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Using a Training-of-Trainers Approach and Proactive Technical Assistance to Bring Evidence Based Programs to Scale: An Operationalization of the Interactive Systems Framework's Support System

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Abstract Bringing evidence based programs to scale was a major initial impetus for the development of the Interactive Systems Framework for Dissemination and Implementation (ISF). The ISF demonstrates the importance of the Support System in facilitating the uptake of innovations in the community (the Delivery System). Two strategies that members of the Support System commonly use are training-of-trainers (TOT) models and technical assistance (TA). In this article, we focus on the role of the Support System in bringing evidence-based programs (EBPs) to scale in the Delivery System using a case example, with special attention on two strategies employed by Support Systems—*training-of-trainers (TOT)* and *proactive technical assistance*. We then report on findings from a case example from the Promoting Science Based Approaches to Teen Pregnancy Prevention project that furthers our conceptualization of these strategies and the evidence base for them. We also report on the limitations in the literature regarding research on TOTs and proactive TA and provide suggestions for future research on TOTs and proactive TA that will enhance the science and practice of support in the ISF.

Keywords Support System · Evidence-based programs · Going to scale · Interactive systems framework

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Introduction

Evidence-based programs (EBPs) include specific interventions that have been proven through rigorous evaluation to produce desired outcomes among targeted populations. The use of EBPs is now required by many federal agencies, such as the Centers for Disease Control and Prevention (CDC), the Office of Adolescent Health (HSS OAH 2010), the Substance Abuse and Mental Health Services Administration, and the Department of Education. For example, in 2010, the newly established federal OAH launched a 5-year initiative, funded at \$75,000,000 per year, to support community organizations implementing evidence-based teen pregnancy prevention programs with fidelity; each grantee was required to select and implement at least one EBP from among 28 EBPs on an approved list. There are many compilations of EBPs across a variety of prevention domains (e.g., Elliott and Mihalic 2004; HSS OAH 2010). With major new funding available for local communities to implement EBPs, a significant challenge is how to bring EBPs into widespread use so that people benefit from these programs and communities are well served. A U.S. Department of Education (2011) evaluation of the use of EBPs to prevent substance abuse and school crime reported that only 7.8 % of school programs met a standard of being research based. Of these research-based programs, 44% met standards for being implemented with fidelity. Therefore, approximately 3.5% of all the prevention programs in the study were *both* research-based *and* well-implemented. These results starkly illustrate important issues about the reach and quality of efforts to support dissemination and implementation of EBPs.

An important question for the prevention field is “How are community-based organizations, schools, and other settings going to implement the programs in ways that produce outcomes similar to those in the original evaluation studies?”

Two interrelated requirements for producing similar outcomes are: (1) replicating EBPs with fidelity (Valentine et al. 2011); and (2) taking EBPs to scale (Fixsen et al. 2009a; Granger 2011). At the federal level, there is strong encouragement for implementing EBPs with fidelity (e.g., OAH 2010) and a requirement for many practitioners to be trained to implement such programs. Often these requirements are at odds with demands on practitioners, such as other responsibilities, mixed levels of skills and abilities, and limited resources (Fixsen et al. 2005; Fixsen et al. 2009b).

The Interactive Systems Framework for Dissemination and Implementation (ISF) (Wandersman et al. 2008) was developed, in part, to help address these two interrelated requirements and resulting challenges. The ISF aims to increase the capacity of practitioners and organizations to deliver innovations (herein focused on EBPs) with quality. The ISF has three interacting systems: The Synthesis and Translation System synthesizes the relevant literature via literature reviews and meta-analyses about an EBP and provides a user friendly, action-oriented “translation” of the EBP. The Support System provides support (e.g., training and technical assistance) to practitioners to use an EBP in practice settings. The Delivery System is comprised of practitioners who implement EBPs in various settings including schools, community-based organizations, health clinics, and local coalitions in order to improve outcomes for targeted populations.

Literature is accumulating that training is necessary but not sufficient for quality implementation and should be supplemented in concert with more customized support like TA or coaching (Fixsen et al. 2005; Joyce and Showers 2002; Wandersman et al. 2012). Consequently, this article focuses on the role of the Support System in bringing evidence-based programs (EBPs) to scale in the Delivery System using a case example, with special attention on two strategies employed by Support Systems—*training-of-trainers (TOT)* and *proactive technical assistance*. We begin with a review of the literature on TOTs and proactive TA strategies. The brief review is followed by (1) a description of the Promoting Science-Based Approaches to Teen Pregnancy Prevention (PSBA) Project; (2) Healthy Teen Network’s (HTN) role as a Support System to PSBA partners; (3) project results on TOTs and proactive TA; and (4) a discussion of next steps to continue building a stronger evidence base for activities of the ISF Support System.

Brief Review for Training-of-Trainers and Proactive Technical Assistance

Training-of-Trainers

A TOT is a specific form of training that has been found effective in providing would-be trainers with the necessary

knowledge and skills to become trainers themselves in a variety of contexts (ILO 2002; see also USAID 2008). As such, TOT participants need to achieve an adequate level of expertise in the concepts and techniques contained in the training in order to have the ability and confidence to effectively train others. Once the TOT participants meet an adequate level of proficiency and become “trainers” themselves, they can share what they learned with a large number of their colleagues and other members of their community through a deliberate dissemination process. While models for TOT most often use a “learn by doing” approach and rely on adult learning theories, they may vary in length, and there is no prescribed method for their implementation.

The TOT model has been increasingly used in a diverse range of disciplines, including education (e.g., Assemi et al. 2007; Corelli et al. 2007), health care (e.g., Hiner et al. 2009; Rubak et al. 2008), health promotion and prevention (e.g., Carruth et al. 2010; Muramoto et al. 2011), and public health preparedness (Orfaly et al. 2005). Some initiatives use TOTs to disseminate and implement complex behaviors such as the appropriate use of EBPs (e.g., Muramoto et al. 2011; Olweus 2005; Salyers et al. 2007; Sandler 2007; St. Pierre and Kaltreider 2004) and evaluation capacity building (e.g., Naccarella et al. 2007; Stevenson et al. 2002). While TOTs have been used for disseminating and implementing complex initiatives, these efforts often use a TOT in combination with TA and other support strategies (e.g., provision of comprehensive implementation manuals, web-based support). Certified content experts are often employed to conduct the initial trainings to ensure quality (e.g., Olweus 2005; Sandler 2007).

A host of challenges has been encountered across the many domains in which TOT has been implemented. For example, there may be a need to routinely modify a TOT approach to accommodate cultural preferences and/or practical constraints (Olweus 2005). Another challenge is that participants who have successfully completed TOT programs have had difficulty in accomplishing the second step in the TOT model: using their new skills by facilitating their own trainings (e.g., Hahn et al. 2002; Lloyd et al. 2009). While few articles have reported the percentage of TOT participants who actually go on to conduct trainings (Hiner et al. 2009), a study conducted by Orfaly et al. (2005) found that TOT participants often failed to follow-through with trainings due to (1) a lack of confidence in their ability to conduct trainings with their colleagues and (2) not having sufficient time and resources to plan for and coordinate these trainings.

There is limited research on whether TOT efforts have achieved a desired level of change in capacity of individual TOT participants (Davis et al. 1999; Steinert et al. 2006).

Many TOT evaluations have relied on TOT participant self-reported data regarding perceived competence or confidence in ability to deliver trainings. While these perceptions are important factors in providing trainings to colleagues, such data are insufficient for determining a TOT participant's actual level of competence and skill (e.g., Martino et al. 2007). Stronger evaluations of TOT effectiveness have used pretest–posttest designs or retrospective pre–post designs to assess gains in knowledge in a training group versus a non-trained comparison group (e.g., Carruth et al. 2010; Rubak et al. 2008). Others have assessed TOT effectiveness via performance testing to determine if TOT participants accurately use their learned skills (e.g., Dynes et al. 2011). Performance testing may be done by observational methods, record review, or self-report. However, our literature review suggests that the effectiveness of trainings delivered by TOT trainees is often not assessed at all.

The extent to which TOT participants facilitate trainings with fidelity is another issue that should be evaluated more consistently. Although this is less commonly addressed in the TOT literature, some researchers have evaluated fidelity to training curriculum among TOT participants. For example, Hahn et al. (2002) assessed fidelity by employing trained observers who rated TOT participants on content and process fidelity on a 23-item instrument. This assessment found that content was diluted when TOT participants were compared to “master trainers.” Furthermore, a study by the United Way (Hendricks et al. 2008) found that their strategy—which heavily relied on TOT—overestimated the degree to which local TOT participants could: (1) be proficient in the necessary knowledge and skills within 1 week, (2) remember it over time, and (3) effectively educate staff from local agencies. It should be noted that the prior training experience of the TOT participants made a difference in regard to their ability to effectively educate others. In sum, these findings suggest that evaluation of TOT efforts should assess adherence to curriculum and training protocols, and it should not be assumed that novice TOT participants become training experts after a single TOT. These findings also support the need for follow-up TA to further support the quality and delivery of training post TOT participation.

Proactive Technical Assistance

Proactive technical assistance (TA) is a strategic approach to bringing specific knowledge and/or skills to recipients, and then helping recipients to adopt and use the information and/or skills with quality (Wandersman et al. 2012). In being *proactive*, TA providers both anticipate and respond to recipients' needs. In an anticipatory proactive role, TA providers catalyze the TA process rather than waiting for

TA requests to arrive (Collins et al. 2006)—which is important because potential TA recipients with lower capacity levels are less likely to make TA requests (Kegeles et al. 2005). TA providers continue to be proactive subsequent to the first contact by helping recipients in using the information and/or skills with quality. Proactive TA providers are also responsive to recipients. They customize TA so that it starts with and builds upon recipients' current capacities, moving them towards an optimal level of capacity to implement with quality. Proactive TA providers are also responsive to emergent issues and needs.

Several studies in the field of implementation science have looked at proactive TA specifically around supporting the implementation of EBPs. For example, Kelly and associates (2000) randomized AIDS Service Organizations into one of three conditions: (1) use of manuals detailing how to implement HIV prevention interventions; (2) manuals in tandem with implementation training workshops; and (3) manuals, training workshops, and subsequent proactive follow-up TA via telephone calls. Proactive TA in this study incorporated an initial organizational assessment that included interviews with leadership and staff, and follow-up telephone calls to gather additional information to determine the range of AIDS Service Organization's needs and resources. Proactive TA was subsequently provided for such planning and implementation issues as addressing fidelity concerns, adapting an intervention so that it fits with the organization, and making quality improvements. Subsequent interviews with organization directors indicated that the sample with proactive follow-up TA had the highest levels of HIV prevention program adoption and use.

Proactive TA was included as a critical part of a demonstration of Communities That Care (CTC), which is a prevention operating system focusing on positive youth development. Communities were provided with proactive TA which was characterized by the provision of customized guidance to communities for selecting, planning, implementing, and evaluating evidence-based prevention interventions (Feinberg et al. 2005; Quinby et al. 2008). Modes for delivery of proactive TA included site visits, conference calls, email communications, and customized written reports. After 18 months between 89 and 100 % of CTC milestones were met in each of twelve participating communities (Quinby et al. 2008). Proactive TA was not causally isolated, but the findings suggest that proactive TA is an active ingredient in high quality implementation of evidence-based innovations.

In summary, TOTs and proactive TA are two critical support strategies in the ISF used to support delivery of EBPs in practice. While the research base on TOTs is limited, some important barriers to the successful use of TOT models have been identified, and initial studies have

shown that proactive TA is a strategy that can enhance adoption and use of EBPs. Given the premise that we need evidence-based support strategies to help practitioners implement with quality, it follows that we need more evidence about TOTs and proactive TA. Considering the evidence for TOT and TA supports, we suggest that TOT models may be improved by efforts to: (1) develop high quality resources and materials for participants; (2) provide on-going, proactive, and customized support (e.g., TA) beyond the training; and (3) address post-training barriers that may arise (e.g., adequate time for TOT participants to prepare for and facilitate trainings). Thus, in this article we describe our aim to pilot and evaluate outcomes expected from participation in TOTs with proactive TA follow-up. The following case example demonstrates how we piloted these TOT and proactive TA supports in an enhanced support model conducted as part of a larger program to increase the use of evidence-based teen pregnancy prevention programs.

Advancing the Conceptualization and Evidence Base of Support via TOTs and Proactive TA: Promoting Science-Based Approaches to Teen Pregnancy

In this article, we focus on the role of the Support System as operationalized in a TOT model with proactive TA follow-up in the Promoting Science-Based Approaches to Teen Pregnancy Project (PSBA), funded by the CDC. A major project goal was to facilitate the building of the capacity of community-based organizations for using science-based teen pregnancy prevention approaches, including EBPs (Lesesne et al. 2008). In the project, all three ISF systems were supported by three funded national organizations—Advocates for Youth, the National Campaign to Prevent Teen and Unplanned Pregnancy, and Healthy Teen Network (HTN). Working in the Synthesis and Translation system, the National Campaign provided stakeholders with research studies relevant to the project and they translated research reports for practitioners in the field. Advocates for Youth supported the Delivery System by providing organizational capacity building to grantee organizations to support implementation of EBPs.

During the first 3 years of the 5-year project, HTN (the focus organization of this article) provided general support to four regional and nine state grantees through the provision of tools and resources, training, and TA on general capacities related to the project, such as training on the development of logic models (ETR 2007) and on the PSBA customized Getting To Outcomes best practice accountability process (Chinman et al. 2004; Lesesne et al. 2008; Lewis et al. 2012). Over the final 2 years of the project, HTN provided support on EBPs (innovations in the ISF)

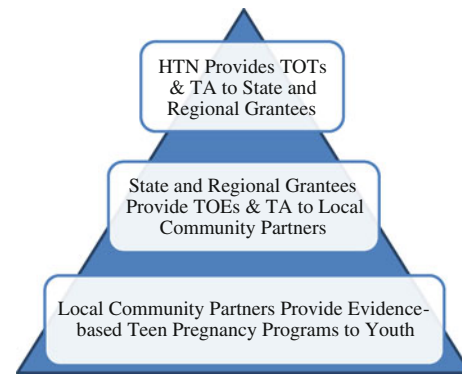


Fig. 1 Promoting Science-Based Approaches to Teen Pregnancy Prevention model for capacity building

via TOT and follow-up proactive TA to the thirteen state and regional grantees (support organizations). The state and regional organizations then implemented EBP trainings with staff from local youth-serving organizations (Fig. 1).

Implementation of the Training-of-Trainers and Proactive Technical Assistance Strategies in the PSBA Project

Over an 11 month time span, HTN delivered three TOTs, one each on three different EBPs for teen pregnancy/HIV/STI prevention—*Making Proud Choices* (Jemmott et al. 1998), *¡Cuidate!* (Villarruel et al. 2005), and *Safer Choices* (Coyle et al. 1996). Each TOT participant received follow-up, customized proactive TA designed to address individual needs. The TA goal was for TOT participants to be able to facilitate Training-of-Educators¹ (TOE), a training of local service delivery staff to foster the implementation of the EBP with quality and fidelity to the program model. Table 1 describes the steps and activities HTN employed during the preparation of the TOTs. HTN's funding allowed for the design and delivery of only three programs. The three were selected based on the proportion of expressed need by the state and regional grantees.

HTN's proactive TA was delivered based on assessments of (1) individual TOT participants' knowledge and skills, as demonstrated by TOT participants during TOT teach-backs (a process in which participants demonstrate key concepts, decisions, or instructions that were just discussed); and (2) post-TOT-tests of participants' perceptions of their capacity to train on the EBP, general training skills, and capacity to provide local organizations with TA follow-up support (Table 2). Once the needs for proactive TA were identified, a plan to address them was developed by

¹ Although the term Training-of-Educators implies that all participants in these trainings were educators, it is important to note that not all participants were school teachers.

Table 1 Steps and Activities for Development and Implementation of a TOT

Steps	Activities
TOT development	Conduct a needs assessment of the target population Tool assessment and development: review the synthesis and translation research and use results to develop high quality, accessible resources and materials for participants including: A curriculum for implementing the specific EBP A research section with articles on evaluation studies relevant to the program Information on the theories underpinning both the program and the training on other program-specific resources Information about the necessary teaching methodologies Develop a comprehensive agenda for TOT delivery using: Adult learning principles Theories of change
TOT Implementation	Implement with up to 20 participants from grantee organizations Employ teach-backs for skill building

the TA provider and TA recipient together. Thus, the proactive TA plan focused specifically on desired change in competency areas. All thirteen grantee organizations were also part of the Support System in the PSBA Project: they supported the implementation of EBPs with local youth by selected local partners from the community prevention Delivery System by providing training during TOEs and follow-up TA (Fig. 1).

The focus of HTN’s role in the project was on the Support System of the ISF; however, elements of each of the three systems were essential contributors to HTN’s work, assisting with timely feedback for quality improvements to the work; and fostering buy-in among the state

and regional grantees. Figure 2 provides a visualization of HTN’s operationalization of the Support System in relation to the ISF model. The evaluation (described below) suggested that HTN was successful at building grantees’ individual and organizational capacity to successfully train Delivery System members to implement evidence-based teen pregnancy prevention programs.

Methods

Three program-specific TOT events were implemented for PSBA grantees who expressed interest in receiving the

Table 2 TOT participants gains: retrospective pretest to posttest to post-posttest

	Target for gains	N	% Making gains	Mean PT scores	STD	N	% Making gains	Mean TAPT gain scores	STD
<i>Making Proud Choices (N = 14)</i>									
EBP Content	90 %	14	100	3.70*	.299	12	83	1.70	.381
Training Skills	75 %	14	86	3.70*	.193	12	100	1.05*	.282
TA Provider Skills	75 %	14	93	3.32*	.427	12	97	1.05*	.608
Overall			93	3.57			94	1.27	
<i>CUÍDATE (N = 19)</i>									
EBP Content	90 %	19	100	4.46	.039	13	31	3.91	.507
Training Skills	75 %	19	74	4.65*	.507	13	54	4.76*	.317
TA Provider Skills	75 %	19	85	3.56*	1.298	13	46	3.75	.847
Overall			95	4.22			44	4.14	
<i>SAFER CHOICES (N = 13)</i>									
EBP Content	90 %	13	69	3.28*	1.420	12	83	4.67	.534
Training Skills	75 %	13	85	4.52	.383	12	67	4.33*	.561
TA Provider Skills	75 %	13	69	3.75	.491	12	50	3.90*	.237
Overall			72	3.85			69	4.30	

* $p < .05$

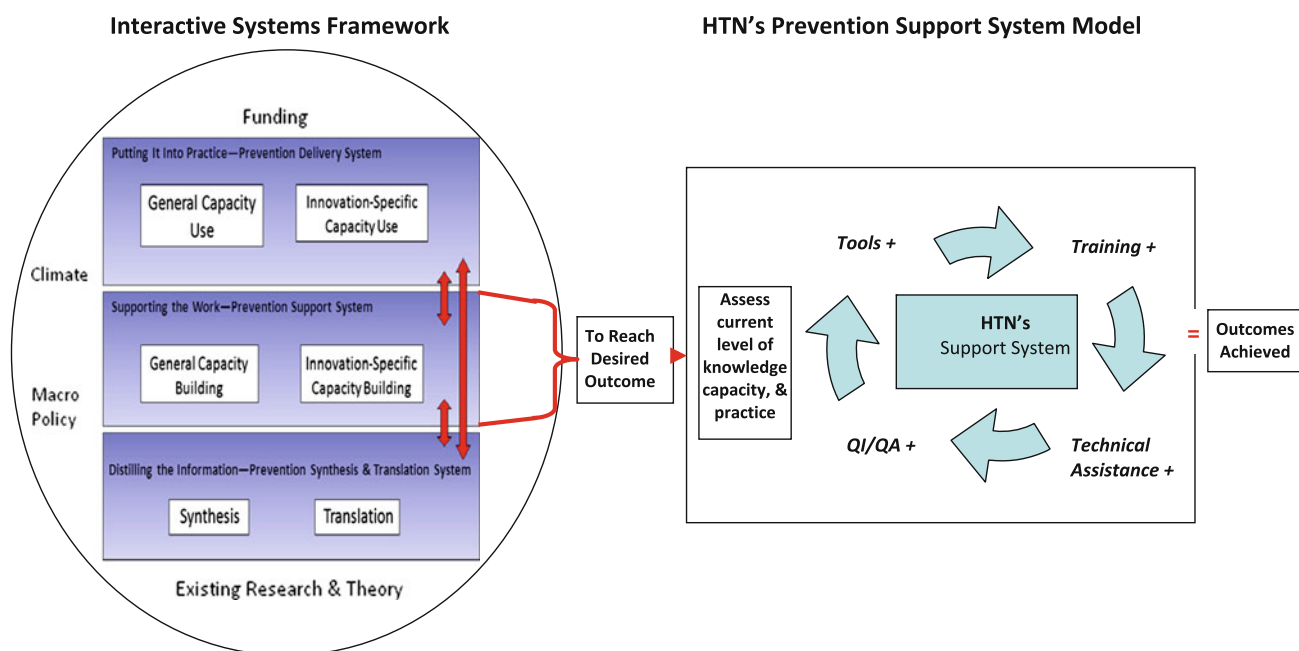


Fig. 2 HTN's Support System model

training and committed to delivery of a TOE within 6 months of receipt of training. The project team required a commitment via a Memorandum of Understanding to conduct a TOE to increase the likelihood that participants would use their new skills near the time of acquisition. The evaluation of the HTN PSBA project included eight different process measures to gather data on the TOTs, proactive TA, and the TOTs and TA combined. The process evaluation for each TOT collected data on: adherence to the TOT design and any changes made; numbers of and demographics for TOT participants; dosage of training each TOT participant received; TOT participant and HTN trainer satisfaction; TOT participant and trainer observations and assessments of the participants' training skills and knowledge during the teach-back sessions; and observations of the TOT conducted by an evaluator from both CDC and HTN. Satisfaction surveys administered at the end of each day of each TOT measured participant satisfaction with a combination of scaled response items and open-ended questions.²

² The five scaled items for *Making Proud Choices* were: (1) the day's training was engaging; (2) presentations were clear; (3) presentation styles were a good match for how I learn; (4) I gained new knowledge and/or understanding of *Making Proud Choices*; and (5) I gained new knowledge and/or capacities to train others on *Making Proud Choices*. The four point scale was 1 = Not good use at all and 4 = excellent.

In an attempt to gather more detailed information, for *Safer Choices* we used the following 13 scaled items and the same four point scale as for the other TOTs: (1) the day's training was engaging; (2) material was presented in a clear and well-organized fashion; (3) trainers used and interactive style that kept all participants involved in the discussions and activities; (4) directions were clear; (5) trainers took time to be sure everyone understood new concepts; (6) activities were presented in easy to understand steps; (7) the presentation styles

The process evaluation for the proactive TA included a systematic review of the following three data sources: TA Time Logs on which each TA contact was recorded for length of contact, with whom contact was made, mode of contact (in person/on-site, phone, email), and a description of the general content; Proactive TA Template on which TA providers recorded progress toward goals and emergent issues for TA; and TA Journal on which TA providers noted more specifics on the content of each TA session. The only process measure for the TOTs and TA combined was the TOE registration forms which provided data on the numbers of participants, and the dosage, and general staff positions and organizations for each participant.

There were six different measures employed for the outcome evaluation. To measure self-perceived change in individual capacities (knowledge about the EBP,³ capacity to train

Footnote 2 continued

were a good match for how I learn; (8) trainers made sure everyone felt comfortable and safe stating their opinions; (9) trainers made sure everyone felt comfortable and safe stating their opinions; (10) trainers made sure everyone had a chance to join discussions and that discussions were not dominated by only a few participants; (11) trainers were respectful of different opinions; (12) I gained new knowledge and/or understanding of *Safer Choices*; and (13) I gained new knowledge and/or capacities to train others on *Safer Choices*.

³ The items to assess participants' feelings of competency to train were different for each EBP. Here is the list of items HTN used to assess TOT *¡Cuidate!*: (a) Describe the learning objectives for *¡Cuidate!*; (b) Describe the core content of *¡Cuidate!*; (c) Describe *¡Cuidate!*'s intended audience; (d) Describe the unique features of *¡Cuidate!*'s; (e) Describe *¡Cuidate!*'s evaluation findings; (f) Describe the six modules that comprise *¡Cuidate!*; (g) Describe *¡Cuidate!*'s unique features for working with Latino youth;

the EBP,⁴ and capacity to provide TA⁵), we administered a retrospective pretest–posttest (Pratt 2000) to all TOT participants at the end of each TOT. These results were used to inform the development of individualized proactive TA plans and to suggest priorities for TOT continuous quality improvement. To measure the effects of the proactive TA on individual capacity, an electronic post-TA-test (with the same items as were used in the retrospective pretest–posttest) was sent to all TOT participants in August 2009 to assess self-perceived gains on curricula topics, and in EBP-specific training capacities and general training skills. There was a 100 % response rate to the retrospective pretests/posttests for all three TOTs. The post-TA response rate was 82.3 %.

Structured live observations by TAs of TOEs provided data about the quality of the implementation and needs for further TA. An independent evaluator also conducted semi-structured interviews with each TA soon after each TOE to gather data on use of training materials, facilitator skills, and fidelity of the implementation to the EBP training guides.

HTN employed two methods to assess outcomes for the combined effects of the TOTs and proactive TA together.

Footnote 3 continued

(h) Describe how Latino culture supports safer sex decisions, including abstinence and condom use; (i) Explain the importance of implementing *¡Cuidate!* with fidelity; (j) Describe a plan for conducting a *¡Cuidate!* training-of-educators (TOE) in the next 6 mo.; (k) Describe how to monitor and evaluate *¡Cuidate!*; (l) I have sufficient knowledge about Latino values to train others on *¡Cuidate!*; (m) I really understand how Latino culture supports safer sex.

⁴ The following items were used to assess TOT participants' feelings of general training skills capacity: (a) Demonstrate knowledge of adolescent pregnancy and HIV/STD prevention while training on a specific science-based program; (b) Provide a welcoming, enjoyable, and safe environment for a training; (c) Demonstrate sensitivity and respect for diverse backgrounds and cultures; (d) Demonstrate skills in performing correct condom use, negotiation of abstinence and condom use through the use of role-plays; (e) Facilitate and manage small group work; (f) Answer questions about sensitive matters; (g) Present a short lecture; (h) Facilitate large group discussions; (i) Facilitate brainstorming; (j) Model effective strategies to create and maintain a positive and constructive learning environment for all participants (e.g. control inappropriate talking or commentary, manages disruptive behavior); (k) Maintain control of the agenda, including managing "in flight changes"; (l) Provide clear instructions for tasks and activities; (m) Manage time efficiently according to training design; (n) Present skills in easy to understand steps (e.g. how to negotiate condom use); (o) Demonstrate the skills to be mastered by TOT participants; (p) Use tools and materials provided to ensure the training design, content, and delivery is effective; (q) Guide and support participants through practice activities; (r) Train on a science-based program with fidelity to the training design/curriculum.

⁵ The following items were used to assess TOT participants' feelings of competence to provide TA: (a) Assessing a participant's *¡Cuidate!* content knowledge; (b) Assessing a participant's training competencies; (c) Setting TA goals based on participant needs; (d) Defining TA activities to reach goals; (e) Developing a proactive TA plan and timeline with participant; (f) Providing TA for planning and a timeline for all tasks required to implement a TOE; (g) Evaluating the overall effectiveness of the TA in addressing participant needs.

An electronic survey of the grantee project coordinators provided information from each grantee's project evaluation on the number of EBP implementations by TOE participants and the number of youth participating in these implementations. Semi-structured telephone interviews were conducted in May 2009 with the executive directors of each of the grantees.

Results

TOT Process Evaluation Results and Outcomes

The three program-specific TOTs were largely implemented according to the project plans as assessed by the evaluators' observations compared to the written training design. Slight mid-course quality improvements were made for timing of activities and clarity of presentations, as suggested by participants on daily feedback forms. The TOT model used provided intensive practice-based training; therefore having fewer than twenty participants was considered optimal.

A total of forty-six grantee staff members were trained across the three TOTs. Attendance at each TOT was within the target range of fewer than twenty participants. Intended dosages of the TOTs were met as almost all participants attended the full 3.5–4.5 days of these events. Due to travel constraints, one or two participants missed up to 2 h of each TOT. Participants indicated high levels of satisfaction with all three TOTs. Mean scores were between 3.4 and 3.8 out of a possible 4.0 score on all 14 satisfaction items. The daily satisfaction survey also included three open-ended response items. Consistently, comments were very positive about the overall TOT experience.

Ninety-five percent of *¡Cuidate!* participants and 93 % of *Making Proud Choices* participants made overall gains in EBP content, training skills, and TA provider skills (Table 2). These gains were consistent with expected standards for performance. With 72 % of *Safer Choices* participants achieving overall gains this TOT was less successful at achieving intended gains in all three areas targeted during the TOTs. A plausible explanation for these lower gains among *Safer Choices* participants is that this is a complicated program intended to involve a whole school. *Safer Choices* involves two additional components (peer leadership and parent components) and is delivered over 2 years. Feeling mastery of this complex program and capacity to provide TA over the long haul may have been more than could be expected of participants after only 4.5 days of training.

Proactive TA Process Evaluation Results and Outcomes

The process evaluation of proactive TA assessed progress in the implementation of the proactive TA plan (Table 3).

Table 3 Steps and activities for planning and implementing proactive TA

Steps	Activities
Proactive TA planning	Use of data from teach-back observation forms and post-TOT-tests
	To identify TA recipients' strengths and weaknesses
	For TA providers and recipients to plan together the goals for proactive TA
Proactive TA implementation	TA provider and recipient identify TA strategies to achieve goals
	Set schedule for contacts
	Implement plan
	Adjust plan as appropriate to address emergent needs

Over the final 2 years of the PSBA project, HTN provided grantees with almost 400 h of proactive TA: 32 h of email contact; 85 h of telephone contacts; and 278 h of on-site coaching and observations. In several instances, process evaluation data informed decision-making, planning, and subsequent mid-course corrective actions to address emerging TA needs and to promote strategic enhancements in TA. For example, the TA providers found that they could not effectively address training skills or assess skill improvements over the phone or in email communications. Rather they needed to see TOT participants implementing training skills (much as they had when they observed the teach-backs) to give accurate and helpful feedback. When they observed the first TOEs, TA providers found the TOT participants had made little improvement in the skills they had worked on during proactive TA phone calls and emails. When on site, however, TA providers coached TOT participants on skill development and achieved immediate improvements. Thus, they concluded that on-site, individualized skill development was a more effective delivery approach for specific skill development. Proactive TA plans were subsequently modified to include an additional amount of time working face-to-face with recipients.

In August 2010, after the proactive TA was delivered, HTN implemented an electronic survey with TOT participants to assess TOT participants' gains in EBP content, general training skills, and TA provider skills. Results are shown in Table 2 in the two right hand columns. The gains seen in the Table can be attributed to the proactive TA that the TOT participants received after the TOT.

Ninety-four percent of participants reported on the TA posttest that they made gains in their capacities to train on *Making Proud Choices*, general training skills, and capacities. This TOT was the first one; therefore, participants had the longest time period to improve capacities after the TOT. We anticipated that this cohort of TOT participants would make

the largest gains in the comparison of posttest scores to post-posttest scores, and they did. Many, though not all, of the participants in the other two TOTs had also participated in the *Making Proud Choices*; therefore, HTN expected fewer gains from these participants because participants had been previously exposed to the general training skills and TA provider skills, hence needed less improvement than first timers. For *Safer Choices*, we found gains in TA posttest over post-TOT-test scores, and the anticipated lower gains on general training skills and TA provider skills due to both the complexity of the program and shorter time span between the TOT and the end of the project (Table 2).

TOT/TA Combined Process Results and Outcomes

The letters of agreement (LOAs) signed by each grantee before sending staff to a TOT included agreement to implement a TOE within 6 months of attending each of the TOTs. This strategy, in combination with the proactive TA, helped keep most of the grantees on track with preparations for the TOEs even though resources for this preparation were very limited.

The numbers of both TOEs and TOE participants (as seen in Table 4; Fig. 3) were higher than expected given the relatively small number of grantees in the project overall and those attending the TOTs. This speaks to (1) the high level of preparation required so that grantees could attend a TOT, participate regularly in goal-oriented, proactive TA and then be ready to quickly conduct quality trainings themselves; and (2) a high level of need in communities for quality training on EBPs. Also reported in Table 4 are the findings regarding quality and fidelity of each of the initial TOEs.

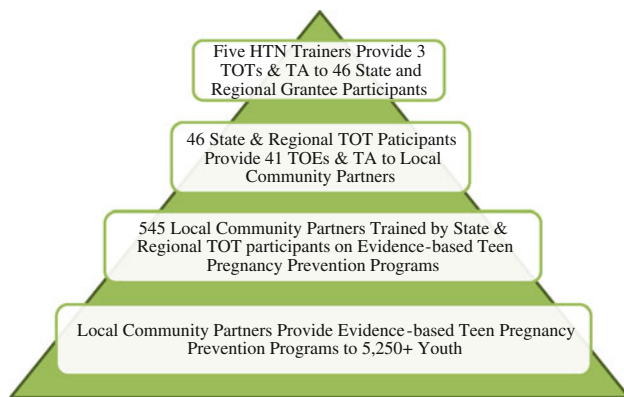
Of particular interest to HTN, CDC, and the field in general was the quality and fidelity of implementation of the EBPs during the TOEs. To measure quality and fidelity of implementation, a structured observation form developed specifically for each of the three EBPs was completed by the TA provider during observations of most of the initial TOEs. The structured observation forms provided space for TA observers to rate the quality of implementation⁶ for each activity in the EBP's implementation binder. The scores reported in Table 4 show room for growth but were generally positive.

Fidelity (Table 4) was reflected by TA observers in the comments they made on the observation forms and as reported by the TA to the evaluator during semi-structured post-TOE telephone interviews. The sample size for these implementations is too small to draw conclusions but overall fidelity assessments were also positive. The exception was the 70 percent rating for the *Safer Choices*

⁶ The ratings for quality were: (1) activity not observed; (2) needs improvement; and (3) well done. There was space on the forms for comments on each activity.

Table 4 Results from TOTs and proactive TA

EBP (number of TOEs observed)	TOE outcomes	Number of youth <i>at least</i> reached
Making Proud Choices (N = 7)	17 TOEs with 218 educators	56 educators reached at least 4,755 youth
¡Cuídate! (N = 3)	12 TOEs with 180 educators	24 educators reached at least 439 youth
Safer Choices (N = 3)	12 TOEs with 147 educators	7 educators reached at least 49 youth
Quality of TOE implementations	Mean Ratings out of 100 possible points	
Making Proud Choices	87.45 (hi = 99; lo = 61)	N/A
¡Cuídate!	82.67 (hi = 95; lo = 65)	N/A
Safer Choices	70.00 (hi = 87; lo = 60)	N/A
Fidelity of TOE implementation	Ratings 6 of 7 TOEs = 95–100 %	
Making Proud Choices	1 = 80 %	N/A
¡Cuídate!	1 = 100 %; 2 = 90–95 %	N/A
Safer Choices	2 = 85–90 %; 1 = 73 %	N/A

**Fig. 3** The multiplier effect achieved utilizing the TOT/TA model

TOE that was specifically attributed to one grantee's desire to truncate the TOE over the objections of their TA provider. This resulted in the omission of some activities and thus not providing all TOE participants with opportunities to practice key activities during teach-backs.

Despite encouragement to do so, most grantees did not systematically track the number of times the EBPs were implemented by TOE participants or the number of youth involved in these implementations. However, results amongst those who did track these numbers indicated a large number of youth reached; this clearly points to the potential that a TOT plus follow-up proactive TA has potential to help move EBPs into broader use (Table 4; Fig. 3). HTN's five trainers trained 46 grantee staff participants. These 46 TOT participants implemented 41 TOEs with 545 participants, and 87 of these TOE participants reached at least 5,243 youth with EBPs (Fig. 3). If the goal is to increase the number of youth exposed to quality, evidence-based prevention programming, then this model seems to have worked well.

HTN's goal for the project was to help grantees build their organizational capacity to support teen pregnancy prevention work using science-based approaches, including EBPs, in their local communities. In late spring 2010, the HTN evaluator administered a semi-structured telephone interview lasting about 1 h with executive directors of each of the grantee organizations.

The interview assessed whether HTN achieved their project goal and, if so, which parts of their work with the grantees had been most successful in contributing to that achievement. While the interviews were structured with probe questions to uncover limitations and suggestions for improvement, virtually none were forthcoming. The following are just two of the many quotes from the interviews illustrating various ways in which HTN's training and TA were successful in contributing to growth in organizational capacity.

*We started the project as novices on how to educate others and train to buy into [EBP]. Now we're recognized in [the state] as training authorities on the project and getting calls to join in applications for federal funding...the locals want to partner with us as the experts for training, TA, and evaluation. We would not have had all this before the project and HTN's work on it with us.

*Thanks to their [HTN's] training and TA we are able to provide the best training and TA in the region. They worked with us from the beginning and I can say with confidence that they built our capacity from 0 % to 100 %.

After analyzing the qualitative data from these interviews, the evaluator concluded that HTN was very

successful at building capacity to do teen pregnancy prevention work using science-based approaches and programs in 11 out of 12 of the grantee organizations.⁷ The training, resources/tools, and TA were all reported to be of very high quality and had an impact on the whole organization, not just the individuals who participated. If key staff people left the grantee organizations, continuing this work would not be without challenges, but it appears from the interviews that the infrastructure for continuation was generally in place (general organizational capacity in the ISF).

Discussion

The ISF (Wandersman et al. 2008) was developed to promote interactive and supportive relationships between stakeholders in varying positions and roles (e.g., practitioners, trainers and TA providers, funders). The most common support strategies used by Support System actors are training and TA. Ideally, a quality TOT is based on information from the research Synthesis and Translation system of the ISF and this information must reach the Delivery System. Our case example offers applied evaluation evidence that suggests the combined TOT and proactive TA model is a promising strategy for reaching the Delivery System.

Two major needs reported in the EBP implementation literature are the need to replicate EBPs with fidelity (Valentine et al. 2011) and the need to address how to take EBPs to scale (Fixsen et al. 2009a; Granger 2011). As we have seen in this article, HTN successfully addressed both the need for fidelity and the need for scaling up the use of a TOT model followed by proactive TA.

The delivery of 41 TOEs to 545 members of the local delivery system speaks to the high level of preparation undertaken so that grantees could attend a TOT and participate regularly in goal-oriented, proactive TA and then be ready to conduct quality trainings themselves. However, the low gain scores on *¡Cuidate!* in all three areas were not anticipated. A plausible explanation is that *¡Cuidate!* has a cultural frame, and this proved more difficult for non-Latino TOT participants to train during a TOE with Latino TOE participants than had been expected. This difficulty may have resulted in feelings of low capacity on the general training skills and the skills needed to provide TA to these TOE participants with cultural competence. Many of these TOT participants told TA providers that in the future

they planned to address this concern by co-facilitating additional TOEs on *¡Cuidate!* with Latino trainers.

Part of the accountability of proactive TA is its use of lessons learned for quality improvements. For example, since both the TA providers and recipients had busy schedules, a regular time for TA calls was necessary to enable regular contacts. Second, those TA recipients who were newest in their jobs and/or had the least previous training experience needed and received the highest number of TA contacts and these contacts were also the longest. Third, as mentioned above, TA providers quickly became aware that a telephone conversation was not an effective means for ongoing skill development. However, phone calls were very effective in addressing adaptation issues, questions about the EBP content, and coaching on preparation and planning strategies for the TOEs.

Three critical areas of needs emerged during proactive TA that had not been identified in the post-TOT-test data nor included in the TOT training. The first emergent area was the need to make adaptations to the TOE agendas in order to accommodate the limited time community organizations and schools provide for professional development and training. Among the grantees' community-based local partners, only 1 day was generally provided for professional development annually. Yet all three of the EBPs required at least 2.5 days of training in preparation for implementation. While the grantees were very creative in finding ways to extend the time for TOE participation (such as starting the training early and ending it late, or in one case to provide a substitute teacher for a day), none were able to extend the TOE beyond 2 days. This meant that a lot of the TA time was spent working with TA recipients to make adaptations to the agenda so that core content was covered in the reduced time. It also meant that the training received by community implementers was truncated.

The second emergent area was the need to provide adaptation guidance on how to provide support to TOE participants in their efforts to implement the programs in sessions that were shorter than prescribed in the original EBP. School classes usually last from 39 to 50 min, but the EBPs were all planned for 1 h sessions. Thus HTN found there was much unanticipated work in this area with each program despite including adaptation guidance in the TOT for each curriculum, and this issue raised concern about the fidelity of implementation with youth (which was not assessed in this evaluation).

The third critical emergent area that needed proactive TA was planning around all of the logistics needed for a successful TOE. Successful preparation requires careful attention to many details. Materials need to be ordered and prepared, copied, and collated into folders for each participant. Videos reviewed and cued to the spots to be used and DVD players checked for availability and working

⁷ Two of the PSBA grantees were separate units in one organization. Therefore there was only one executive director for these two grantees, and the total number of interviews was 12.

order at the training site. Training content needs to be reviewed, learned, and practiced. Arrangements need to be made for the training location, including table arrangements, space for teach-backs, food for breaks and lunch, spaces for parking, etc. Recruitment of participants needs to start early. Finally, time is needed for the facilitators to conduct a run-through of the agenda, and to engage in preparatory tasks (e.g., developing signals for speeding or slowing the pace). The TA providers found that many of the TOT participants had never done this type of intensive planning previously and had difficulty making time for it in their busy schedules. With one notable exception (discussed below), TA providers were able to successfully support TOE planning activities.

HTN evaluated their work on the PSBA project in a thorough manner that included strategies that can be replicated. HTN assessed confidence, knowledge, and skills of the TOT participants and their gains through retrospective pretests/posttests administered at the end of each TOT. These self-reported survey data included perceptions of capacity to train on the EBP, general training skills, and capacity to provide technical assistance. The self-report data were triangulated with the results of structured observations of the TOEs facilitated by the TOT participants. These post-TOT-test data were also used as the basis for planning the follow-up proactive TA to help support further dissemination and implementation. The evaluation measured the extent to which TOT participants provided trainings to practitioners in the delivery system (educators), as well as the quality and fidelity of the TOEs implemented by TOT participants via structured live observation and post-TOE phone interviews with the observers. Finally, HTN measured the effects of proactive TA via a TA posttest administered from 9 to 18 months after the TOT and measured the overall effects on organizational capacity building with semi-structured interviews with executive directors of grantee organization. It was not possible for HTN to evaluate the quality of the EBP delivery with youth—however, such efforts would complete the knowledge/skill transfer and would be ideal in future evaluations.

Literature is accumulating that training is necessary but is insufficient for quality implementation and should be supplemented by TA or coaching (Joyce and Showers 2002), as well as for quality assurance/quality improvement (e.g., see Wandersman et al. 2012). Our case example supports this. HTN successfully used a Memorandum of Understanding to overcome issues related to: failure to implement training on the EBP learned during the TOT, limited time by educators for follow-up TA, and low response rates to evaluation surveys.

We also found that in the 19 months between the first TOT in February 2009 and the end of the project on September 30, 2010, 46 TOT participants had conducted 41

TOEs with 545 members of the local delivery systems. These numbers were higher than expected given the relatively small number of grantees in the project overall (13).

Even with these successes, we learned some important lessons about providing proactive TA. These included: (1) the importance of having a regular schedule for proactive TA contacts; (2) TA recipients who were newest in their jobs and/or had the least previous training experience needed (and received) the highest number and intensity of TA contacts; and (3) TA providers quickly became aware that a telephone conversation was not an effective means for improving skills while it was sufficient for other needs. The responsive aspect of proactive TA enabled TA providers to respond to critical issues that emerged and had not been identified in the post-TOT-test data nor included in the TOT training.

Limitations

Since this study was a practice-based case example, there are a number of limitations to the design. However, practical evaluation strategies must be used in situations such as these, where the context of the TOT model with proactive TA follow-up implementation is complex and dynamic and there are very limited resources for evaluation. One critical limitation of this evaluation is commonly found in the general TOT literature, and that is the use of self-reported RPT/posttest data. In order to overcome this limitation, structured observations were made by TA providers of the TOT participants while they were implementing a TOE. These structured observations of TOT participants provided additional and more objective data points for triangulation. Triangulation of post-TOT data and data from the structured observations confirmed the gains in content knowledge of the EBP and training skills following the TOTs.

It is important to recall that literature suggests a low numbers of trainings actually are implemented by TOT participants. This was also true in our project. The evaluation indicated that TOE participants did not generally follow-through with implementing the EBP post-TOE [545 TOE participants, 87 of which implemented the EBP with youth: 16 % implementation rate (Table 4)]. However, without more complete data we cannot speculate with any certainty why this was the case. It may reflect that grantees themselves did not employ the proactive TA model post TOE and/or that time and resources to implement the EBP post-TOE were barriers.

Next Steps

Working in the ISF Support System, HTN is continuing to improve implementation of the TOT/Proactive TA model

in other areas of HTN's service delivery. Lessons learned described above helped shape an expanded approach to proactive TA that HTN now employs following all its trainings—including TOTs. The goal of HTN's revised proactive TA strategy is to build competencies in grantees and in their implementation partners so that the effective programs are implemented with quality and fidelity, and their community-wide initiatives are brought to scale and sustained over time.

We suggest several next steps in evaluating this model of ISF support include assessing the following questions: (1) Does the use of high-quality TOTs followed by proactive TA help bring evidence-based prevention programs to scale in communities across the nation, especially in areas of highest need and greatest health disparity? (2) What, if any, adaptations need to be incorporated into the TOT/proactive TA model in communities with different demographics or setting constraints on implementation? (3) What is the quality and fidelity in the implementation of EBPs actually received by youth? (4) Is there a "right" or "better" combination of proactive TA activities that result in improved outcomes? (5) Are there competencies (in addition to those tested by HTN) that relate to quality program implementation in this knowledge transfer process? Is there consistency across communities so that a "core set of competencies" can be established? While there is much more work that needs to occur in developing effective strategies for how the Support System should work with the delivery system to bring EBPs to scale, our results show the important potential of TOT and proactive TA strategies.

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