



## Dissemination of an Electronic Manual to Build Capacity for Implementing Farmers' Markets with Community Health Centers

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### Abstract

Community-university partnerships can lend themselves to the development of tools that encourage and promote future community health development. The electronic manual, "Building Pharmacies," describes an approach for developing capacity and sustaining a community health center-based farmers' market that emerged through a community-university partnership. Manual development was guided by the Knowledge to Action Framework and experiences developing a multi-vendor, produce-only farmers' market at a community health center in rural South Carolina. The manual was created to illustrate an innovative solution for community health development. The manual was disseminated electronically through 25 listservs and interested individuals voluntarily completed a web-based survey to access the free manual. During the six-month dissemination period, 271 individuals downloaded the manual. Findings highlighted the value of translating community-based participatory research into user-friendly manuals to guide future intervention development and dissemination approaches, and demonstrate the need to include capacity building opportunities to support translation and adoption of interventions.

### Introduction

Community-university partnerships developed for community-based participatory research seek to address local health concerns through a multi-stage approach building on the unique strengths of the community. This collaborative model has been increasingly employed over the last 20 years and is seen as a practical approach to address local health concerns and improve overall quality of life and health outcomes.<sup>1-3</sup> The products of such partnerships are tools and interventions that seek to quickly cross the research-to-practice divide through translational efforts to influence wide-scale implementation and adoption.<sup>4,5</sup> Recognizing early on the positive effects of the *Right Choice, Fresh Start* (RCFS) farmers' market, a decision was made to share the results of the market by disseminating a manual about the intervention approach.<sup>6,7</sup> The "Knowledge to Action Framework" guided these decisions by providing a model for understanding the components of translation including the development of knowledge products to assist and support future implementation<sup>8</sup>

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## Knowledge to Action Framework

The Knowledge to Action Framework (K2A) is the product of a Centers for Disease Control and Prevention (CDC) working group on translation that sought to formalize and provide a 'schematic' to disseminate evidence-based interventions. The framework includes three phases (research, translation, and institutionalization) and the supporting structures that assist movement of research to practice.<sup>8</sup> The framework provides guidance for assisting both research- and practice-based innovations to effective translation and for continuous refinement of the innovation

## Right Choice Fresh Start Farmers' Market

The research phase of the K2A framework in this study focused on a farmers' market intervention, the RCFS farmers' market.<sup>7</sup> The RCFS is a multi-vendor, produce-only market located at a community health center in rural South Carolina. The market was developed using a community-university partnered research approach with the community-defined goals of increasing access to fresh fruits and vegetables, improving diet among county residents, and increasing economic opportunities for small-scale farmers.<sup>6,9</sup> The market, which opened in June 2011, continues to operate yearly from June through October. The products of this community-university partnership include the development and implementation of the farmers' market, community capacity to sustain the market, organizational infrastructure to support the market, and the RCFS model itself. This model met its initial community goals of increasing fruit and vegetable access and consumption as well as increasing revenue opportunities for small-scale farmers.<sup>6,7</sup> Building on the K2A framework, the team made the decision to translate the RCFS model.

Like any intervention developed through a community-university partnership, the RCFS is the product of the unique systems in which it operates. One of the benefits of this partnership approach to research is the ability to more seamlessly translate research findings to guide public health practice.<sup>10</sup> In principle, interventions developed through these partnerships lend themselves to quick dissemination and further adaptation to address health concerns locally and beyond the initial targeted context, and thus address the lagging nature of research translation for broader societal use.<sup>5,11</sup> They are able to do so through the use of partnerships, stakeholder involvement, and a more engaged research design.

## Dissemination of Innovations

Farmers' markets, such as the RCFS, provide an innovative strategy for addressing community health concerns and improving public health outcomes.<sup>6,12</sup> As farmers' markets have received greater attention and have been recognized as an effective strategy for addressing health concerns, including as a recommended strategy to increase fruit and vegetable consumption by the CDC, the rapid dissemination of tools becomes important to assist communities in developing and adopting.<sup>12,13</sup>

Active dissemination provides a systematic approach to translate community-specific interventions that can be localized through the widespread availability of the ideas. These methods should pay particular attention to the needs of the audience and purpose of the dissemination. Multiple means of dissemination exist.<sup>14</sup> With the advent of electronic

media and easier internet access, electronic dissemination of materials offers a cost-effective, easy-to-use, and quick approach for reaching a broad or targeted.

Rapid dissemination of innovative, effective health promotion interventions conducted in real-world settings may facilitate health promotion efforts in other settings.<sup>8 15</sup>The development of manuals resulting from community-university partnerships is one method of quickly disseminating the research processes and outcomes to broader audiences, especially those outside of academia. As the second phase of the K2A framework, it is recognized that rapid dissemination of these products allows for the translation of research-to-practice and the adoption of innovations by other community audiences.<sup>16</sup> In doing so, it is possible to take into account the community realities and to develop more relevant programs and interventions within the community context.<sup>17</sup>

### **Capacity Building for Innovation Implementation**

To develop community programs and interventions, however, communities must already possess, or have the means to acquire, the capacity required to deliver the intervention with fidelity.<sup>18</sup> Community capacity refers to the ability to leverage and use community resources, skills, and infrastructure.<sup>19</sup> Infrastructure is both a cause and a result of capacity. It serves as a support for delivering and sustaining programs, whereas having capacity allows for the quick response to new innovations.<sup>20</sup>

Capacity has been identified as a key component needed to bridge the translational gap between research and practice. Capacity to implement an intervention exists along a continuum and the presence or absence of capacity can affect intervention uptake<sup>21</sup>. Levels of capacity influence the utilization of the resources and tools, such as manuals, that are made available. The levels of capacity and infrastructural supports allow for the institutionalization of these innovative models.<sup>8</sup> Dissemination efforts should take into account variability in existing capacity when working to translate research.

### **Purpose of Research**

The purpose of our study was to explore the translation and dissemination of a community-university partnership-derived manual that promotes the development of farmers' market for health promotion. Next, we explored the reasons individuals expressed interest in the manual. Finally, we explored levels of capacity needed to implement and institutionalize farmers' markets for health promotion.

## **Methods**

### **The Building Farmacies Manual**

The "Building Farmacies" manual was developed based on the experiences of forming, implementing, and sustaining the RCFS farmers' market through a community-university partnership.<sup>22</sup> The manual was developed in consultation with community stakeholders at the conclusion of the third year of the partnership following the close of the second RCFS season. The manual was developed as a way of recording and sharing the results of the partnership to a wide audience parties following the K2A framework for translation.

The manual provides chapters on the RCFS model; needs and readiness assessments; and formative planning, implementation, evaluation, and sustainability. The appendix provides worksheets, recommended citations, and examples of assessment, marketing, and evaluation tools. The manual attempted to generalize the process of forming the community health center-based market in a way that could be adapted for implementation in other diverse contexts. A theme throughout the manual is the need for community involvement and community capacity to support the development and sustainability of the model.

### **Data Collection**

A hyperlink to the manual was distributed to over 25 listservs. These listservs focused on sustainable farming, agriculture networks, farming, social work, community health efforts, and public health. E-mail blasts to the listservs occurred three times over six weeks. Subsequent distribution occurred through individuals and organizations sharing the link. The link directed individuals to the academic partner's website to complete an optional survey to download a copy of the manual. We were unable to track additional downloads (without survey completion) and sharing by other means.

### **Survey Development**

A 13-item survey was developed by the research team based on prior research with farmers' market development and community readiness.<sup>9</sup> Questions assessed respondent characteristics (geographic location, job, job responsibilities), and organizational characteristics including readiness and capacity indicators regarding the implementation or development of a farmers' market. These measures utilized a mixture of closed and open ended items. The organizational capacity scale was scored on a five point scale (1=strongly disagree to 5=strongly agree) within the domains of having a farmers' market, planning to start a farmers' market, or having no plans to start a farmers' market.

### **Analysis**

Descriptive statistics were used to examine the prevalence of organizational type, issues the organization addressed, and organizational programming. An independent t-test was utilized to determine statistical significance among capacity factors and farmers' market interest. Geographic information on location of respondents was utilized to determine the geographic dissemination of the manual. Quantitative analyses were conducted using SPSS version 22 for Macintosh. Open-ended questions were coded deductively based on the development of a codebook by two coders. Coding was conducted jointly until the establishment of an 88% Inter-Rater-Reliability.

### **Results**

A total of 271 respondents completed the survey and downloaded the manual over the six-month period. Respondents represented 38 states, with South Carolina and California downloading it most frequently. Additionally, two foreign nations, Canada and Kenya were represented in the sample. About half of respondents (52%) reported being located in and serving an urban setting and 24% in a rural setting.

Respondents represented a range of organizational types (see Table 1). The greatest proportion of respondents self-identified as representing a school/university (37%), community health center (22%), farm and agriculture setting (20%), and government organization (20%). Respondents self-reported that their organizations primarily addressed issues relating to community development (79%), health disparities (77%), and diet-related chronic disease (76%). Respondents reported implementation of a wide range of organizational programs focused on food and nutrition, including community gardens (47%), farmers' markets (46%), and supplemental nutrition assistance program/women, infants, and children programs (33%).

Twenty percent of respondents reported their organization currently had an onsite farmers' market. Among those without a farmers' market, 32% reported they had plans to eventually open an onsite farmers market and 43% reported no plans to start an on-site farmers' market. We then looked at differences that may exist between these organizations to identify potential facilitators or barriers relating to farmers' market development.

Statistically significance differences in mean scores ( $p < .05$ ) related to the organizational capacity score existed between respondents who reported plans to open a farmers' market (2.97) or currently had one in place (3.21) compared to those who did not have future plans to develop and open one (2.35). These differences were related to organizational readiness and capacity (Table 2). Just under half of the respondents (46%) indicated they would be very interested in trainings to develop a farmers' market at their location.

Qualitative findings shed light into respondent interest and future plans for using the manual. Overall, respondents reported they were interested in the manual because of a general interest in the topic (e.g., farmers' markets), ways to engage the community, and contents of the manual. Individuals noted the manual provided a means for stimulating and encouraging planning within their community. Respondents reported interest in downloading the manual for dissemination to others, including grantees, community partners, community members, organizational management, and institutions. Respondents additionally reported interest in the manual because it could be used to inform improvements to existing programs, promote farmers' market sustainability, and provide guidance for understanding policies and procedures around the development of a farmers market.

## Discussion

Tools developed from community-university partnerships such as the "Building Farmacies" manual provide unique opportunities for communities and researchers to document the knowledge products of partnerships that may otherwise be only selectively available in scholarly journals or conference presentations.<sup>21</sup> The particular focus on the type of tool and the associated dissemination strategy for making that tool available is dependent on a variety of factors, the foremost of which includes the type of partnership, the product of the partnership, and the target of the intervention and the community.<sup>23,24</sup> The output and dissemination strategy must be appropriate and tailored for the partnership and the desired outcomes of dissemination. The "Building Farmacies" manual sought to accomplish this by manualizing the process of the development, operation, evaluation, and sustainability of a

community-university partnership into steps, objectives, and goals accompanied by proven resources and processes. The electronic distribution method, while cost-effective and easy to navigate, may have limited the range and scope of distribution in some aspects. The choice of listservs may have additionally limited the audience diversity and promotion of the manual.

Following the K2A framework translation component, the desire of this study was to make the resources and practices in evaluating the suitability for, and the processes for designing, implementing, and evaluating a farmers market at a community health center widely available through the broadest means possible. This resulted in the development of the manual and its subsequent distribution through electronic means versus mail, in-person, or other means. Electronic dissemination of the manual allowed for mass diffusion at no cost to respondents, but it did so in an unpredictable pattern.<sup>24</sup> Through diffusion of tools it is possible to see the products of a partnership have relevance beyond that partnership. Although the RCFS was a rural-based health center initiative, its relevancy extended beyond this setting resulting in primarily urban-based downloads accessing the manual. This allowed the concept of the intervention to become more widely available to additional audiences for application in new settings.

Differences exist between those who are capable of applying the disseminated products of partnerships and those who are not. The presence of capacity for the development and implementation of these shared ideas is a necessary component. The absence of capacity at that moment does not mean capacity cannot be acquired, but that supports, such as organizational infrastructure, must be in place to facilitate the development of capacity to respond to the idea. Barriers to implementation, such as the documented lack of financial resources and institutional support, can hinder further advancement of public health initiatives and may pose a challenge to the development and adaption of innovative ideas to address public health challenges thereby slowing the institutionalization phase of the K2A framework.<sup>21</sup> Community partnerships provide one means of addressing deficits in capacity and barriers to implementation through their reliance on joint resources. Additional and alternative means for increasing the capacity must be identified and utilized to assist in the adaption of innovative means to address public health concerns. In the process of dissemination it is important to reach decision makers, including policy makers, to demonstrate that a process for implementation exists.<sup>25</sup>

This research is not without limitations. First, it was not possible to track the complete range of dissemination of the manual. Secondly, it was not possible to identify the organizational and structural differences between those without plans to open a market and those who had plans or already had a market. Third, respondents may not have been aware of their organization's level of capacity around specific topics, such as financial resources.

## Conclusions

Future community-university partnership research initiatives should continue to focus on the translatability of their interventions and implications that such interventions could have if they are systematically documented and shared. Dissemination efforts to bridge the gap

between research and practice are critical to increase the implementation of effective public health interventions in diverse community settings. Utilizing the K2A framework, future research may examine the influence of different approaches for disseminating evidence resulting from community-university partnerships to promote wide-scale implementation of public health innovations.

## Acknowledgments

This manuscript was supported by the South Carolina Cancer Prevention and Control Research Network under Cooperative Agreement Number U48DP001936 from the Centers for Disease Control and Prevention (Prevention Research Centers) and the National Cancer Institute and from the Case Western Reserve University Prevention Research Center for Healthy Neighborhoods under Cooperative Agreement Number U48DP001930 from the Centers for Disease Control and Prevention. The findings and conclusions in this manuscript are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or National Cancer Institute. We are thankful for our partners at Family Health Centers, Inc., the Right Choice Fresh Start Farmers' Market Advisory Council, and the South Carolina Primary Health Care Association, and for research assistance from David Rodriguez, Kathryn Kranjc, and Amy Mattison-Faye.

We dedicate this paper to former South Carolina State Senator Rev. Clementa Pinckney for his commitment to increasing access to healthy foods among South Carolina residents, including introducing legislation related directly to the outcomes of the *Right Choice, Fresh Start Farmers' Market*, and for being a champion for rural economic development among small-scale farmers.

### Funding:

This manuscript was supported by the South Carolina Cancer Prevention and Control Research Network under Cooperative Agreement Number U48DP001936 from the Centers for Disease Control and Prevention (Prevention Research Centers) and the National Cancer Institute and from the Case Western Reserve University Prevention Research Center for Healthy Neighborhoods under Cooperative Agreement Number U48DP001930 from the Centers for Disease Control and Prevention. The findings and conclusions in this manuscript are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or National Cancer Institute.

## References and Citations

1. Freudenberg N, Tsui E. Evidence, Power, and Policy Change in Community-Based Participatory Research. *American journal of public health*. 2014; 104(1):11–14. [PubMed: 24228677]
2. Israel BA, Coombe CM, Cheezum RR, et al. Community-Based Participatory Research: A Capacity-Building Approach for Policy Advocacy Aimed at Eliminating Health Disparities. *American journal of public health*. 2010; 100(11):2094–2102. [PubMed: 20864728]
3. Minkler M. Linking Science and Policy Through Community-Based Participatory Research to Study and Address Health Disparities. *American journal of public health*. 2010; 100(S1):S81–S87. [PubMed: 20147694]
4. Glasgow RE. What does it mean to be pragmatic? Pragmatic methods, measures, and models to facilitate research translation. *Health education & behavior : the official publication of the Society for Public Health Education*. 2013; 40(3):257–265. [PubMed: 23709579]
5. Glasgow RE, Green LW, Taylor MV, Stange KC. An evidence integration triangle for aligning science with policy and practice. *American journal of preventive medicine*. 2012; 42(6):646–654. [PubMed: 22608384]
6. Freedman DA, Choi SK, Hurley T, Anadu E, Hebert JR. A farmers' market at a federally qualified health center improves fruit and vegetable intake among low-income diabetics. *Preventive medicine*. 2013; 56(5):288–292. [PubMed: 23384473]
7. Freedman DA, Mattison-Faye A, Alia K, Guest MA, Hebert JR. Comparing Farmers' Market Revenue Trends Before and After the Implementation of a Monetary Incentive for Recipients of Food Assistance. *Preventing chronic disease*. 2014; 11:E87. [PubMed: 24854238]

8. Wilson K, Brady T, Lesesne C. Translation obotNWGo. An organizing framework for translation in public health: The Knowledge to Action Framework. *Preventing chronic disease*. 2011; 8(2):A46–A51. [PubMed: 21324260]
9. Freedman DA, Whiteside YO, Brandt HM, Young V, Friedman DB, Hebert JR. Assessing readiness for establishing a farmers' market at a community health center. *Journal of community health*. 2012; 37(1):80–88. [PubMed: 21643822]
10. Green LW, Ottoson JM, Garcia C, Hiatt RA. Diffusion theory and knowledge dissemination, utilization, and integration in public health. *Annual review of public health*. 2009; 30:151–174.
11. Wallerstien N, Duran B. Community-based participatory research contributions to intervention research: The intersection of science and practice to improve health equity. *American journal of public health*. 2010; 100(S1):S40–S46. [PubMed: 20147663]
12. Larson NI, Story MT, Nelson MC. Neighborhood environments: disparities in access to healthy foods in the U.S. *American journal of preventive medicine*. 2009; 36(1):74–81. [PubMed: 18977112]
13. Centers for Disease Control and Prevention. Services USDoHaH. Atlanta, GA: Center for Disease Control and Prevention; 2013. State Indicators Report on Fruit and Vegetables.
14. Brownson RC, Jacobs JA, Tabak RG, Hoehner CM, Stamatakis KA. Designing for dissemination among public health researchers: findings from a national survey in the United States. *American journal of public health*. 2013; 103(9):1693–1699. [PubMed: 23865659]
15. Mays GP, Hogg RA, Castellanos-Cruz DM, Hoover AG, Fowler LC. Public Health Research Implementation and Translation: Evidence from Practice-Based Research Networks. *American journal of preventive medicine*. 2013; 45(6):752–762. [PubMed: 24237919]
16. Friedman DB, Brandt HM, Freedman DA, Adams SA, Young VM, Ureda JR. Innovative and Community-Driven Communication Practices of the South Carolina Cancer Prevention and Control Research Network. *Preventing chronic disease*. 2014; 11:E127. [PubMed: 25058673]
17. Mendel P, Meredith L, Schoenbaum M, Sherbourne C, Wells K. Interventions in Organizational and Community Context: A Framework for Building Evidence on Dissemination and Implementation in Health Services Research. *Adm Policy Ment Health*. 2008; 35(1-2):21–37. [PubMed: 17990095]
18. Griffith D, Allen J, DeLoney EH, et al. Community-Based Organizational Capacity Building as a Strategy to Reduce Racial Health Disparities. *The journal of primary prevention*. 2010; 31(1-2): 31–39. [PubMed: 20127281]
19. Simmons A, Reynolds RC, Swinburn B. Defining community capacity building: Is it possible? *Preventive medicine*. 2011; 52(3-4):193–199. [PubMed: 21320524]
20. Baker EL, Potter MA, Jones DL, et al. The public health infrastructure and our nation's health. *Annual review of public health*. 2005; 26:303–318.
21. Wandersman A, Duffy J, Flaspohler P, et al. Bridging the Gap Between Prevention Research and Practice: The Interactive Systems Framework for Dissemination and Implementation. *American journal of community psychology*. 2008; 41:171–181. [PubMed: 18302018]
22. Freedman, DA.; Alia, KA. Building pharmacies: A guide for implementing a farmers' market at a community health center. Columbia, SC: University of South Carolina; 2013.
23. Rogers EM. New Product Adoption and Diffusion. *Journal of Consumer Research*. 1976; 4:290–301.
24. Ratzan, SC.; Nelson, DE.; Eng, T.; Goldberg, C. Electronic Communication. In: Nelson, DE.; Brownson, RC.; Remington, PL.; Parvanta, C., editors. *Communicating Public Health Information Effectively A Guide for Practitioners*. Washington, D.C.: American Public Health Association; 2002. p. 173-184.
25. Stone-Carci L, Wallerstien N, Garcia A, Minkler M. The Promise of Community-Based Participatory Research for Health Equity: A Conceptual Model for Bridging Evidence With Policy. *American journal of public health*. 2014

**Table 1**

## Respondents' Organization Type, Purpose, Programs

	Frequency	Percent
<b>Organizational Type</b>		
School or university	97	37.0
Community health center/Federally qualified health center	57	21.8
Farm or agriculture	52	19.9
Government	52	19.9
Farmer's market	50	19.1
Hospital	26	9.9
Faith-Based	24	9.2
Recreation	9	3.4
Private medical practice	8	3
Daycare	7	2.7
Health department	4	1.5
Tribe	3	1.2
No Choice	9	3.4
<b>Organizational Purpose/Mission</b>		
Community development	202	78.6
Health disparities	198	77
Diet-related chronic diseases	195	75.9
Food insecurity/hunger	177	68.9
Poverty	167	65
Education	140	54.5
Sustainable agriculture	137	53.3
Economic development	129	50.2
Environmental justice	86	33.5
Labor and workforce development	86	33.5
Housing	55	21.4
No Choice	14	5.5
<b>Existing Organizational Programs Related to Food and Nutrition</b>		
Community garden	83	46.9
Farmers' markets	82	46.3
SNAP/WIC	59	33.3
Food pantry or food bank	46	26
Restaurant	30	17
Grocery/CO-OP	26	14.1
Advocacy	8	4.5
Delivery/Distribution	8	4.5
Funders	5	2.8
Double bucks	3	1.7

	Frequency	Percent
No Choice	94	53.1

Note: Total exceeds 100% as respondents provided multiple responses.

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**Table 2**

**Organizational Capacity to Support Farmer's Markets**

	No Farmer Market Plans			Plans to Open Farmer Market in Next 12 Months			Existing Farmer Markets		
	Count	Row N %	Mean	Count	Row N %	Mean	Count	Row N %	Mean
We have financial resources To establish and sustain an onsite farmer's market	Disagree	96	53.6%	60	33.5%		23	12.8%	
	Agree	7	14.3%	20	40.8%		22	44.9%	
	Strongly Agree	1	5.9%	7	41.2%		9	52.9%	
	Total	104		87		2.01	54		2.89
We have institutional support for forming an onsite farmer's market	Disagree	97	62.6%	46	29.7%		12	7.7%	
	Agree	11	20.4%	23	42.6%		20	37.0%	
	Strongly Agree	0	0.0%	17	43.6%		22	56.4%	
	Total	108		86			54		
We are connected to community partners who would help us with our farmer's market.	Disagree	44	69.8%	15	23.8%		4	6.3%	
	Agree	47	41.6%	42	37.2%		24	21.2%	
	Strongly Agree	14	20.3%	29	42.0%		26	37.7%	
	Total	105		86		3.81	54		4.26
People in my organization believe that a farmer's market would help solve one or more community problems	Disagree	28	60.9%	9	19.6%		9	19.6%	
	Agree	49	41.5%	44	37.3%		25	21.2%	
	Strongly Agree	27	33.8%	33	41.3%		20	25.0%	
	Total	104		86		4.07	54		3.87
We have space at my organization to have an onsite farmer's market.	Disagree	75	62.0%	37	30.6%		9	7.4%	
	Agree	24	36.4%	25	37.9%		17	25.8%	
	Strongly Agree	6	10.2%	25	42.4%		28	47.5%	
	Total	105		87		3.01	54		4.02

Note: Mean Scores: 1= Strongly Disagree 5=Strongly Agree