

Safe in the City

Effective Prevention Interventions for Human Immunodeficiency Virus and Sexually Transmitted Infections

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Background: The public health literature documents the efficacy–effectiveness gap between research and practice resulting from the research priority of demonstrating efficacy at the expense of testing for effectiveness.

Purpose: The *Safe in the City* video-based HIV/sexually transmitted infection (STI) prevention intervention designed for sexually transmitted disease (STD) clinic waiting rooms is presented as a case study to demonstrate the application of a new framework to bridge efficacy and effectiveness. The goal of the study is to determine the extent to which clinics are implementing the intervention.

Methods: As part of the case study, data were collected from a convenience sample of 81 publicly funded STD clinics during program implementation to determine whether clinics were showing the video. A baseline telephone survey was administered to clinic directors from November to December 2008, and a follow-up was conducted from March to May 2009. Data analysis was completed in 2009.

Results: At baseline, 41% of STD clinics were showing *Safe in the City*, which increased to 58% at follow-up. None reported previous implementation of behavioral interventions delivered in waiting rooms. Almost one fourth of clinics adapted the intervention by showing the video on laptop computers in examination rooms or in other venues with different audiences.

Conclusions: The *Safe in the City* intervention was implemented by the majority of STD clinics and adapted for implementation. The framework for HIV/STI prevention intervention illustrates how measures of effectiveness were increased in the development, evaluation, dissemination, implementation and sustainability phases of research and program.

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Background

The public health literature documents the efficacy–effectiveness gap between research and practice resulting from the long-standing research priority of demonstrating efficacy at the expense of testing effectiveness.^{1–8} A challenge for HIV and sexually transmitted infection (STI) prevention is to identify interventions that have a high impact on individuals and communities⁹ that also are designed for external validity, usability, scalability, and positive health outcomes under real-world conditions.^{2,3,7,8,10} Concern for real-world effectiveness applies to all stages of research and program, including intervention development,¹¹ evaluation, dissemination, implementation, and sustainability.

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The current paper presents the *Safe in the City* intervention as a case study to demonstrate the application of a new framework for effective HIV/STI prevention interventions. This framework draws on RE-AIM¹² to integrate efficacy and effectiveness and is designed to operationalize effectiveness in each intervention stage (Table 1). Researchers were charged to design an intervention that is effective and feasible in real-world settings. *Safe in the City* is a 23-minute, stand-alone, low-cost video addressing HIV/STI prevention for patients in waiting rooms of sexually transmitted disease (STD) clinics.¹³ The intervention is intended to be used in combination with other evidence-based behavioral, structural, and biomedical approaches to increase overall prevention program impact and cost effectiveness.^{10,14,15} The goal of the current study is to determine the extent to which clinics are implementing the intervention.

Components of the Framework

The clinic waiting room remains an underutilized opportunity to communicate prevention messages to at-risk clients. Several interventions such as Video Opportunities for Innovative Condom Education and Safer Sex (VOICES/VOCES)¹⁶ and RESPECT¹⁷ have been specifically developed for individuals attending STD clinics.¹⁸ However, there are noted problems in adoption,^{16,19} as clinics are not typically funded to implement prevention interventions. Additionally, previous STD clinic interventions have been complex, combined many components, and required time, skills, and staffing that exceeded available clinic resources. Therefore, the CDC funded a team of U.S.-based researchers and public health practitioners to develop and evaluate the *Safe in the City* intervention.

Development. To assess feasibility of implementation, researchers operationalized several criteria for effectiveness in the development phase (Table 1). The video needed to be theory based and able to appropriately address the target population's risk behaviors, inexpensive, and easy to implement. The intervention needed to match clinic capacity for implementation, resulting in minimal interruption of patient flow, use of onsite or easily obtainable equipment, and minimal staff time. Further, the video had to meet the needs of the target population by (1) featuring actors diverse in ethnicity and sexual preference; (2) capturing clients' attention by being visually attractive, humorous, and enjoyable; (3) being brief enough to fit average clinic waiting times; and (4) being acceptable to and reflective of the general audience in the clinic waiting room.

To enhance video acceptability, stakeholder participation in focus groups occurred early in the process of

intervention development and included clinic staff, administrators, patients, community reviewers, researchers, and practitioners. Pilot testing, adapting, and observing implementation of the video in waiting rooms of four STD clinics before the evaluation trial²⁰ provided an opportunity to determine how clinics could maximize viewership and strengthen intervention effectiveness.³

Evaluation. Following the intervention development phase, a multi-site controlled trial evaluating the effect of *Safe in the City* on STI was conducted in real-world waiting rooms of three urban public STD clinics. The trial targeted the entire range of each clinic's heterogeneous waiting room population in order to enhance external validity. Each site achieved approximately 80% viewership, demonstrating the video's acceptability to the target audience. All of approximately 40,000 patients presenting to participating clinics during a 20-month period experienced one of two conditions: the *Safe in the City* intervention or a standard waiting room environment. Condition assignment was alternated every 4 weeks. There was no individual randomization.

Clinic medical records and local and county STI surveillance registries were reviewed after an average of 14.8 months, and STI incidence was compared between study conditions. Patients in the intervention condition had nearly 10% fewer STIs diagnosed subsequently compared with patients in the control condition. Details of the evaluation design are reported elsewhere.¹³ Efficacy of the intervention was measured by changes in STI incidence; effectiveness, including feasibility and acceptability, was also evaluated (Table 1). The standard waiting room environment in each clinic served as its own control condition, providing an additional effectiveness criterion. An IRB-granted waiver of informed consent permitted access to laboratory-confirmed biologic outcomes (incident STIs) recorded in the clinic populations' medical records and county public surveillance databases, equivalent to outcome measures to be monitored after field dissemination.

Dissemination. The CDC's national Diffusion of Effective Behavioral Interventions (DEBI) project disseminates evidenced-based HIV/STI prevention interventions at no cost to community-based organizations, health departments, and clinics.²¹ In June 2008, the DEBI project website, www.effectiveinterventions.org, marketed *Safe in the City* to STD clinics (Table 1). Within 15 months, the website received more than 2100 requests for *Safe in the City*, a higher level than that achieved by other interventions within similar postlaunch time periods (S. Novey, Academy for Educational Development, personal communication, 2010). This result suggests the potential for scalability of the intervention. The majority

Table 1. Framework for effective HIV/STI-prevention interventions: the *Safe in the City* example

Intervention development
Theory-driven: Is the intervention based on appropriate theory? <i>Safe in the City</i> was based on social cognitive theory, the information-motivation-behavioral skills model, and theory of planned behavior.
Addresses target population's risk behaviors and risk factors: Do intervention activities adequately address risk behaviors and risk factors? <i>Safe in the City</i> increases knowledge and perception of HIV/STD risk; builds self-efficacy and skills for safer sex and condom acquisition, negotiation, and use; builds skills for facilitating partner testing.
Target population's input into development: What methods will be used to ensure the intervention is culturally appropriate? The formative work to inform the development of <i>Safe in the City</i> included conducting focus groups with diverse stakeholders in three cities and pilot testing the video in four cities.
Number and length of sessions: Do the number and length of sessions suit clients' preferences and scheduling constraints? <i>Safe in the City</i> is a brief, one-session video-based intervention. Participatory stakeholder input and pilot testing ensured appropriate video running time.
Attractive and acceptable to different target population segments: Is participating in the intervention an enjoyable experience? <i>Safe in the City</i> was designed to appeal to diverse STD clinic audiences; three vignettes were created focusing on varying ethnic groups and sexual preferences.
Intervention development: agency capacity
Appropriate technology: Is the intervention technology relatively simple, free of implementation barriers, and user-friendly for staff and clients? <i>Safe in the City</i> uses a low-cost/downloadable video format suitable for the waiting room because most STD clinics have TVs. If needed, cost of DVD player is about \$60.00.
Affordability: Can agencies afford to purchase the intervention kit? <i>Safe in the City</i> is shipped free of charge by effectiveinterventions.org or can be downloaded from Internet sites.
Staff time: What percentage of staff time is required to implement the intervention? How will that affect the agency's budget and staffing assignments? <i>Safe in the City</i> uses little staff time since implementation requires no training, group facilitation, or participant recruitment.
Staff skills to implement: Can staff already onsite implement the intervention with fidelity or will clinics have to hire new personnel with correct skill sets? For <i>Safe in the City</i> , each day onsite staff adjust playback frequency and turn on the video.
Complexity of sessions: Can the intervention be implemented with relative ease by clinic staff? Or, will overly complex sessions put an undue burden on staff and supervisors while creating program attrition? <i>Safe in the City</i> is a brief, one-session intervention with no group facilitation.
Integration into current program practice: Will the intervention fit into current program practice? <i>Safe in the City</i> causes minimal interruption to client flow in clinic waiting rooms.
Recruitment and retention: Will agencies rely on the collaboration of staff and program participants to develop and refresh recruitment and retention strategies? Recruitment and retention are not barriers for <i>Safe in the City</i> because the video is shown to clients already present in clinic waiting rooms.
Sustainability: How will researchers increase chances for intervention sustainability? <i>Safe in the City</i> researchers selected a versatile format and estimated the video's shelf-life and costs for producing updates, which communities are now producing.
Intervention evaluation
Integrate criteria for effectiveness as well as efficacy in research trial: Can methods for measuring intervention effectiveness be integrated into the evaluation protocol? The evaluation trial of <i>Safe in the City</i> places priority on effectiveness by using onsite STD clinic staff to implement the intervention, entire waiting room populations to test the intervention, and the standard waiting room condition as the comparator.
Intervention dissemination
Dissemination plan: What is the plan for dissemination? Developers partnered with the CDC DEBI project and used several websites to disseminate the intervention.
Marketing plan: What is the marketing plan? <i>Safe in the City</i> was marketed to STD clinics on several websites, conferences, and by word of mouth.
Proactive start-up technical assistance: Will technical assistance be provided to help agencies with implementation start-up? Although no training is required for <i>Safe in the City</i> , CDC provided technical assistance through e-mail, a toll-free number, and webinars.
<i>(continued on next page)</i>

Table 1. (continued)

Policy support: Will funders or partner institutions create policy to support intervention uptake and implementation? In the case of <i>Safe in the City</i> , CDC approved STD clinics' TV/DVD player purchase with program funds.
Intervention implementation
Fidelity and adaptation: Can the intervention be adapted with fidelity for other populations? <i>Safe in the City</i> is being adapted for different populations and venues such as juvenile justice centers.
Intervention sustainability
Adapting and updating by communities: Can communities adapt and update the intervention? Communities are remaking the video in Spanish and for hearing-impaired populations.

DEBI, CDC's national Diffusion of Effective Behavioral Interventions project; DVD, digital video disc; STD, sexually transmitted disease

of requestors were STD clinics, health departments, health services clinics, family planning clinics, university student health centers, hospitals, military bases, substance abuse facilities, and state correctional facilities. To support intervention uptake and implementation by STD clinics, the CDC created policy to authorize the use of federal funds to purchase TVs and DVD players.²²

Sustainability. In order to make the intervention sustainable, *Safe in the City* was created to be downloaded from the DEBI project and other websites. In addition, the intervention was designed to be implemented with neither training nor technical assistance (Table 1). To further support sustainability, the DEBI project published a toll-free telephone number and e-mail address to respond to inquiries about the intervention.

Methods

In November 2008, an evaluation study was initiated to assess intervention implementation. A convenience sample was used of 81 publicly funded STD clinics that had requested *Safe in the City* kits from the DEBI project.

A 10-minute structured telephone survey was conducted with clinic directors in November–December 2008, approximately 4 months after clinics received the intervention kit. A follow-up survey was conducted in March–May 2009, approximately 4 months following the first call. The surveys were administered by research staff using computer-assisted survey software. Data were analyzed in 2009.

Results

At baseline, 41% of STD clinics were showing the video, which increased to 58% at follow-up. Less than one third of clinics had been showing health education videos, and none reported previous implementation of behavioral interventions delivered in waiting rooms. About one third of clinics reported benefits from showing *Safe in the City*, including that it prompted dialogue between patients and clinicians about HIV/STI testing and safe sexual behaviors, and that the video was realistic and thought-provoking for patients.

Conversely, about 10% of survey respondents reported challenges to showing the video, including the perception of inappropriate content for some individuals in the waiting room,²³ especially children. Other barriers included the need to purchase or set up equipment, obtain staff/administrative approval, and have a video targeted for other at-risk populations (e.g., men who have sex with men and African-American youth). About one fourth (24%) of clinics adapted the intervention. For example, respondents reported facilitating *Safe in the City* as a group-level intervention in teen clinics, rehabilitation centers, teen parenting classes, shelters, and juvenile justice centers (Table 1). Another adaptation was showing the video on laptop computers in examination rooms as an individual-level intervention.

Discussion

Effectiveness trials are rarely conducted, but as demonstrated by the *Safe in the City* example, public health outcomes can be improved by operationalizing criteria for effectiveness in intervention research and program phases. Effectiveness was enhanced by (1) using a participatory approach in the intervention development stage; (2) evaluating in real-world clinic settings; and (3) disseminating in partnership with state and federal agencies. Using a versatile video format to ensure sustainability, as well as additional criteria (Table 1), also contributed to intervention effectiveness. The telephone survey conducted during the intervention implementation phase demonstrated that the majority of clinics were showing the video and that the intervention can be easily adapted for other venues and audiences. Finally, notably, during dissemination, many different types of agencies requested the video kit, demonstrating that the intervention has potential for scalability, an important indicator of effectiveness.

The *Safe in the City* example has some limitations as a model for designing and operationalizing behavioral intervention effectiveness. For example, upon dissemina-

tion, many STD clinic waiting rooms lacked DVD players. The implementation assessment revealed a possible need for alternative viewing technologies for clinic waiting rooms where young children may be present. Finally, the *Safe in the City* video format is relatively simple compared to many behavioral interventions. Therefore, lessons learned may be difficult to incorporate into other more complex individual-, group-, or community-level interventions.

Stakeholders in HIV/STI prevention can consider applying the Framework for Effective Interventions presented here and begin to operationalize these or similar effectiveness criteria through each stage of research and program. Funders reviewing research proposals should emphasize effectiveness, require feasibility assessments and considerations of cost, sustainability, and scalability to ensure interventions have sufficient potential for dissemination and public health impact.

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