tasting delicious recipes.

Virginia Cooperative Extension
BALANCED LIVING WITH DIABETES
Virginia Tech • Virginia State University

Virginia Tech
Center for Public Health
Practice and Research

For more information, and to see if there is a Balanced Living with Diabetes Program near you, contact your local Cooperative Extension office.

ext.vt.edu/offices.html

OPEN CAMERA AND SCAN ME

Appendix 3 – Physician Office Handout

Balanced Living with Diabetes Program – Sustained Lifestyle Modification

- Co-led by trained Extension Educator and RD/CDE
- 14 week, 6 session lifestyle modification program
  - 6 weekly sessions
  - Reunion class 2 months after last class
- Idaho Plate Method for carbohydrate control
- Pre/post assessment of A1c, weight

National Institutes of Health grant (Dr. Kathy Hosig, Principal Investigator)

- Partnered with Baptist General Convention of Virginia
- 30 churches in 9 Virginia locations (2010-2015)
- 509 participants, primarily African American
- Clinically significant reduction in A1c in participants with baseline A1c ≥ 7.0 (n=143). A1c Mean reduction of 0.57 ± 1.43

Rafie C, Hosig K, Wenzel S, Jiles K, Schlenker E. (2021). Implementation and outcomes of the Balanced Living with Diabetes program conducted by Cooperative Extension in rural communities in Virginia. Rural and Remote Health 21: 6620. https://doi.org/10.22605/RRH6620.

Appendix 4 – IRB Approval

VIRGINIA TECH

Division of Scholarly Integrity and Research Compliance
Institutional Review Board
North End Center, Suite 4120 (MC 0497)
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-3732
irb@vt.edu
http://www.research.vt.edu/sirc/hrpp

MEMORANDUM

DATE:	May 6, 2022
TO:	Carlin Rafie, Laura Reasor
FROM:	Virginia Tech Institutional Review Board (FWA00000572)
PROTOCOL TITLE:	Implementation and Evaluation of Referral System Between Carilion Healthcare System and Virginia Cooperative Extension for Balanced Living with Diabetes Program
IRB NUMBER:	**22-404**

Based on the submitted project description and items listed in the Special Instructions section found on Page 2, the Virginia Tech Human Research Protection Program (HRPP) has determined that the proposed activity is not research involving human subjects as defined by HHS and FDA regulations.

Further review and approval by the Virginia Tech Human Research Protection Program (HRPP) is not required because this is not human research. This determination applies only to the activities described in the submitted project description and does not apply should any changes be made. If changes are made you must immediately submit an Amendment to the HRPP for a new determination. Your amendment must include a description of the changes and you must upload all revised documents. At that time, the HRPP will review the submission activities to confirm the original "Not Research" decision or to advise if a new application must be made.

If there are additional undisclosed components that you feel merit a change in this initial determination, please contact our office for a consultation.

Please be aware that receiving a "Not Research" Determination is not the same as IRB review and approval of the activity. You are NOT to use IRB consent forms or templates for these activities. If you have any questions, please contact the Virginia Tech HRPP office at 540-231-3732 or irb@vt.edu.

PROTOCOL INFORMATION:

Determined As:	**Not Research**
Protocol Determination Date:	**May 6, 2022**

ASSOCIATED FUNDING:

The table on the following page indicates whether grant proposals are related to this protocol, and which of the listed proposals, if any, have been compared to this protocol, if required.