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Adapting Evidence–Based Behavioral Interventions for New Settings and Target Populations

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Many HIV prevention funding agencies require the use of evidence–based behavioral interventions (EBIs) previously shown to be effective through rigorous outcome evaluation. Often, the implementing agency's setting or target population is different than those in the original implementation and evaluation. The Centers for Disease Control and Prevention Division of HIV/AIDS Prevention, in collaboration with internal and external partners, developed draft guidance to adapt an EBI to fit the cultural context, risk determinants, risk behaviors, and unique circumstances of the agency without competing with or contradicting the core elements and internal logic. The guidance described in this article provides a systematic approach to help agencies identify the most appropriate intervention for their target population and agency capacity, monitor the process, and evaluate the outcomes of the adapted intervention. This guidance, currently being piloted with five community–based organizations, will be revised and disseminated at the conclusion of project activities.

Health departments and community–based organizations (CBOs) increasingly are required to implement evidenced–based behavioral interventions (EBIs) for HIV prevention that have been shown to be effective through rigorous evaluation (Centers for Disease Control and Prevention [CDC], 2004). A total of 38 of the 50 state health departments funded by the CDC cooperative agreements for HIV prevention require their funded CBOs to use EBIs diffused through CDC's Diffusion of Effective Behavioral Interventions (DEBI)

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project. The DEBI project was designed to bring science–based HIV prevention interventions to community–based service providers and state and local health departments (Collins, Harshbarger, Sawyer, & Hamdallah, 2006, this issue). Additionally, the six city health departments with highest AIDS caseloads and the two largest territories, Washington, DC, and Puerto Rico, require their funded CBOs to implement EBIs diffused through the DEBI project. Other funded health departments allow CBO grantees to select EBIs that are not part of the DEBI project but most specify that the interventions should be those identified in the CDC's Compendium of Effective Behavioral Interventions (Academy for Educational Development, 2005).

Currently, there is no CDC–recommended process or set of agreed–upon best practices for adapting EBIs to conditions different from those present in the original research. As a result, there is increasing concern that insufficient guidance may limit the effectiveness of EBIs under these new conditions. To help meet this need, the CDC Division of HIV/AIDS Prevention (DHAP) has developed draft guidance on adaptation procedures. This article explores the need for such guidance and describes adaptation's background in diffusion theory, the current available literature on adaptation, the methodology used to form the guidance, and finally, it presents the guidance in its current state as well as the next steps to further refine and evaluate the draft adaptation guidance.

BACKGROUND

Although new treatments continue to offer hope for individuals infected with HIV, behavioral interventions shown to reduce HIV risk behaviors remain one of the most powerful tools in curbing the HIV epidemic (CDC, 1999, revised 2001; Herbst et al., 2005; Johnson, Carey, Marsh, Levin, & Scott-Sheldon, 2003; Neumann et al., 2002). Unfortunately, the development of EBIs is a resource–intensive process that has not progressed as quickly as the epidemiology of the disease. As the epidemic continues to evolve, there is a need to expedite the development of EBIs for target populations that are often disproportionately impacted by HIV/AIDS. One means of accelerating the development process is to adapt EBIs for new target populations.

Adaptation has been defined as "the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation" (Rogers, 1995) or "deliberate or accidental modification of a program" (Center for Substance Abuse Prevention [CSAP], 2002). In the broadest sense, adaptation can include deletions or additions, modifications of existing components, changes in the manner or intensity of components, or cultural modifications required by local circumstances (CSAP, 2002). Researchers have identified several reasons why adaptation occurs, including the following: (a) to simplify a complex innovation, (b) to focus in on a problem or expand to address other problems, (c) to increase ownership of the innovation, and (d) to address a more heterogeneous target population. Additionally, adaptation may be initiated because of (e) a lack of knowledge about the innovation, (f) the abstract form or numerous applications possible of some innovations, (g) agency required change, and (h) lack of available resources (Kelly et al., 2000; Rogers, 1995).

Over time, adaptation has been viewed negatively and positively (Kelly et al., 2000; Rice & Rogers, 1980; Wulf, 1987). Often considered a distortion of the EBI, many developers have tried to ensure that adaptation does not take place (Rogers, 1995). One reason for this is that it is difficult for researchers to measure adoption of EBIs when adaptation occurs. Adopters, however, generally perceive adaptation as necessary to make the innovation more relevant for the target population and agency needs and can aid in gaining community ownership of the program (CSAP, 2002; Jason, Durkal, & Holton–Walker, 1984; Rogers, 1995). Programs adapted with the agency's support have been found to have an increased chance to be institutionalized (Arthur & Blitz, 2000; Glaser & Backer, 1977; Rogers, 1995).

Until recently, adaptation was not commonly researched as it was considered an infrequent occurrence. Once studied, it became apparent that the practice of adapting interventions was common (Berman & McLaughlin, 1976; Botvin, Griffin, Diaz, & Ifill-Williams, 2001; Tappe, Galer–Unti, & Bailey, 1995). Ringwalt, et al. (2004) discovered extensive adaptation by teachers of school–based substance use prevention curricula. Only 15% of the sample of 1,306 teachers who used a recognizable substance use prevention program reported following a curriculum "very closely." Teachers' perception of having a lot of discretion concerning what was taught was associated with more adaptation and a decrease in fidelity. In–service training, greater perceived effectiveness of their last training, principal support for the substance use prevention curriculum, and teaching at a public school were all associated with less adaptation and increased fidelity to curricula. The authors failed to find an association between competing demands of teachers' time for other subject areas, which is often anecdotally thought responsible for lack of fidelity (Ringwalt, Vincus, Ennett, Johnson, & Rohrbach, 2004).

In a study of the natural adaptation of an HIV prevention program, Galbraith (2004) found among 34 agencies that adopted an HIV prevention EBI, Focus on Kids, all but one agency made some change to the curriculum. Across the 34 agencies, the mean number of activities that were deleted or changed was 24 out of 53 activities. New activities were added by 18 (53%) agencies. Harshbarger, Simmons, Cuelho, Sloop, & Collins (2006, this issue) found that significant adaptation occurred in 162 CBOs implementing the HIV prevention EBI, VOICES. Fidelity to each of the elements thought most likely to produce the intervention's main effects was strong (98% viewed culturally specific videos, 95% facilitated small–group discussion, 98% educated participants about different types of condoms, and 82% distributed samples of condoms). However, there were many adaptations. Forty-one percent of agencies reported they had expanded the intervention to a new target audience; 64% said they had formed groups with a different number of participants than suggested, 33% expanded the intervention with 36% adding new materials, and 10% adding new activities.

Blakely et al. (1987) studied seven nationally disseminated education and criminal justice projects measuring program fidelity, adaptation, and effectiveness. Blakely's study is one of the few empiric studies to explore adaptation's impact on effectiveness. The results showed that high–fidelity adopters tended to be more effective than implementers with low fidelity. However, local additions to the model tended to enhance effectiveness. Their analyses suggested that additions were positive and contributed to the overall effectiveness of the innovation, whereas modifications not distracting from fidelity were unrelated to effectiveness.

Much of the work that has been done on adaptation is based on Roger's (1995) diffusion theory. Diffusion has been defined as "the process by which an innovation is communicated through certain channels over time among members of a social system" (Rogers, 1995, p. 5). There are four major elements in diffusion theory: (a) innovation, (b) communication channels, (c) time, and (d) social system. An innovation is an idea, program, or practice that is perceived as new (Rogers, 1995). For the purpose of this article, the innovation is an EBI. Communication is when a message about a new idea (the EBI) is exchanged by participants, which can take many forms including trainings, marketing materials, or peer–reviewed journal articles. A component of Rogers's time element is the innovation–decision process during which an individual passes from initial knowledge to adoption or rejection of an innovation. Rogers defines the social system as a "set of interrelated units that are engaged in joint problem solving to accomplish a common goal," such as the HIV prevention community.

It is during Rogers's innovation–decision process in the time element that adaptation takes place. The innovation–decision process has five fundamental stages: (a) knowledge, (b) persuasion, (c) decision, (d) implementation, and (e) confirmation. Knowledge is when a decision–making unit (e.g., an individual, community, or agency) learns of the EBI's existence and gains some understanding of how it works. Persuasion occurs when the deci-

sion–making unit forms either a positive or negative opinion of the EBI. Decision is the process an individual or organization undergoes in determining a final decision to adopt or reject the EBI. Implementation is when the decision–making unit puts the EBI to use. Confirmation is when the decision–making unit seeks support of the decision for adoption of the EBI that is already completed.

Initially, the process of adaptation was considered a passive act occurring during the implementation phase of the innovation–decision process rather than adopters being active modifiers (Rogers, 1995). The model described in this article argues that adaptation needs to be an active process and initiated during the knowledge phase and integrated throughout the entire innovation–decision process. This will ensure that if a program decides to adapt an EBI, the adaptation process is carefully planned and changes well justified. This active adaptation also fits in Chinman et al.'s (2005) suggested community science research model by focusing on capacity of the local agency to adapt an EBI, attempting to better understand the local adaptation link to prevention practices and health outcomes and how to improve this association.

Although sparse empirical research exists on how to adapt an EBI, there are guidelines that emphasize striking a balance between adaptation and fidelity to the original intervention during the adaptation process. These guidelines also use a planned, organized, and systematic methodology toward cultural adaptation to enhance intervention effectiveness (Castro, Berrera, & Martinez, 2004; Chinman, Imm, & Wandersman, 2004; Kelly et al., 2000; Solomon, 2002). Of particular note is CSAP's published guidance that outlines six steps for adapting an EBI (CSAP, 2002). The CSAP guidance provides a brief overview of the critical components to consider during the adaptation process, including theory, core components analysis, fidelity, expert consultation, agency and community input, and the development of an overall implementation plan.

As CDC–DHAP prepared to begin its draft adaptation guidance, Map of Adaptation Process: A Systematic Approach for Adapting Evidence–Based Behavioral Interventions, the agency sought to add more detail to earlier models and to provide a step–by–step guidance aimed at assisting intervention implementers in navigating the many issues raised by CSAP and others. The CDC strived to develop guidelines that would assist HIV programs adopt EBIs that fit their local needs while at the same time retaining fidelity to the core elements[1] thought most likely to make the intervention effective at reducing HIV risk behaviors. The CDC has narrowed the definition of adaptation[2] to mean the process of modifying key characteristics[3] of an intervention, recommended activities and delivery methods, without competing with or contradicting the core elements, theory, and internal logic[4] of the intervention thought most likely to produce the intervention's main effects.

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1. *Core elements* are required elements that embody the theory and internal logic of the intervention and most likely produce the intervention's main effects. Core elements should be identified through research and program evaluation. Core elements essentially define an intervention and must be kept intact (i.e., with fidelity) when the intervention is being implemented or adapted, in order for it to produce program outcomes similar to those demonstrated in the original research.

2. *Adaptation* is the process of modifying an intervention without competing with or contradicting its core elements or internal logic. An intervention is modified to fit the cultural context in which the intervention will take place, individual determinants of risk behaviors of the target population, and the unique circumstances of the agency and other stakeholders, but the core elements and internal logic are not changed.

3. *Key characteristics* are important, but not essential, attributes of an intervention's recommended activities and delivery methods. They may be modified to be culturally appropriate and fit the risk factors, behavioral determinants, and risk behaviors of the target population and the unique circumstances of the venue, agency, and other stakeholders. Modification of key characteristics should not compete with or contradict the core elements, theory, and internal logic of the intervention.

4. *Internal logic* of an intervention is the explanation of the relationships among intervention activities, behavioral determinants, and the intended outcome(s) of the intervention.

Key characteristics are adapted to fit the risk factors,[5] behavioral determinants,[6] and risk behaviors[7] of the target population and the unique circumstances of the agency and other stakeholders. The draft guidance described below uses the CDC definition of adaptation.

METHODS

At the inception of the ADAPT project, a work group from DHAP was established to develop consensus on definitions and processes related to adapting EBIs for different target populations and settings. The internal work group was multidisciplinary to ensure that varied perspectives of adaptation were considered, and comprised of individuals with expertise in developing, implementing, and evaluating EBIs. Following an extensive literature review, the work group developed a draft adaptation guidance based on community health education, social work, participatory research, and community empowerment principles.

To ensure that the draft adaptation guidance was comprehensive and functional, a panel of external consultants was convened for two days in November 2004. The panel was made up of (a) researchers, both internal and external to CDC; (b) intervention implementers from a wide range of applied backgrounds, such as CBO managers, administrators, facilitators, and outreach workers; and (c) members of potential underserved target populations. The panel of consultants reviewed the draft adaptation guidance by conducting several mock scenarios in small groups, and recommendations for revising the draft adaptation guidance were discussed in the larger group.

Additional feedback on the draft adaptation guidance was received from Prevention Training Center staff members that routinely provide training on intervention implementation (http://depts.washington.edu/nnptc) and from behavioral and social science volunteers (BSSVs) that provide technical assistance to implementers (http://www.apa.org/pi/aids/bssv.html). Three Web conferences also were conducted to receive comments from persons who were unable to attend the consultants meeting and for those with experience or interest in adaptation. The CDC ADAPT Team used the collective feedback from all of these sources to revise the draft adaptation guidance for use by the five ADAPT project sites.

DESCRIPTION OF THE CDC'S MAP OF ADAPTATION PROCESS: A SYSTEMATIC APPROACH FOR ADAPTING EVIDENCE–BASED BEHAVIORAL INTERVENTIONS

The draft adaptation guidance developed through this process and described in this article focuses on many of the same considerations addressed by earlier adaptation models. These include the importance of beginning with EBIs that have been shown to be effective; maintaining fidelity to the core elements of the effective EBI; conducting systematic assessments

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5. *Risk factors* are characteristics of a behavior (including the context in which the behavior occurs) or an individual that increase the likelihood that transmission will occur, but do not in themselves cause transmission (e.g., lifetime number of sex partners, crack use, using old expired-date condoms).

6. *Behavioral determinants* are theorized determinants of risk behavior given by behavior change theory. Some commonly described behavioral determinants are self-efficacy, skills, knowledge, attitudes, beliefs, cognitions, values, and perceived norms. Behavioral theories explain how behavioral determinants shape risk behavior and, therefore, imply how behavioral determinants can be modified to change risk behaviors. Behavioral determinants are the focus of social-behavioral prevention interventions.

7. *Risk Behaviors* are behaviors that can directly expose individuals to HIV or transmit HIV, if the virus is present (e.g., unprotected sex, sharing unclean needles). Risk behaviors are actual behaviors in which HIV can be transmitted, such that a single instance of the behavior can result in transmission. Risk behaviors derive from behavioral determinants.

of the current status of the target population's risk factors, behavioral determinants, and risk behaviors, the agency capacity, the potential for collaborations with other partners, and the need for cultural proficiency.[8] In addition, this draft adaptation guidance strives to systematically incorporate these lessons learned within a framework of program activities. This approach emphasizes the importance of the implementers' practical experience with the target population and agency capacity, while still emphasizing maintaining fidelity to the core elements, theory, and internal logic of the original intervention.

Although the draft adaptation guidance builds on other approaches, there are unique attributes that make it particularly helpful. The draft adaptation guidance provides a systematic approach that assists agencies to identify the most appropriate intervention for their target population and agency capacity while documenting the adaptation process and evaluating the outcomes. An important attribute of the draft adaptation guidance is drawing on the strengths of the community and implementers' experience in the field by integrating feedback loops throughout the adaptation process. The draft adaptation guidance emphasizes clearly defining the target population and understanding a variety of potential interventions for adoption and adaptation. The draft adaptation guidance anticipates that providers will likely begin the adaptation process at different points based on funding requirements and levels of capacity and readiness, and it includes feedback loops so they can revisit earlier activities as necessary during the adaptation process (Figure 1).

Currently, the CDC's draft adaptation guidance is a five–step process. The first action step, assess, involves assessing the target population, the EBIs being considered for implementation, and the agency's capacity to implement the intervention. The second, select, is determining whether to adopt the intervention without adaptation, implement the intervention with adaptation, or choose another intervention and repeating the assess action step before moving forward. The third action step, prepare, falls within the preparation phase and involves actually adapting the intervention materials, pre-testing the adapted materials with the target population, and increasing agency capacity and developing collaborative partnerships when necessary to implement the intervention. The fourth action step, pilot, is pilot testing the adapted intervention or its components if it is not feasible to pilot the entire intervention and developing an implementation plan. The fifth, implement, is conducting the entire adapted intervention with minor revision as needed. Additionally, the guidance includes feedback loops and checkpoints to ensure each action step is addressed adequately, and to provide an opportunity to revisit earlier action steps should difficulties occur. Process monitoring and evaluation, and routine supervision and quality assurance are also important considerations for the guidance. Credible evidence collected during the adaptation process should be evaluated to determine the success of the adaptation process as well as the effectiveness of the adapted intervention.

Although these five action steps are presented graphically in a linear fashion, it is important to note that prevention program activities are not necessarily sequential or mutually exclusive (Sogolow et al., 2000). Many of the action steps and activities are interconnected and will be conducted simultaneously rather than sequentially.

ACTION STEP 1: ASSESS

As outlined in Table 1, the assess action step consists of several components. These include assessing: (a) the target population and identifying its risk factors, behavioral determinants, and risk behaviors: (b) potential EBIs and understanding their internal logic; (c) stakeholders input and potential collaborations; and (d) the agency's capacity to imple-

8. *Cultural proficiency* is a way of being that enables both individuals and organizations to respond effectively to people who differ from them.

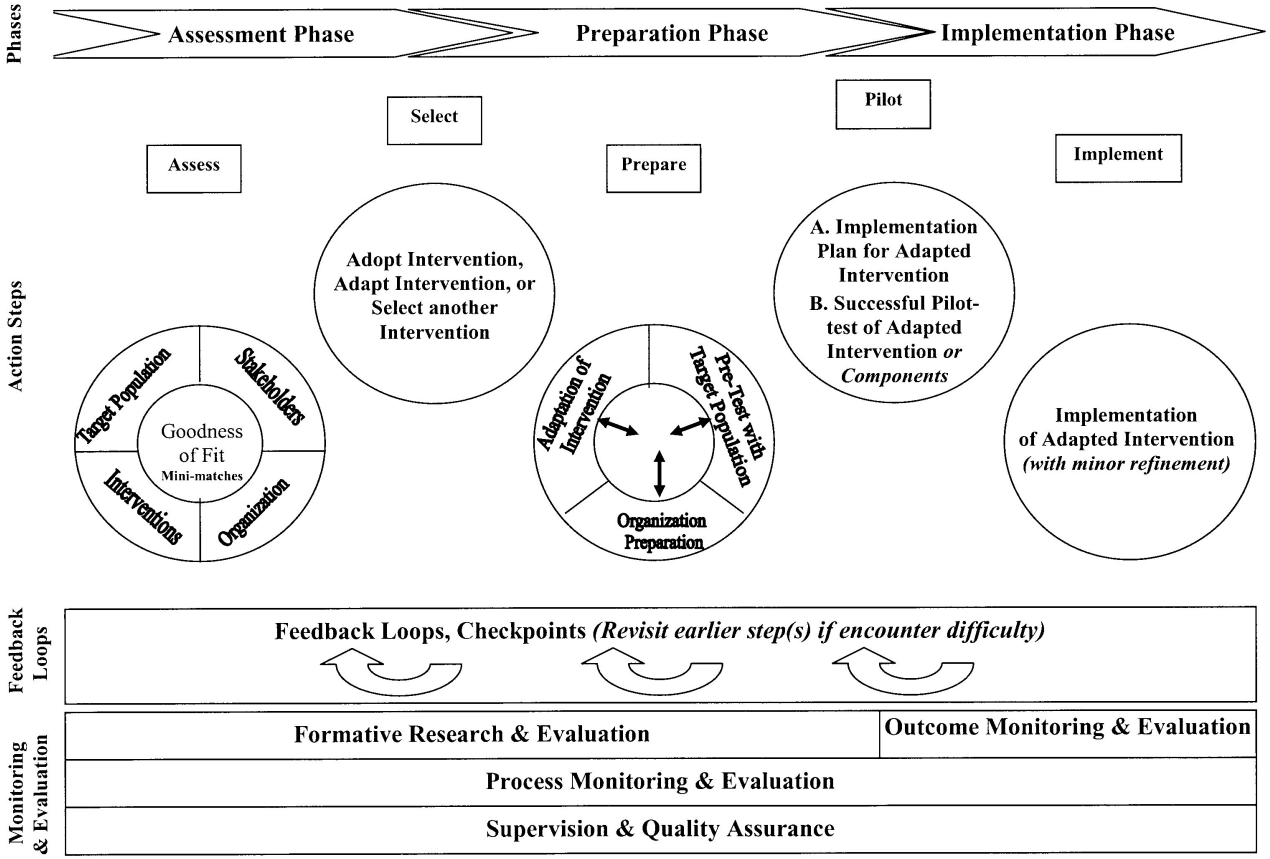

FIGURE 1. Map of Adaptation Process: A Systematic Approach for Adapting Evidence-Based Behavioral Interventions
Note. This is a *working draft.* Investigators will distribute a revised draft at the conclusion of ADAPT project activities.

TABLE 1. Activities in the Assess Action Step

Action Step 1: Assess					
				Organizational Capacity	
Target Population	**Interventions**	**Goodness–of–Fit: Mini–Matches**	**Stakeholders**	**Resources**	**Experience with**
Identify target population and various sub–groups Identify/ understand population's: –Risk factors, behavioral determinants, and risk behaviors –Recent trends –Social norms Choose risk factors, behavioral determinants, and risk behaviors to target Identify *where, when, how* to reach target audience based on assessment data	Identify potential EBIs Review published materials Familiarize with theoretical foundations Identify risk factors, behavioral determinants, and risk behaviors Identify core elements and key characteristics Assess cost and resource requirements Consult with agencies that have implemented Assess cost	Use assessment data to determine if risk factors, behavioral determinants, and risk behaviors of EBI and target population matches Scale down list of potential EBIs based on risk factors, behavioral determinants, and risk behaviors' match Identify areas where EBI needs adaptation Identify areas where agency needs to build capacity to adapt and implement EBI	Identify existing and potential stakeholders Identify stakeholders' needs Seek input from advisory boards and community planning groups Assess availability of referring and referral agencies Assess potential for collaboration Delineate accountability of partners Identify competing programs (internal and external)	Access to staff and volunteers Supplies Space (private, accessible) Funding (for retraining and materials) Access to target population Existing and potential consultancies/partnerships time Organization philosophy, mission, and values Staff/partners trained and experienced with the intervention Access to staff and volunteers	Target population Cultural competence EBI implementation Process monitoring Outcome monitoring and evaluation Quantitative and qualitative analysis Fiscal accountability Specific intervention skills (e.g., facilitation, counseling, social networks)

Note. EBI(s) = evidence–based behavioral intervention(s).,

ment the intervention. All of the assessment findings should be compared to confirm the appropriateness and goodness of fit of the match between the target population, the intervention, and the agency.

Target Population. The selection of the target population must be determined before all other adaptation questions can be formulated. The target population should be identified in terms of demographics (e.g., age, gender, ethnicity, sexual orientation, and serostatus) and recent trends and social norms. Logistics of where, when, and how to reach the target population and with which types of intervention(s), activities, and materials should be considered. Focus groups, key stakeholder interviews, observations, reviewing current epidemiological data, and conducting mapping/network analysis are methods for assessment. The target population may be refined as other adaptation questions are answered.

Intervention Possibilities. The assessment of EBIs, the knowledge phase of Rogers's (1995) innovation–decision process, involves identifying one or more evidence–based, theory–driven HIV prevention intervention(s) shown to be effective in previous, scientifically rigorous studies (Lyles, Crepaz, Herbst, Kay, & the HIV/AIDS Prevention Research Synthesis Team, 2006, this issue). Examples of such interventions are packaged by REP, distributed by DEBI, and can be found in the CDC's *Compendium of HIV Prevention Interventions with Evidence of Effectiveness* (CDC, 1999, revised 2001).

The implementing agency must fully understand the EBI(s) it is considering for adaptation and implementation. The intervention assessment can be accomplished through reviewing background articles and other printed materials related to the interventions and consulting with individuals who have used the intervention, as mentioned in the communication phase of Rogers's (1995) innovation–decision process. Special attention must be placed on factors that are believed to be responsible for the effectiveness of the intervention, often called core elements. Core elements have been defined as required elements that represent the intent,[9] theory, and internal logic of the intervention and most likely produce the intervention's main effects. Core elements are identified and refined by researchers both through research and practice. Core elements are identified for all DEBI interventions; however, for EBIs that do not have core elements described, they can be identified through conversations with the original developers. Core elements must be implemented with fidelity to increase the likelihood that prevention providers will have intervention outcomes that are similar to those in the original research.

Goodness of Fit. A comparison of the target population and EBI(s) findings must be made to ensure an appropriate fit. That is, it must be confirmed that the EBI activities address the same risk factors, behavioral determinants, and risk behaviors that are identified in the target population. This comparison can be done with a logic model or a simple table.

Assess Organization Capacity. Matching the philosophy and resources needed to implement the EBIs to the agency's resources, experience, and philosophy is critical after assessing the target population. The agency should assess its human and financial resources, and experience for implementing the desired intervention. Further examples of these resources and experiences are listed in Table 1.

After the organization capacity assessment is completed, the goodness of fit will need to be revisited. In most cases there will not be an exact match between the target population, EBI, and agency. The assess action step will uncover gaps where the intervention should be adapted, where the agency needs to build capacity, and areas where the agency could benefit from collaborating with technical assistance (TA) providers and partners (e.g., researchers, universities, community-planning groups, BSSVs, or funding agencies). If the agency does not currently have the resources (human and financial) and experience,

9. *Intent* of an intervention is the outcome(s) that it is designed to achieve.

TABLE 2. Activities in the Select and Prepare Action Steps

Action Step 2: Select		Action Step 3: Prepare	
Decide to Adopt, Adapt, or Select Another Intervention	**Make Necessary Changes to EBI**	**Organization Preparation**	**Pre-test**
Build capacity with subject matter and implementation skills	Determine what changes are needed based on the assess action step assessments	Recruit staff and volunteers	Pre–test materials with community advisory board, get feedback, and revise as necessary
Consult with community regarding decision	If needed, work with an expert on the core/internal logic of EBI	Train staff and volunteers	Pre-test materials with members of the target audience, get feedback, and revise as necessary until adapted materials work
Consult with staff regarding decision	Develop overall logic model and timeline for adapting and implementing EBI	Assign and coordinate staff and volunteer roles and responsibility	
	Plan and make necessary changes to the intervention	Set up space	
	Track changes to activities and EBI	Assemble materials	
	Keep appropriate records through process monitoring/evaluation.	Strengthen partnerships and collaborations	
		Support for staff in case of failure	

Note. EBI = evidence-based behavioral intervention(s).

they should identify how they intend to build capacity. For example, an agency that does not have experience in data collection and analysis might partner with a university or community-planning group. The agency should keep in mind that increasing capacity can consume a lot of time. Assessment of stakeholders, the next component in the assess action step, can be beneficial in this process.

Assess Stakeholders. Stakeholders include interested community members and other agencies that work with the target population and/or proposed intervention (i.e., other CBOs and their staff, bar owners, churches, local business owners, researchers, universities, health departments, and community-planning groups). It is important that input from stakeholders is considered. Intervention participants may have a number of needs besides those targeted by the intervention and it can be beneficial to have connections with other agencies that can meet those needs. Some of the stakeholders may also be identified as potential collaborators for intervention activities such as participant recruitment, identifying peers, conducting assessments, adapting materials, data collection, and evaluation. Once potential collaborators are identified, and a commitment is obtained, the agency and collaborating partner(s) should define their respective roles and responsibilities. Expectations of both the agency and the partnering collaborator should be well defined and methods for implementing and monitoring completion of activities should be developed, perhaps through a memorandum of understanding. Finally, when deciding on the more narrowly defined target population and choosing an intervention, it is important to consider other competing interventions both internal and external to the agency. Other interventions may exist in the agency or in other agencies in the vicinity that could compete for clients, staff, funding, and space. Scarcity of funds and skilled implementation staff make this an important consideration.

ACTION STEP 2: SELECT

Using all the assessment data gathered in the assess action step, the agency must make a final selection on the EBI in the second action step, select. This step is comparable to the decision phase in Rogers's innovative–decision process. The assessment data will also inform the decision to adopt the EBI without modification, adapt and implement the EBI, or

TABLE 3. Activities in the Pilot and Implement Action Steps

Action Step 4: Pilot		Action Step 5: Implement
Implementation Plan for Adapted EBI	**Successful Pilot Test of Adapted EBI or Components**	**Implementation of Adapted EBI (with minor refinement)**
Implementation plan for adapted EBI to include the following: –Target population –Risk factors, behavioral determinants, and risk behaviors –Intervention activities –Core elements –Anticipated immediate outcomes –Anticipated long–term outcomes	Components of successful pilot include the following: –Fidelity to core elements and internal logic of the adapted intervention –Some movement toward intermediate outcomes (intentions) –Staff implementation with quality –Participation and positive feedback from participants	Implement adapted intervention Collect process measures on adapted intervention implementation Conduct process monitoring and evaluation on adapted intervention implementation Collect intervention outcome measures Conduct outcome monitoring and evaluation Provide routine, ongoing supervision (including quality assurance) Make small changes as needed to staff and intervention based on process evaluation findings Use available technical assistance
Develop organizational policies around adapted EBI		
Develop internal referral networks, as appropriate.		
Roles and responsibilities		
Time line for activities		

Note. EBI = evidence–based behavioral intervention.

discard the EBI and select another, more appropriate intervention. The amount of adaptation can range from very minor changes to more significant changes.

Ideally, other individuals who participated in the assessment phase should be informed of the final selection. Staff and community partners should be notified about the intervention, its goals and objectives, activities, and staffing needs. During these meetings it is helpful to refer to assessment findings from the assess action step to justify the agency's decision and to provide a brief description of the intervention; its core elements; and the risk factors, behavioral determinants, and risk behaviors addressed in its activities.

ACTION STEP 3: PREPARE

As shown in Table 2, the third action step, prepare, is composed of making necessary changes to the EBI, organization preparation, and pre–testing the adapted intervention.

Making Necessary Changes to the EBI. After intervention selection is finalized, adaptation of the intervention materials and activities begins. The agency should adapt the EBI to address, in a culturally appropriate manner, the current risk factors, behavioral determinants, and risk behaviors identified by the target population in the assess action step. Fidelity to the core elements must be maintained; however, the key characteristics can be adapted to suit the specific needs of the target population and/or agency. To maintain fidelity to the core elements identified by the original researcher, agencies should consider seeking TA from experts in the intervention to explore the internal logic of the intervention (e.g., original researchers, TA providers, trainers, funding agency).

Thorough documentation of adaptation activities is needed to monitor success and revise components. Decisions the agency makes about adapting the EBI should be captured as well as justifications for the choices. In a recent article, Jenkins and Carey (2005) noted that several factors, including varying perspectives between scientists and community members, may influence how evidence is interpreted and applied, thereby emphasizing the importance of documenting adaptation activities in the process. Staff meeting minutes, assessment summaries, and staff activity logs are useful tools for documentation of the adaptation process. This information can benefit other agencies that are interested in adapting the EBI. It can also be used to explain project activities in detail to administrators, supervisors, or funding agencies.

Organization Preparation. In the assess action step, the agency will likely identify areas where building capacity would increase its chances for successful adaptation and implementation of the chosen intervention. These areas should be fully explored and addressed during the prepare action step (e.g., gaining access to community, additional human and financial resources, forming collaborations, and attending additional training on the intervention and things such as cultural competence).

Pre-testing. Pre-testing intervention materials can help to ensure that they are culturally competent and responsive to the needs of the target population. Pre-testing materials should cover a range of considerations including reading level of the target population, community values and norms, and attractiveness of the intervention materials. Health messages and intervention activities should be pre-tested to determine if instructions and messages are understood and well received by the new target population. An easily identifiable pre-test group, such as a community advisory board should be selected to review intervention materials. This can be done using standard market research techniques such as a focus group discussion. Pre-testing materials, eliciting feedback, and revising materials should continue until the adapted materials are appropriate.

ACTION STEP 4: PILOT

As seen in Table 3, the fourth action step, pilot, is composed of creating an implementation plan for the adapted intervention and a successful pilot test of the adapted intervention or components of the intervention.

Implementation Plan. The implementation plan serves as a useful tool to guide and monitor milestones, adhere to tasks, and track performance. The plan should identify key activities to take place during adaptation, implementation, monitoring, and evaluation.

Pilot Test. Pilot tests are preliminary examinations of the adapted intervention to determine feasibility and to assess whether it is likely to achieve the desired impact. Pilot tests are exploratory in nature, and are used to refine adaptation. Either the entire adapted intervention can be conducted on a small scale with perhaps fewer than 10 participants, or component(s) of the intervention can be conducted in situations where conducting the entire intervention is not feasible (e.g., community level interventions would take years to pilot).

The pilot is unlikely to determine if the intervention is having the desired behavioral outcomes, but it is possible that there are some anticipated immediate outcomes that a pilot might be able to capture (e.g., intentions, knowledge, or attitudes). These immediate outcomes can be determined with a simple, short pre/post measurement instrument. Ideally, positive trends will emerge toward these immediate outcomes. If the pilot uncovers problems, it is essential to determine what is not working, make modifications, and repeat the pre-test and pilot test activities.

ACTION STEP 5: IMPLEMENT

The implement action step is the same as implementation in Rogers's innovative–decision process, but instead of this being where adaptation first occurs, most of the adaptation has been systematically completed in the model we are proposing. The implementation of an adapted EBI follows the same procedure as any good implementation. Because the intervention has been adapted, the agency should make every effort to provide solid process monitoring, evaluation, quality assurance, and whenever possible, outcome monitoring and evaluation. Continuous monitoring to ensure fidelity to the core elements and internal logic is also critical.

CONTINUED REFINEMENT ON THE CDC'S MAP OF ADAPTATION PROCESS: A SYSTEMATIC APPROACH FOR ADAPTING EVIDENCE–BASED BEHAVIORAL INTERVENTIONS

The draft adaptation guidance described above underscores the idea that adaptation should be a planned process that maintains fidelity to core elements and is based on sound rationale from formative evaluation. The draft adaptation guidance is being piloted with five CBOs funded through the Adopting and Demonstrating the Adaptation of Prevention Techniques (ADAPT) project. These CBOs are using the guidance to adapt HIV prevention interventions for seropositive men of color who have sex with other men. The interventions being adapted are Community PROMISE (Peers Reaching Out and Modeling Intervention Strategies for Everyone) (CDC AIDS Community Demonstration Projects Research Group, 1999), Healthy Relationships (Kalichman et al., 2001), and Popular Opinion Leader (Kelly et al., 1991). To further evaluate the utility of the draft adaptation guidance, the sites will conduct outcome monitoring on the adapted interventions. Detailed process monitoring and evaluation of the adaptation guidance will be conducted. After the 2–year pilot is completed, the panel of experts will be reconvened and findings from the project will be presented. The panel's feedback and lessons learned by the implementing CBOs will be documented and adaptation guidance will be revised and disseminated.

FUTURE IMPLICATIONS

There is an emerging literature based on research about adaptation of EBIs in HIV prevention and overall in the greater prevention science literature. Wandersman (2003) calls for consumers and service agencies to be more engaged in the research process. One way these groups can be more participatory is by adopting, adapting, and evaluating evidence–based interventions for wider dissemination. Using the draft adaptation guidance as a model will increase consistency in terms of how the adaptation of EBIs is discussed and operationalized. This process will allow for more generalization and synthesis across disciplines, advance the discussion of the diffusion theory, as well as improve technology exchange between researchers and implementers. This discussion will promote a better understanding of the processes and implications of adapting EBIs and can drive further refinement of the draft adaptation guidance. More rigorous evaluation is critical to determine whether EBIs that have been adapted following the draft adaptation guidance remain effective at changing behavior.

Furthermore, the draft adaptation guidance can be used by researchers developing behavioral interventions to begin to think about adaptation during the early stages of conceptualization. Researchers can give increased thought and empirical investigation to identification of core elements and determine what is most likely responsible for addressing the risk factors, behavioral determinants, and risk behaviors during the empirical research. A better understanding of the core elements and internal logic of the intervention throughout the development of the intervention would strengthen and expedite future dissemination and adaptation efforts.

It is hoped the adaptation guidance can direct future formative activities, implementation, process evaluation, research, and funding strategies. The draft adaptation guidance attempts to systematically bridge science and practice, and to present a model that can be used by a variety of audiences involved with adaptation of EBIs. However, it is acknowledged that adaptation takes place in a real world setting that is impacted by considerations that are sometimes less than systematic. For example, decisions might be based on the most memorable experience(s) founded in personal biases of the most vocal individuals rather than based on the most representative experience. Likewise, agency policies, mission statements, time constraints, and funding streams might drive decision-making without com-

prehensively considering all possibilities for addressing the current needs of the target population (Jenkins & Carey, 2005).

Requests for applications, grant writing, and funding processes, can be strengthened by using the model as a guide. Frequently, the request for application specifies an EBI and target population, and the applicant completes the application packet accordingly—without a thorough understanding of the internal logic of the intervention and the current needs of the specified target population. Applications packets are reviewed, scored, and funding is awarded. Rarely has funding been available to conduct the assessment phase of the adaptation model that would allow applicants an opportunity to identify the most appropriate EBI for its target population and agency capacity. Perhaps incremental funding of program activities in phases linked to the adaptation model would encourage grantees to assess the fit among the target population, intervention, and agency and would promote a more comprehensive and realistic decision–making process in the earlier stages of adoption or adaptation.

Evidence–based strategies that respond to the HIV epidemic are expanding, and adaptation of EBIs is increasingly critical to HIV prevention. This draft adaptation guidance is meant to facilitate the availability of appropriate and effective interventions for all populations by providing implementers with guidance around adapting EBIs for the unique circumstances of the agency and target population while maintaining the very scientific integrity that makes these interventions effective.

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