

## **Developing a Master Food Volunteer Continuing Education Program: A Model for Volunteer Capacity Building**

### **Abstract**

We developed a master food volunteer (MFV) continuing education program (CEP) for MFVs assisting Extension agents with a diabetes self-management program. Our development process included two phases of pilot testing. First, seasoned MFVs tested and provided formative feedback on the first iteration of the MFV CEP modules. After revising the modules in response to their feedback, we evaluated program effectiveness by comparing pretraining/posttraining score change between MFVs who had completed the training (intervention group) and those who had not (comparison group). All test scores increased for intervention group members, whereas half declined for comparison group members. Our process of developing enhanced education to address program-specific volunteer capacity building has broad applicability.

**Keywords:** [Balanced Living with Diabetes](#), [master food volunteer program](#), [diabetes education](#), [continuing education](#)

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## **Introduction**

Adult onset diabetes is an increasingly prevalent and significant public health issue (Centers for Disease Control and Prevention, n.d.). Research has indicated that 9% of Virginians have diabetes and that the highest rates of diabetes are in rural communities (Virginia Department of Health, Division of Prevention and Health Promotion, 2011). Indeed, rural communities in Virginia disproportionately suffer from morbidity, mortality, and social and financial costs associated with this disease (Gamm, Hutchison, Bellamy, & Dabney, 2002; Gamm, Hutchison, Dabney, & Dorsey, 2003; Health Care Cost Institute, 2015). Balanced Living with

Diabetes (BLD), a community-based diabetes self-management program, targets underserved populations and is used across Virginia. BLD is guided by social cognitive theory and centers on use of an active learning approach to influence behavior change that helps participants maintain healthful weights and improve blood sugar control.

Virginia Cooperative Extension recently implemented BLD in 16 rural counties/cities and expanded its existing master food volunteer (MFV) program to support BLD implementation. The purpose of the MFV program, which Kansas State University Research and Extension developed in 2002, is to increase community volunteerism and expertise in foods and nutrition, enhance nutrition programming, and build support bases in communities. In Virginia, where the program has been used since 2009, Extension agents provide MFVs with 30 hr of required classroom training focused on nutrition, meal planning, cooking techniques, food safety, and healthful lifestyles, and trained MFVs reciprocate with at least of 30 hr of volunteer service during the subsequent year.

For the expanded role MFVs would play in assisting family and consumer sciences Extension agents with BLD, enhanced training was needed. Through contacting the coordinators of programs analogous to the MFV program and conducting an extensive literature search, we found that few programs delivered through Cooperative Extension provided intensive continuing education training to MFVs (K. Blakeslee, personal communication, November 7, 2016; L. Bobroff, personal communication, December 6, 2016; P. Butler, personal communication, November 30, 2016; A. Crocker, personal communication, November 30, 2016; A. Simonne, personal communication, December 6, 2016; S. Snider, personal communication, November 8, 2016). Therefore, we developed an online continuing education program (CEP) to prepare MFVs to assist with the diabetes self-management program, specifically with the food demonstration component aligned with lesson content. Here we report on our process, which included two phases of pilot testing. Our pilot study was approved by the Virginia Tech Institutional Review Board.

## **Description of the MFV CEP**

The MFV CEP is a self-study program composed of five online training modules (Table 1). It takes approximately 90 min to complete the five modules. The first three modules provide an introduction to diabetes, an overview of BLD, and discussion of the role of MFVs in BLD. The last two modules provide guidance on conducting food demonstrations in support of BLD and information on food safety. Each module concludes with a brief quiz that tests the learner's knowledge of the subject matter, and feedback is provided for questions answered incorrectly.

**Table 1.**

Components of the Online Master Food Volunteer Continuing Education Program

<b>Lesson</b>	<b>Learning objectives</b>
Introduction to BLD Part 1	1. Define diabetes  2. Describe diabetes management and monitoring
Introduction to BLD Part 2	1. Discuss diet and exercise for diabetes control

Introduction to BLD Part 3 1. Introduce BLD (cont.)

2. Review the Idaho Plate Method

Food Demonstration 1. Introduce recipes used with BLD

2. Describe recipe preparation and food demonstration

3. Outline recipe preparation tips specific to BLD

Food Safety 1. Review basic food safety considerations

2. Summarize the safe food handling principles of clean, separate, cook, and chill

*Note.* BLD = Balanced Living with Diabetes.

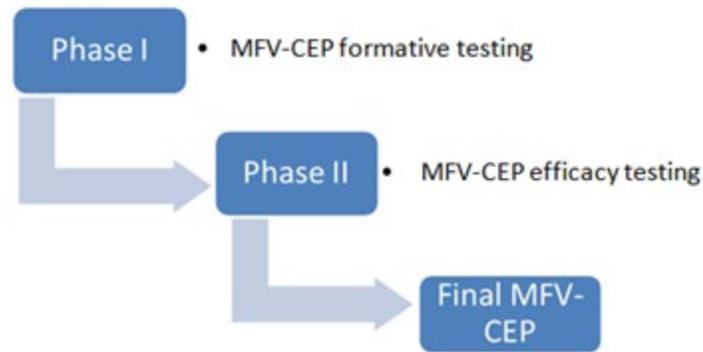
## Development Process

To begin the process of developing the MFV CEP, we created an outline of the modules to be included in the program and the information to be contained in each module. We based the content for the modules on information and materials from BLD and the MFV training program, along with additional information as required. We intentionally designed the content of each module with learner burden in mind, placing attention on literacy level and estimated time for completion. Each module takes an average of 15 min to complete, depending on the knowledge of the learner. We created a Microsoft PowerPoint presentation for each module and used Tech Smith Camtasia Studio software to embed voice recordings in each presentation. The MFV CEP training modules are housed on the MFV training program site within the university online course management system.

We developed the final version of the MFV CEP through two phases of pilot testing (Figure 1). For this aspect of the development process, we designed a pretraining/posttraining survey (25 total questions) to test knowledge gain related to diabetes, BLD, food demonstration best practices, and food safety. The survey also is referred to herein by the terms *pretest* and *posttest*.

### Figure 1.

Testing Phases of the Master Food Volunteer (MFV) Continuing Education Program (CEP) Development Process



In Phase I, we recruited MFVs with 1 or more years of volunteer experience to pilot test the MFV CEP and provide formative feedback. MFVs were asked to take the pretest, complete the five training modules and corresponding quizzes within a period of no more than 2 weeks, and then take the posttest. We conducted semistructured telephone interviews with the MFVs upon their completion of the training to obtain qualitative data regarding their experiences with the modules. The interview questions addressed length and clarity of the modules, appropriateness and completeness of the content, self-efficacy for assisting with BLD after completing the modules, and ease of site navigation. Two members of our research team reviewed the interview transcripts, extracted information related to each area of inquiry, and compiled a summary of themes related to each area. We used results of this formative evaluation to revise the training modules prior to Phase II.

In Phase II, we recruited MFVs who recently (within the preceding 6 months) had completed the MFV training program. The intervention group consisted of MFVs who were working with Extension agents conducting BLD and planned to assist with the program. The comparison group comprised MFVs who were working with Extension agents not conducting BLD and, therefore, would not have the opportunity to assist with BLD. MFVs in the intervention group completed the pretest, viewed the revised training modules and took corresponding quizzes, and completed the posttest. MFVs in the comparison group completed the pretest and posttest without viewing the training modules, with 7 to 14 days between the surveys. We conducted descriptive analyses and one-way analysis of variance ( $p < .05$ ) using IBM SPSS Statistics 24.0 to evaluate differences in knowledge change between the intervention and comparison groups.

## Findings

Eight MFVs provided informed consent to participate in Phase I, of whom only five participated. One of the five participants failed to complete the pretest prior to viewing the modules. Of the remaining four participants, all showed an increase in score from before to after the training, with an average increase of 17.7% (mean pretest score = 77.1%, mean posttest score = 94.8%). All participants indicated that the content was clear and understandable. Key suggestions from the semistructured interviews were as follows: (a) increase content related to diabetes and the role of blood glucose in the disease; (b) include more specific information about how the Idaho Plate Method is used to control carbohydrate intake; (c) improve clarity related to safe food temperatures and food quantity for tasting during BLD; and (d) make the course system easier to navigate. We incorporated these modifications prior to Phase II.

Ten MFVs provided informed consent for Phase II of the project. Four planned to assist Extensions agents

with the BLD program. We assigned these four to the intervention group and the remaining six to the comparison group. Scores on the module lesson quizzes ranged from 8 to 10 (10-point maximum), indicating that participants had a good grasp of the information presented (Table 2). There was an increase in mean score from the pretest to the posttest for the intervention group ( $2.25 \pm 0.96$ ) and no change in mean score for the comparison group ( $0.00 \pm 2.53$ ) (Table 3). The mean score change was not significantly different between the intervention and comparison groups ( $1.67, p = .133$ ). Scores for all four intervention group participants increased from pretest to posttest. In contrast, scores for half of the comparison group participants (three out of six) decreased from pretest to posttest.

**Table 2.**

Phase II Module Quiz  
Scores for Intervention  
Participants

Participant	Module scores <sup>a</sup>				
	1	2	3	4	5
1	10	10	10	10	10
2	10	10	10	10	10
3	10	10	10	8	10
4	8	8	10	10	10
Mean score	9.5	9.5	10	9.5	10

<sup>a</sup>Total possible score = 10.

**Table 3.**

Phase II Pretraining and Posttraining Survey Results

Group	Pretraining survey score	Posttraining survey score	Score change <sup>a</sup>
Intervention			
Participant 1	17	20	+3
Participant 2	21	22	+1
Participant 3	19	21	+2
Participant 4	17	20	+3
Mean	18.5	20.75	+2.25
Comparison			
Participant 1	19	20	+1
Participant 2	22	20	-2
Participant 3	14	18	+4
Participant 4	21	18	-3
Participant 5	19	18	-1

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Participant 6	19	20
Mean	19	+1
		0

Note. Possible total score = 25.

aNo significant difference in mean score change.

## Discussion

We developed a continuing education module for MFVs to prepare them to support family and consumer sciences Extension agents with a community-based diabetes self-management program. The MFV CEP provides foundational knowledge of diabetes, an orientation to the BLD curriculum, information on best practices for food demonstrations, and a review of principles of food safety. We used a two-phase pilot testing approach in developing the MFV CEP—first gathering formative information in Phase I that we used to improve the content and functionality of the MFV CEP and then testing the effectiveness of the MFV CEP for increasing knowledge in Phase II. The process worked well, resulting in an improved MFV CEP. Although the small sample size of our pilot study limits statistical power and generalizability, our findings indicate that the final version of the MFV CEP improved participants' knowledge of diabetes, the role of diet and physical activity in blood sugar control, best practices for recipe demonstrations, and food safety. During the project period, 35 new MFVs were trained, of whom 15 completed the MFV CEP.

The online self-study format of the MFV CEP allows for wide dissemination of the program to MFVs across the state and responds to the need for Extension to adopt technology to reach new audiences (Diem, Hino, Martin, & Meisenbach, 2011). This aspect of the program may, however, present a challenge for MFVs with limited Internet access. This was the case with some MFVs who agreed to participate in the project but were unable to complete the program due to lack of Internet access. Providing the program in a non-web-based form is a potential solution to this challenge. We have adapted the program so that Extension agents can provide the module information and associated quizzes in printed format to interested MFVs who cannot access the program online. Two MFVs have successfully completed the MFV CEP in this format.

Extension volunteer programs play a significant role in extending the capacity of county Extension agents to provide information and programs to the communities they serve. A sense of achievement is a significant motivator for individuals to become Extension volunteers, and volunteers want to learn new things (Wolford, Cox, & Culp, 2001). The MFV program engages individuals with an interest in food and food preparation in assisting with programs that promote healthful eating and lifestyles and safe and economical food planning and preparation. Increasingly, lifestyle education programs for the prevention and management of chronic disease have become part of the programs conducted by Extension agents. This circumstance has created the need for additional training for volunteers supporting these programs that goes beyond their initial volunteer training. The MFV CEP responds to this need and offers the opportunity for volunteers to learn new things related to programs addressing diabetes.

The process we used to develop the MFV CEP can serve as a prototype for creating continuing education programs for Extension volunteers on subject matter specific to other Extension programs. Future appropriately powered studies are needed for further developing and defining essential steps in the process. Overall, however, our approach has potential to increase programming capacity, impact, and reach for Extension agents in multiple education programs and may increase the retention of volunteers by offering

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