

FACT SHEET



RURAL CENTER for AIDS/STD PREVENTION

A Joint Project of

INDIANA UNIVERSITY, UNIVERSITY OF COLORADO,
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Behavioral Interventions for Reducing Sexual Risk Behavior

A **behavioral intervention** is a specific collection of prevention activities developed or implemented with a clear aim to promote positive changes in behaviors, either directly or indirectly, to reduce HIV transmission and infection. Most behavioral interventions aim to change risky sexual and drug use practices in efforts to reduce transmission of HIV/AIDS. Such programs tend to operate at the individual, group, community, or structural level (see Table 1). Individual, group, and community-level behavioral interventions seek to directly change so-called theoretical (behavioral) determinants of risky behaviors, such as sexual and drug use knowledge, attitudes, beliefs, perceptions of risk, barriers, social norms, motivation to change, behavioral intentions, self-efficacy (confidence) and a variety of skills (e.g., partner negotiation skills, correct condom use skills) as a route to behavior change. Structural interventions focus instead on increasing access to HIV testing, condoms, medications, or other services that indirectly affect risk behaviors. Finally, while medical interventions are generally *not* considered to be behavioral interventions, they do often require the use of behavioral strategies to promote their adoption and use.

Behavioral interventions have been a critical public health tool since the beginning of the HIV/AIDS epidemic. Given the lack of vaccine or cure for HIV, they will likely remain important in the foreseeable future. The earliest behavioral interventions were grassroots programs implemented by gay men in San Francisco and New York as well as activities undertaken by the Centers for Disease Control and Prevention (CDC) in the early 1980s (CDC, 2006). Since those early efforts, a large scientific literature on behavioral interventions has emerged, with literally hundreds of evaluations of interventions with varying target audiences being conducted (Albarracin et al., 2005; Noar, in press).

Efficacy of Behavioral Interventions

Are behavioral interventions successful in reducing sexual risk behavior? Recently, meta-analyses (reviews which pool the results of many intervention studies) have been conducted on behavioral interventions with a variety of populations, including adolescents (Johnson et al., 2003; Mullen et al., 2002), heterosexual adults (Logan et al.,

2002; Neumann et al., 2002), men who have sex with men (MSM) (Herbst et al., 2005; Johnson et al., 2005), Hispanics/Latinos (Albarracin et al., 2007; Herbst et al., 2007), drug users (Copenhaver et al., 2006; Semaan et al., 2002), people with severe mental illness (Johnson-Massotti et al., 2003), STD clinic patients (Crepaz et al., 2007; Ward et al., 2005), and HIV positive individuals (Crepaz et al., 2006; Johnson et al., 2006). Most of these reviews examine individual and group-level interventions, while fewer include community and structural-level interventions. A recent study (Noar, in press) systematically reviewed the evidence for behavioral interventions from these meta-analytic studies and found the following:

- Behavioral interventions *are effective* in reducing unprotected sex and increasing condom use among a variety of at-risk populations. Strikingly, *every meta-analysis found significant results* on at least one sexual risk outcome, typically condom use or unprotected sex.
- Behavioral interventions were found to sometimes be effective at reducing numbers of sexual partners, although these effects were not as strong or consistent as those for unprotected sex and condom use. Also, fewer studies have examined this outcome as compared to unprotected sex and condom use.
- Although fewer studies (and thus fewer meta-analyses) have examined the impact of behavioral interventions on the “ultimate outcome” of new STDs, evidence does currently exist that changes in sexual risk behaviors brought on by behavioral interventions translates into reductions in new STD infections.
- Also, a number of factors have been found to increase the likelihood of interventions being successful in impacting risky sexual behaviors (Noar, in press). Factors that appear to be the most important include:
 - ✦ Targeted interventions—Interventions have been more successful when they have focused on a defined target population and additionally have targeted particular gender or racial/ethnic groups. This is likely the case because implementing

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Table 1. Five Levels of Intervention Programs for HIV Prevention.

Level of Intervention	Conducted With	Delivered By	Means of Influence	Examples
Individual	Individuals (one-on-one)	Peers, professionals, small media (e.g., video, pamphlet)	Directly influence knowledge, attitudes, behavior of individuals	Voluntary HIV counseling and testing; risk reduction counseling in STD clinics
Group	Couples, small groups, families	Peers, professionals, small media (e.g., video, pamphlet)	Directly influence knowledge, attitudes, behavior of groups	Interventions for HIV-negative, at-risk and serodiscordant couples; parental training programs; group interventions (e.g., condom use skill-building workshops, video-based interventions)
Community	Communities	Peers, professionals, mass media	Directly and indirectly influence knowledge, attitudes, behavior of communities	Mass media/social marketing campaigns; community mobilization; other approaches that aim to reach entire communities
Structural	Communities	Local, state, federal officials	Indirectly affect risk behavior by changing laws, structures, policies	Laws or policies relevant to HIV/AIDS, such as those regulating sexual behavior, condom use, HIV testing, and/or drug use behaviors or practices
Medical	All of the above	Medical providers; may depend on above strategies to encourage individual to adopt practices	Directly and indirectly affect risk through scientific advances	Rapid HIV testing; therapies to reduce mother-to-child transmission; screening of the blood supply; microbicides

Note: Adapted from CDC (2006)

an intervention to a similar (i.e., homogenous) group allows intervention content to be more carefully tailored to that group (Resnicow et al., 2008). Some interventions have also matched the race/ethnicity of the facilitator to participants, which in some cases has led to greater impact on safer sexual behaviors (Durantini et al., 2006).

- ✦ Theory-based interventions—Interventions have been more successful when they have used behavioral theory as a guide. Such theories include the Health Belief Model, Theory of Reasoned Action, Theory of Planned Behavior, Social Cognitive Theory, and the Transtheoretical Model or Stages of Change Model (DiClemente & Peterson, 1994; Fisher & Fisher, 2000; Noar, 2007).
- ✦ Providing skills-training—Interventions have generally been more successful when they have provided safer sex skills training to participants. Skills training has varied by intervention, and included personal skills (e.g., self-monitoring, goal setting) interpersonal skills (e.g., how to negotiate condom use with a partner), and technical skills (e.g., how to correctly put on a condom) (Edgar et al., 2008).

It is important to note that the results of these meta-analytic studies do *not* mean that every behavioral intervention that was examined was effective. Rather, they suggest that on average, behavioral interventions to reduce sexual risk behavior have been effective. In addition, the features listed above are those associated with the more effective interventions, suggesting that interventions that include these features are more likely to be successful than those that do not.

Specific Interventions

Those interested in particular interventions that have strong scientific evidence of success should refer to the CDC's ongoing efforts to compile such interventions. The CDC's original compendium identified 24 effective interventions (out of 223 relevant studies reviewed) across four risk groups: drug users, heterosexual adults, MSM, and youth (see CDC, 2001). An update to this project, examining newer studies published between 2000–2004, identified an additional 18 effective interventions (out of 100 relevant studies reviewed) across the same four risk groups (Lyles et al., 2007). Given the disproportionate impact of HIV/AIDS on minority communities (CDC, 2006), this review also pointed to 7 of these interventions as applicable to African-American or Hispanic women, 2 as applicable to African-American youth, and 3 as applicable to minority drug users. Also

identified were 4 interventions for people living with HIV. Additional updates to this ongoing review project are slated to be posted on CDC's website over the coming months and years (see CDC, 2007a). The CDC has also been attempting to disseminate many of the evidence-based interventions identified in these review projects to community-based providers through two projects focusing on translating research to practice: the Replicating Effective Programs (REP) project (see CDC, 2007b) and the Diffusion of Effective Behavioral Intervention (DEBI) project (see CDC, 2007c).

Finally, as technology advances and offers additional opportunities for computer technology and Internet-based interventions, such interventions are being developed and evaluated (Bull, 2008). Given that many of these intervention programs are still in the early phases of research, however, most have not yet been published in the literature and thus have not yet been evaluated by CDC.

References

- Albarracín, J., Albarracín, D., & Durantini, M. (2007). Effects of HIV-prevention interventions for samples with higher and lower percents of Latinos and Latin Americans: A meta-analysis of change in condom use and knowledge. *AIDS & Behavior*, doi: 10.1007/s10461-007-9209-8.
- Albarracín, D., Gillette, J. C., Earl, A. N., Glasman, L. R., Durantini, M. R., and Ho, M. H. (2005). A test of major assumptions about behavior change: A comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic. *Psychological Bulletin*, 131, 856-897.
- Bull, S. (2008). Internet and other computer technology-based interventions for STD/HIV prevention. In T. Edgar, S. M. Noar, & V. Freimuth (Eds.), *Communication perspectives on HIV/AIDS for the 21st century* (pp. 351-376). New York: Lawrence Erlbaum.
- Centers for Disease Control and Prevention (2001). *Compendium of HIV prevention interventions with evidence of effectiveness*. Department of Health and Human Services. Division of HIV/AIDS Prevention, Atlanta, GA.
- Centers for Disease Control and Prevention. (2006). Evolution of HIV/AIDS prevention programs – United States, 1981-2006. *Morbidity and Mortality Weekly Report*, 55(21), 597-603.
- Centers for Disease Control and Prevention. (2007a). HIV/AIDS Prevention Research Synthesis Project. <http://www.cdc.gov/hiv/topics/research/prs>
- Centers for Disease Control and Prevention. (2007b). Replicating Effective Programs Plus. http://www.cdc.gov/hiv/topics/prev_prog/rep/index.htm
- Centers for Disease Control and Prevention. (2007c). Diffusion of Effective Behavioral Interventions. <http://www.effectiveinterventions.org/>

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- Copenhaver, M. M., Johnson, B. T., Lee, I., Harman, J. J., & Carey, M. P. (2006). Behavioral HIV risk reduction among people who inject drugs: Meta-analytic evidence of efficacy. *Journal of Substance Abuse Treatment, 31*, 163-171.
- Crepaz, N., Horn, A.K., Rama, S.M., Griffin, T., Deluca, J.B., Mullins, M.M., & Aral, S.O. (2007). The efficacy of behavioral interventions in reducing HIV risk sex behaviors and incident sexually transmitted disease in Black and Hispanic sexually transmitted disease clinic patients in United States: A meta-analytic review. *Sexually Transmitted Diseases, 34*, 319-332.
- Crepaz, N., Lyles, C.M., Wolitski, R.J., Passin, W.F., Rama, S.M., Herbst, J.H., Purcell, D.W., Malow, R.M., & Stall, R. (2006). Do prevention interventions reduce HIV risk behaviors among people living with HIV? A meta-analytic review of controlled trials. *AIDS, 20*, 143-157.
- DiClemente R. J., & Peterson, J. L. (1994). (Eds). *Preventing AIDS: Theories and methods of behavioral interventions*. New York: Plenum Press.
- Durantini, M. R., Albarracín, D., Mitchell, A. L., Earl, A. N., & Gillette, J. C. (2006). Conceptualizing the influence of social agents of behavior change: A meta-analysis of the effectiveness of HIV-prevention interventionists for different groups. *Psychological Bulletin, 132*, 212-248.
- Edgar, T., Noar, S. M., & Murphy, B. (2008) Communication skills training in HIV prevention interventions In T. Edgar, S. M. Noar, & V. Freimuth (Eds.), *Communication perspectives on HIV/AIDS for the 21st century* (pp. 29-65). Mahwah, NJ: Lawrence Erlbaum.
- Fisher, J. D., & Fisher, W. A. (2000). Theoretical approaches to individual-level change in HIV risk behavior. In J. L. Peterson, & R. J. DiClemente (Eds.), *Handbook of HIV prevention* (pp. 3-55). New York: Kluwer Academic / Plenum Publishers.
- Herbst, J. H., Kay, L. S., Passin, W. F., Lyles, C. M., Crepaz, N., & Marin, B. V. (2007). A systematic review and meta-analysis of behavioral interventions to reduce HIV risk behaviors of Hispanics in the United States and Puerto Rico. *AIDS and Behavior, 11*, 25-47.
- Herbst, J.H., Sherba, R.T., Crepaz, N., DeLuca, J.B., Zohrabyan, L., Stall, & R.D., Lyles, C.M. (2005). A meta-analytic review of HIV behavioral interventions for reducing sexual risk behavior of men who have sex with men. *Journal of Acquired Immune Deficiency Syndromes, 39*, 228-241.
- Johnson, B. T., Carey, M. P., Marsh, K. L., Levin, K. D., Scott-Sheldon, L. A. J. (2003). Interventions to reduce sexual risk for the human immunodeficiency virus in adolescents, 1985-2000: A research synthesis. *Archives of Pediatric and Adolescent Medicine, 157*, 381-388.
- Johnson, W.D., Holtgrave, D.R., McClellan, W.M., Flanders, W.D., Hill, A.N., & Goodman, M. (2005). HIV intervention research for men who have sex with men: A 7-year update. *AIDS Education and Prevention, 17*(6), 568-589.
- Logan, T., Cole, J., and Leukefeld, C. (2002). Women, sex, and HIV: Social and contextual factors, meta-analysis of published interventions, and implications for practice and research. *Psychological Bulletin, 128*, 851-885.
- Lyles, C. M., Kay, L. S., Crepaz, N., Herbst, J. H., Passin, W. F., Kim, A. S., et al. (2007). Best-evidence interventions: Findings from a systematic review of HIV behavioral interventions for US populations at high risk, 2000-2004. *American Journal of Public Health, 97*, 133-143.
- Mullen, P. D., Ramirez, G., Strouse, D., Hedges, L. V., & Sogolow, E. (2002). Meta-analysis of the effects of behavioral HIV prevention interventions on the sexual risk behavior of sexually experienced adolescents in controlled studies in the United States. *Journal of Acquired Immune Deficiency Syndromes, 30*, S94-S105.
- Neumann, M. S., Johnson, W. D., Semaan, S., Flores, S. A., Peersman, G., Hedges, L. V., & Sogolow, E. (2002). Review and meta-analysis of HIV prevention intervention research for heterosexual adult populations in the United States. *Journal of Acquired Immune Deficiency Syndromes, 30*, S106-S107.
- Noar, S. M. (2007). An interventionist's guide to AIDS behavioral theories. *AIDS Care, 19*, 392-402.
- Noar, S. M. (in press). Behavioral interventions to reduce HIV-related sexual risk behavior: Review and synthesis of meta-analytic evidence. *AIDS & Behavior*.
- Resnicow, K., DiIorio, C. K., & Davis, R. (2008). Culture and the development of HIV prevention and treatment programs. In T. Edgar, S. M. Noar, & V. Freimuth (Eds.), *Communication perspectives on HIV/AIDS for the 21st century* (pp. 193-220). New York: Lawrence Erlbaum.
- Semaan, S., Kay, L., Strouse, D., Sogolow, E., Mullen, P. D., Neumann, M. S., Flores, S. A., Peersman, G., Johnson, W. D., Lipman, P. D., Eke, A., & Des Jarlais, D. C. (2002). A profile of U.S.-based trials of behavioral and social interventions for HIV risk reduction. *Journal of Acquired Immune Deficiency Syndromes, 30*, S30-S50.

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