Policy, Systems, and Environmental Approaches to Obesity Prevention: Translating and Disseminating Evidence from Practice

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ABSTRACT

To reduce obesity prevalence, public health practitioners are intervening to change health behaviors as well as the policies, systems, and environments (PSEs) that support healthy behaviors. Although the number of recommended PSE intervention strategies continues to grow, limited guidance is available on how to implement those strategies in practice. This article describes the University of North Carolina at Chapel Hill, Center for Training and Research Translation's (Center TRT's) approach to reviewing, translating, and disseminating practitioner-developed interventions, with the goal of providing more practical guidance on how to implement PSE intervention strategies in real-world practice. As of August 2014, Center TRT had disseminated 30 practice-based PSE interventions. This article provides an overview of Center TRT's process for reviewing, translating, and disseminating practice-based interventions and offers key lessons learned during the nine years that Center TRT has engaged in this work.

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More than one in three adults in the United States is obese (body mass index ≥30 kilograms per meter squared), which increases their risk for diabetes, cardiovascular disease, and other chronic illnesses.[1] To reduce the prevalence of obesity, public health practitioners are intervening to change not only health behaviors but also the policies, systems, and environments (PSEs) that influence those behaviors.[2,3] Practitioners work across settings and sectors to increase access to healthier foods, promote breastfeeding, and develop the infrastructure needed to support physical activity.[4,5]

Although evidence on the effectiveness of PSE interventions is growing, limited guidance is available on how to implement them in practice.[6–8] To address this evidence gap, the Institute of Medicine recommended taking advantage of the interventions that practitioners develop as a source of practice-based evidence.[9] Practitioners who are developing PSE interventions include those working in departments of public health, transportation, and planning; as well as in child care programs, public schools, and other community-based organizations. Since 2004, the University of North Carolina at Chapel Hill Center for Training and Research Translation (Center TRT) has been capturing evidence from practice-based interventions and disseminating it to practitioners working in obesity prevention nationwide. Funded by the Centers for Disease Control and Prevention (CDC), Center TRT reaches a broad audience, attracting more than 22,000 unique visitors to its website in 2013 (Personal communication, Cecilia Gonzalez, Center TRT, April 2014).

We describe Center TRT's approach to reviewing, translating, and disseminating practice-based interventions; a menu of practice-based interventions; and lessons learned since it first began disseminating interventions in 2006.

METHODS

Center TRT disseminates two types of interventions: research-tested interventions and practice-based interventions. As detailed hereinafter, interventions are classified as research tested if they have been tested and found to be effective in one or more studies whose methods were sufficiently rigorous to support claims that the intervention caused outcomes and whose findings have been published in the peer-reviewed literature. Practice-based interventions are interventions whose methods for assessing impact meet accepted standards for evaluations but do not meet the more rigorous standards applied to research studies. Findings from practice-based interventions may or may not be published. Center TRT partnered with CDC staff members to identify promising interventions and then reviewed them to select interventions that merited dissemination. Selected interventions were translated into a template that provided practitioners with the information they needed to implement the interventions and were then disseminated via the Center TRT website (www.centertrt.org). A screen capture of one of Center TRT's intervention templates details the types of ready-to-use information the template provides (Figure).

Identifying and screening interventions

Center TRT first prioritized intervention strategies and then identified interventions that applied those strategies. Strategies are recommendations for the best ways to intervene based on findings from systematic reviews of the research literature and expert consensus. The Center TRT team consolidated six widely used lists of recommendations to create a summary list of 26 strategies (Table 1).[10–15] Using this list, Center TRT staff members collaborated with CDC to prioritize the strategies and settings for which practitioners needed additional guidance. For example, numerous states were asking CDC project officers for additional guidance on increasing the use of locally grown produce; therefore, the decision was made to prioritize increasing the purchase and use of foods from local farms in school-based, worksite, or farmers' market settings. Center TRT staff members then conducted a broad search for interventions that had implemented the strategy in the prioritized settings; for example, the Riverside Unified School District Farmers' Market Salad Bar Program.[16]

The search for interventions involved consulting practitioners, professional organizations, and subject-matter experts as well as searching the literature and the Internet. Center TRT staff members then screened the candidate interventions to determine whether or not sufficient evaluation data were available to assess effectiveness. If data were available, staff members contacted the interventions' developers to confirm their willingness to provide detailed information on their activities and findings for dissemination to a wider audience. Following initial screening, interventions were then referred for review.

Reviewing interventions

Center TRT staff members collaborated with the intervention's developer to assemble available information on intervention development and design, intervention materials, and evaluation methods and findings. The information was then given to two members of Center TRT's expert review panel, which comprised eight

Table 1. Center for Training and Research Translation's 26 evidence-based intervention strategies categorized by targeted health behavior and cross-referenced to the sources that recommend the strategy

Categories	*Strategies*
Breastfeeding	• Maternity care practices in the hospital setting[a]
	• Support for breastfeeding in the workplace[a,b]
	• Peer support for breastfeeding[a]
	• Education for mothers about breastfeeding during prenatal and intrapartum periods[a,c]
	• Professional support for breastfeeding by health professionals[a]
	• Media and social marketing promoting breastfeeding[a]
Healthy eating	• Community-wide campaigns to promote healthy eating[b–e]
	• Comprehensive nutrition programs in single setting[b,f]
	• School nutrition programs to promote healthy eating[b,d,e]
	• Changing access and availability to favor healthy foods and beverages[b–e]
	• Food and beverage marketing to favor healthy foods and beverages[b–e]
	• Individual counseling about healthy eating[c]
	• Point-of-purchase and point-of-decision labeling to favor healthy foods and beverages[d]
	• Pricing strategies (including taxation) to favor healthy foods and beverages[d,e]
	• Social support for healthy eating[f]
	• Increasing purchasing and use of foods from local farms[b,e]
	• Urban planning/zoning approaches to facilitate healthy eating[b,d,e]
Physical activity	• Increasing access to and number of places for physical activity[b–f]
	• Community-wide campaigns to promote physical activity[b,d–f]
	• Individually tailored health behavior change programs to increase physical activity[f]
	• Point-of-decision prompts for stairwell use[d,f]
	• School-based physical activity and physical education[b,c,e,f]
	• Social support for physical activity[f]
	• Active transportation[b–f]
	• Urban design and policy zoning to facilitate physical activity[b,d–f]
	• Decreasing screen time and other sedentary behaviors[c–f]

[a]Shealy K, Li R, Benton-Davis S, Grummer-Strawn L. The CDC guide to breastfeeding interventions. Atlanta: Department of Health and Human Services (US), Centers for Disease Control and Prevention; 2005. Also available from: URL: http://www.cdc.gov/breastfeeding/pdf/breastfeeding_interventions.pdf [cited 2012 Apr 24].

[b]Prevention Institute. Promising strategies for creating healthy eating and active living environments. 2008 [cited 2013 Oct 31]. Available from: URL: http://www.preventioninstitute.org/index.php?option=com_jlibrary&view=article&id=59&Itemid=127

[c]Institute of Medicine Committee on Obesity Prevention Policies for Young Children. Early childhood obesity prevention policies. Washington: National Academies Press; 2011.

[d]Institute of Medicine Committee on Childhood Obesity Prevention Actions for Local Governments. Local government actions to prevent childhood obesity. Washington: National Academies Press; 2009.

[e]Khan LK, Sobush K, Keener D, Goodman K, Lowry A, Kakietek J. Recommended community strategies and measurements to prevent obesity in the United States. MMWR Recomm Rep 2009;58(RR07):1-26.

[f]Community Preventive Services Task Force. The guide to community preventive services [cited 2012 Apr 24]. Available from: URL: http://www.thecommunityguide.org/index.html

academicians who specialized in the fields of public health, obesity, and research translation. Expert reviewers applied Center TRT's review criteria to assess each intervention and make a recommendation for dissemination based on evidence in support of its effectiveness and potential for public health impact.[17–19] Greater detail on Center TRT's criteria has been reported elsewhere.[18] Because practice-based interventions were not tested using research methods, they required different criteria for evidence of effectiveness than were used to assess research-tested interventions. Center TRT's criteria assessed the plausibility of intervention effectiveness based on the strength of evaluation methods and findings combined with the intervention's underlying logic, formative work, and application of one or more of Center TRT's 26 recommended strategies.[18]

After independently completing their reviews, the two experts compared findings and achieved consensus on whether or not to recommend that a practice-based intervention be disseminated and, if disseminated, whether to classify it as a practice-tested or emerging intervention. Interventions are classified as "emerging" when they do not yet have evaluation data on outcomes but meet all other criteria. A number of promising PSE interventions have not been in the field long enough to have outcome data. For example, practitioners in

Hawaii have collaborated with the Hawaii Department of Transportation and others to develop and implement complete street policies, but they are just beginning to collect data to evaluate impact.[20] Numerous organizations are recommending complete street policies (i.e., policies that create pedestrian- and cyclist-friendly environments for all users),[21,22] and posting the intervention as emerging provides timely information on how others are implementing those policies.

Translating and disseminating interventions

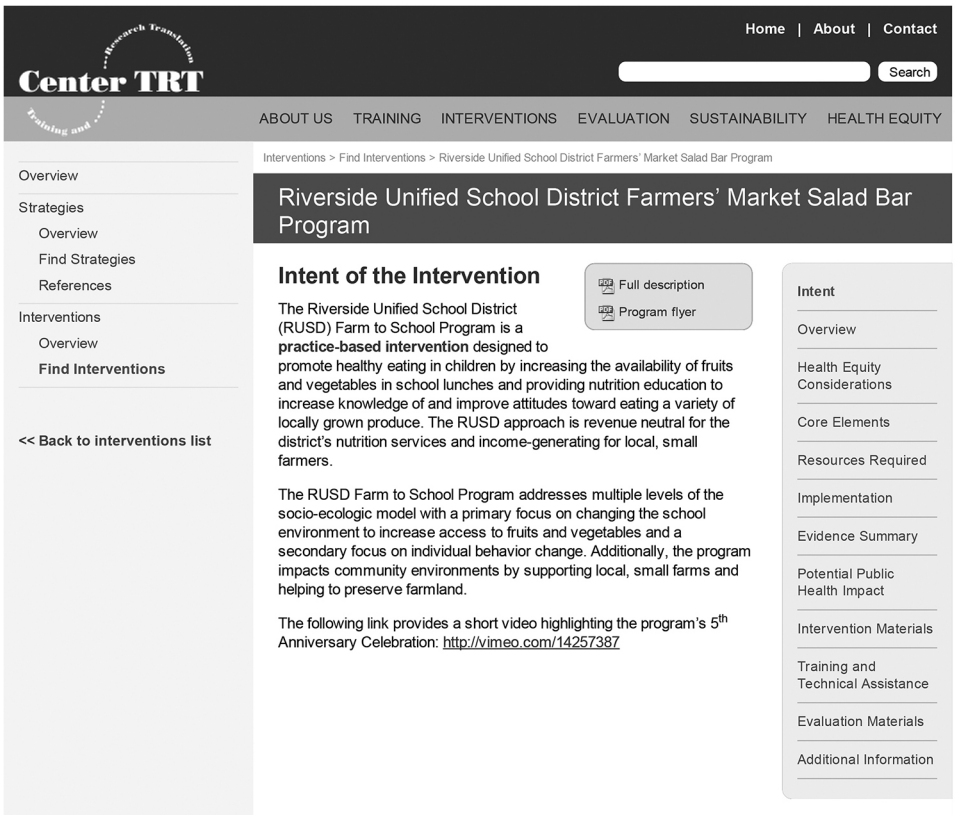
After an intervention was recommended for dissemination, Center TRT staff members worked with expert reviewers and intervention developers to translate the intervention into a standardized, user-friendly template (Figure). The template was developed based on extensive formative work and was designed to provide the information practitioners would need to evaluate the intervention's fit with their needs and to complete the steps required for implementation.

Center TRT disseminates intervention templates via its website. When funding was available, Center TRT supplemented the template with training on how to implement the intervention (e.g., online modules or archived webinars) and evaluation materials (e.g., logic models and evaluation plans). In a 2011 survey of 62 state-level public health practitioners, 70% of those who visited the Center TRT website reported that templates were easy to use and 76% said the website provided the information they needed to implement an intervention.[23]

OUTCOMES

As of August 2014, Center TRT was disseminating 30 practice-based interventions on its website: 15 that promoted healthy eating, seven that promoted physical activity, five that promoted both physical activity and healthy eating, and three that promoted breastfeeding (Table 2). The interventions represented the

Figure. Screen capture showing how the Center for Training and Research Translation applied its template to translate information about the practice-based intervention, "Riverside Unified School District Farmers' Market Salad Bar Program," for posting on its website[a]



[a]Source: Center for Training and Research Translation. Riverside Unified School District Farmers' Market Salad Bar Program [cited 2015 Sep 10]. Available from: URL: www.centertrt.org/?a=intervention&id=1101

Table 2. Practice-based interventions disseminated on the Center for Training and Research Translation's website, with details on their geographic locations, classification, settings, and targeted behavior changes

Intervention and location	*Classification*	*Setting*	*Target*
ABC Grow Healthy (South Carolina)	Emerging	Childcare[a]	Healthy eating and physical activity
Arkansas Healthy Employee Lifestyle Program (Arkansas)	Emerging	Worksite[a]	Healthy eating and physical activity
Cleveland-Cuyahoga County Food Policy Coalition (Ohio)	Emerging	Community	Healthy eating
Connecticut Breastfeeding Initiative (Connecticut)	Practice tested	Hospital	Breastfeeding
Eat Well Play Hard in Child Care Settings (New York)	Practice tested	Childcare	Healthy eating and physical activity
Faithful Families Eating Smart and Moving More (North Carolina)	Practice tested	Faith communities	Healthy eating and physical activity
Farm to Work (Texas)	Emerging	Worksite	Healthy eating
Hawaii Complete Streets Policy (Hawaii)	Emerging	Community[a]	Physical activity
Head Start Central Kitchen Initiative (Utah)	Emerging	School	Healthy eating
Health Bucks (New York City)	Practice tested	Farmers' markets	Healthy eating
Healthy Cornerstore Initiative Produce Distribution System (Minnesota)	Emerging	Corner stores	Healthy eating
Healthy Food Environments Pricing Incentives (North Carolina)	Practice tested	Worksite	Healthy eating
Healthy Food Procurement in the County of Los Angeles (California)	Practice tested	Worksite[a]	Healthy eating
Healthy Vending Iowa (Iowa)	Practice tested	Worksite	Healthy eating
KaBOOM! Community Builds (nationwide)	Emerging	Community	Physical activity
Kaiser Permanente Cafeteria Menu Labeling (California)	Practice tested	Worksite	Healthy eating
Kids in Parks (multiple states)	Practice tested	Community	Physical activity
Kindergarten Initiative (Pennsylvania)	Practice tested	School	Healthy eating
Minneapolis Healthy Corner Store Program (Minnesota)	Practice tested	Corner stores	Healthy eating
Nashville Area MPO: Active Transportation Funding Policy (Tennessee)	Emerging	Community[a]	Physical activity
North Carolina Maternity Center Breastfeeding-Friendly Designation Program (North Carolina)	Practice tested	Health care	Breastfeeding
Oregon Farm to School and School Garden Policy (Oregon)	Emerging	School[a]	Healthy eating
Pennsylvania Fresh Food Financing Initiative (Pennsylvania)	Practice tested	Community[a]	Healthy eating
Policy regulations for day care in New York City (New York City)	Emerging	Childcare[a]	Healthy eating and physical activity
Riverside Unified School District Salad Bar Program (California)	Practice tested	School	Healthy eating
Safe routes to School-PedNet Coalition (Missouri)	Emerging	School	Physical activity
Texas Mother-Friendly Worksite Program (Texas)	Practice tested	Worksite[a]	Breastfeeding
Trailnet-Healthy Active Vibrant Communities (Missouri)	Emerging	Community	Physical activity
VERB™ Scorecard (Kentucky)	Practice tested	Community	Physical activity
West Virginia School Nutrition Standards (West Virginia)	Practice tested	School[a]	Healthy eating

[a]Involved changes to public policy

work of practitioners in 19 states, and the majority of interventions were designed to be implemented in specific settings such as schools, worksites, childcare centers, and farmers' markets. Website data reported by calendar year showed that in 2013, all intervention templates were downloaded by users for a total of 1,988 downloads (Personal communication, Cecilia Gonzalez, Center TRT, April 2014).

LESSONS LEARNED

Many lessons have been learned during the nine years that we having been translating practice-based interventions.

Intervention developers have to commit to the process

To successfully complete the review and translation process, intervention developers must be available to provide detailed information about the intervention. For some developers, investing time in disseminating their interventions aligns with their organizations' mission; for others, it is not a priority. Therefore, Center TRT asks intervention developers to formally commit to a timeline with specific deliverables at the start of the process and offers a small stipend to compensate for the time contributed.

Compiling information on practice-based interventions requires flexibility

The developers of research-tested interventions typically report methods and findings in the standardized format specified for peer-reviewed journal articles. In contrast, developers of practice-based interventions use a variety of reporting formats, such as PowerPoint® presentations and annual reports. To ensure that all available data are captured, Center TRT staff members walked intervention developers through Center TRT's review criteria and helped them think through documentation they had on their formative work or on intervention reach, implementation, and effectiveness. To facilitate reviewers' efforts to locate information, Center TRT staff members developed a system for compiling data and other information into a binder, which they indexed to correspond to each of Center TRT's review criteria.

Practice-based interventions often lack sufficient formative and process evaluation data

In reviewing interventions, Center TRT learned that the developers of practice-based interventions often focus their evaluations on documenting outcomes and expend less effort on collecting formative or process data, which are central to the Center TRT review process. For example, a developer might not collect data on whether or not the intervention was implemented as intended. In addition to its impact on the review process, the lack of formative and process evaluation data hampers efforts to translate interventions into templates that provide comprehensive implementation guidance. CDC and Center TRT have responded to this challenge by building practitioners' capacity to evaluate their PSE interventions through the provision of an evaluation framework, multiple evaluation trainings, and evaluation resources on Center TRT's website.[24]

Expert reviewers require guidance in reviewing practice-based interventions

Expert reviewers have far less experience reviewing and critiquing practice-based interventions than research-tested interventions. To quote one reviewer, "Reviewing research-tested interventions is easy; reviewing interventions developed and evaluated in practice is a mess." To help reviewers navigate "the mess" and to ensure consistency across reviews, Center TRT created and trained a review panel of eight experts and developed structured tools to guide them through the review process. Over time, reviewers gained experience using Center TRT's criteria for reviewing practice-based interventions.

The evidence base for interventions changes over time

Successful interventions often are revised and updated over time and new evaluation data are collected. To keep interventions up to date, Center TRT staff periodically contacted intervention developers and asked them to report changes to their interventions and provide any new evaluation data. More than 80% of developers responded to these requests, resulting in minor updates to some interventions and significant changes to others. In several cases, new evaluation data were sufficient to consider moving an intervention from emerging to practice tested or from practice tested to research tested. In these cases, the review process was repeated.

CONCLUSIONS

Public health practitioners are implementing a range of innovative interventions to create PSEs that support healthier behaviors. Because they were developed by practitioners, practice-based interventions often have inherently greater practice relevance and feasibility than do interventions developed by researchers.[9] Center TRT takes advantage of these practitioner-developed interventions to provide the guidance that practitioners have reported they need most—guidance on how to plan, implement, and evaluate an intervention in real-world practice.[25] The value of Center TRT's interventions to practitioners is evidenced by the number of individuals visiting the Center TRT website and downloading intervention templates, which has increased steadily since the site was launched in 2006 (Personal communication, Cecilia Gonzalez, Center TRT, April 2014). Further research would help assess Center TRT's impact on the types and effectiveness of interventions that practitioners are implementing.

The work of Center TRT also built the capacity of intervention developers. For many developers, the template was their first opportunity to comprehensively document what they did and how they did it, and several developers noted that the process increased their evaluation capacity. Many developers get inquiries about their interventions, particularly about replication or adaptation. Referring interested parties to the Center TRT online template provides developers with an easy response to such inquiries. The lessons Center TRT learned during the past nine years also might inform other organizations' efforts to translate and disseminate practice-based interventions. Public health practitioners are leading efforts to change policies, systems, and environments and thereby create

healthier environments. Disseminating their work is a central step in contributing practice-based evidence to the evidence base for practice in obesity prevention.

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