

Do CDC-Backed Evidence-Based Behavioral Interventions Address Syndemic Theory in
Urban Gay Men? Analysis from a Sample of 10 HIV Prevention Plans

by David L. Tilley

B.S., 2003, Appalachian State University

A Thesis Submitted to

The Faculty of
The School of Public Health and Health Services
of The George Washington University
in partial fulfillment of the requirements
for the degree of Master of Science

May 17, 2009

Thesis co-directed by

Jeffrey Levi
Associate Professor of Health Policy

and

Marsha Regenstein
Associate Research Professor of Health Policy

© Copyright 2009 by David L. Tilley
All rights reserved

Dedication

I wish to dedicate this thesis to my partner and best friend, Simon, for all the love and support—both moral and financial—he has given me to help me complete my masters training at the George Washington University and for his continued support as I embark on further graduate study that will lead me far from home.

Acknowledgments

I would like to thank Dr. Jeff Levi for his assistance in devising the topic of this thesis after considering my research interests. I am indebted to his experience, assistance, and tremendous patience during the development and review of this manuscript. I also would like to thank Dr. Marsha Regenstein for her continued advisement through my graduate studies, for the review of this manuscript, and for believing in me since 2006 through today.

Abstract of Thesis

Do CDC-Backed Evidence-Based Behavioral Interventions Address Syndemic Theory in Urban Gay Men? Analysis from a Sample of 10 HIV Prevention Plans

Men who have sex with men (MSM) continue to be at great risk for HIV infection primarily due to their sexual practices. Research in 2003 described 4 co-occurring psychosocial epidemics affecting gay men [depression, substance use, intimate partner violence (IPV), and childhood sexual abuse (CSA)] that work synergistically to increase risk of HIV infection in MSM. This paper attempts to determine if interventions at the local level are taking this research into account by looking at 10 state and city/county HIV Prevention Plans. Interventions included in the analysis are ones certified by the Centers for Disease Control and Prevention (CDC) and included in CDC's Compendium of Evidence-Based HIV Prevention Interventions (Compendium). Results: data from this paper shows that no current interventions listed with CDC's Compendium address the 4 co-occurring epidemics in MSM and that at most, a few interventions address the interplay between HIV infection, depression, and substance use. More research is needed to construct HIV preventative interventions targeting MSM that focus on depression, substance use, IPV, and CSA that give local program planners the necessary tools to confront the increasing epidemic.

Table of Contents

Dedication.....	iii
Acknowledgements.....	iv
Abstract of Thesis.....	v
Table of Contents.....	vi
List of Figures.....	vii
Glossary of Acronyms.....	viii
Chapter 1: Introduction.....	1
Chapter 2: Literature Review.....	4
Chapter 3: Methods.....	31
Chapter 4: Results.....	38
Chapter 5: Discussion.....	45
Bibliography.....	52

List of Figures

Figure 1.....	30
Figure 2.....	36
Figure 3.....	37
Figure 4.....	39
Figure 5.....	40
Figure 6.....	42
Figure 7.....	43

Glossary of Acronyms

- A-CASI: audio computer-assisted self interview
- AIDS: acquired immune deficiency syndrome
- ART: antiretroviral therapy
- BRP: behavioral risk population
- CBO: community-based organization
- CDC: Centers for Disease Control and Prevention
- CLEAR: Choosing Life: Empowerment, Actions, Results
- CPG: community planning group
- CSA: childhood sexual abuse
- DEBI: Diffusion of Effective Behavioral Interventions project
- DUIT: Drug Users Intervention Trial
- EBI: evidence-based behavioral intervention
- HBV: hepatitis B virus
- HCV: hepatitis C virus
- HIV: human immunodeficiency virus
- HLP: Healthy Living Project
- IDU: injection drug user/using
- IMB: Information-Motivation-Behavioral skills model
- IPV: intimate partner violence
- LIFT: Living in the Face of Trauma
- MI: motivational interviewing
- MSM: men who have sex with men

NHANES III: National Health and Nutrition Examination Survey III

NIH: National Institutes of Health

PLH: people living with HIV

PLWHA: people living with HIV/AIDS

POL: Popular Opinion Leader

PRS: Prevention Research Synthesis

PWA: people with AIDS

TLC: Together Learning Choices

TTM: transtheoretical model of behavior change

UAI: unprotected anal intercourse

UIAI: unprotected insertive anal intercourse

UIOI: unprotected insertive oral intercourse

URAI: unprotected receptive anal intercourse

YMSM: young men who have sex with men

Chapter 1: Introduction

Since acquired immune deficiency syndrome (AIDS) was first discovered in 1981, 545,805 people have died in the United States (data through 2006) (Centers for Disease Control and Prevention, 2008f). Additionally, more than one million people are currently living with the human immunodeficiency virus (HIV), the virus that causes AIDS (Centers for Disease Control and Prevention, 2008e). Someone in the U.S., in 2009, is infected with HIV every 9½ minutes (Centers for Disease Control and Prevention, n.d. e). In 2006, there were an estimated 56,300 new HIV infections in the U.S. (Centers for Disease Control and Prevention, n.d. d). HIV/AIDS is one of the most devastating preventable diseases to ever appear in the world. The amount of loss and suffering attributed to HIV/AIDS has been tremendous.

HIV/AIDS began as a concentrated epidemic in the gay and injection drug using (IDU) communities, but over the past twenty-seven years its reach has expanded dramatically to include heterosexuals, especially minorities and women. However, men who have sex with men (MSM) (a term including gay, bisexual, and non-gay or bisexual identified men who have sex with men) are still the majority of new HIV and AIDS cases and feel the brunt of the epidemic in the U.S. (Centers for Disease Control and Prevention, 2008d). Since the epidemic's beginning, more than 500,000 MSM have been diagnosed with AIDS, and more than 300,000 MSM have died from the syndrome (Centers for Disease Control and Prevention, 2007b). MSM accounted for 50 percent of Americans infected with HIV/AIDS in 2006; the next highest category was for high-risk

heterosexual contact, which represented 33 percent (Centers for Disease Control and Prevention, 2008f). Furthermore, it is alarming that MSM is one of only two risk categories that is still seeing increases in the number of newly diagnosed HIV/AIDS cases from one year to the next, the other being heterosexual transmission (Centers for Disease Control and Prevention, n.d. d). MSM, and especially young MSM (13-25 year olds), continue to be at great risk for HIV infection.

However, many people at risk for HIV infection consider it to be a chronic disease that is manageable, as long as a person has access to expensive antiretroviral medications and sophisticated testing and medical care (Quinn, 2008; Hoy-Ellis & Fredriksen-Goldsen, 2007). Over the past 10-15 years, advances in pharmaceutical interventions—specifically the introduction of protease inhibitors—have transformed HIV from a death sentence to a survivable disease. Several studies have shown that the fear and threat of AIDS has evaporated in some MSM due to the use of these medications, especially young MSM who do not have the context of witnessing their close friends and other People with AIDS (PWAs) get sick and die (Berg, 2009; Stolte et al., 2004b; Ostrow et al., 2002; Mansergh, 2000). Additionally, the perception that medications lower the likelihood of transmitting HIV to sex partners due to reduced viral loads helps fuel a rise in unprotected anal intercourse (UAI) in some MSM (Kalichman et al., 2007a; Kalichman et al., 2007b; Stolte et al., 2004a). The antiretroviral combination drug therapies that were discovered and have come to be the standard of care in 1996 are not guaranteed to work for decades on end. The highly mutable HIV virus could possibly become resistant and mutate to escape the antiretrovirals that are keeping it at bay. Already a small, but not insignificant percentage of PWAs are on “salvage therapy,”

which means a patient only has a few antiretroviral combination options left. Even still, one prominent infectious disease physician with Unity Health Care, Inc., in Washington, DC says that of his 800 HIV patients, 5 percent are on “deep salvage,” which means they only have one antiretroviral combination left to try (down from around 25 to 30 combinations) (Catanzaro, 2009; Greenberg & Benator, 2009).

The lack of fear of death from AIDS is allowing some MSM to engage in risky behaviors, such as unprotected anal intercourse (UAI). HIV in gay men should still be an important social and public health priority. The way governments try to tackle this issue is a consequential health policy concern. This paper will detail the behavioral interventions the Centers for Disease Control and Prevention (CDC) has deemed efficacious in preventing HIV infections, assess the CDC interventions in terms of syndemic theory, analyze if a select sample of states and cities are including these interventions in their HIV Prevention Plans, and offer policy recommendations based on these findings.

Chapter 2: Literature Review

The theoretical framework for this paper is Dr. Ron Stall and colleagues' syndemic theory of urban gay men (Stall et al., 2003). A syndemic is the convergence of mutually reinforcing epidemics on a given population that decrease health and wellness more than would otherwise be expected if the epidemics were independent of one another (Stall, Friedman & Catania, 2008). Anthropologist Merrill Singer first coined the term "syndemic" in 1992 when describing the synergistic epidemics of substance abuse, violence, and AIDS among urban women in the United States (Centers for Disease Control and Prevention, 2008b). Stall adapted Merrill's concept to explain the unique co-occurring epidemics facing urban gay men in the United States that lead to HIV infection: depression, intimate partner violence (IPV), childhood sexual abuse (CSA), and substance use. These four co-occurring epidemics in urban gay men make them more susceptible to HIV infection. Syndemic theory states that when these co-occurring epidemics overlap, an individual is more susceptible to HIV risk behaviors than they would be if the co-occurring epidemics were not related and the outcome is worse. It should be noted that longitudinal data on gay men is hard to come by because it has only been recently that sexual minorities have been included in studies by researchers outside the gay community. Additionally, HIV studies focusing on gay men are operationally skewed towards men at greatest risk by nature of the research in this at-risk population.

Research has found strong evidence that mental health problems are more prevalent in gay men than in their heterosexual peers (Cochran & Mays 2008; Fergusson

et al., 2005; Sandfort et al., 2001). Depression occurs in gay men more often than in heterosexuals; one study looking at the National Health and Nutrition Examination Survey III (NHANES III) found gay and bisexual men had greater lifetime susceptibility to recurrent major depressions (Cochran & Mays, 2008). Also, onset of depression occurs earlier in gay men; one study found that 71.4 percent of young gay men had major depression compared to 14.5 percent in similar young heterosexual men (Fergusson et al., 2005). In another study conducted in the Netherlands, 29.3 percent of homosexual men compared to 10.9 percent of heterosexual men had major depression at some point in their life (Sandfort et al., 2001).

IPV is a broader term than “domestic violence” to include violence that takes place between same-sex couples. There is a lack of uniformity on IPV research in how researchers define what constitutes IPV; because of this lack of uniformity, research ranges from 11 percent to 44 percent of gay men having ever been a victim of IPV (Herek & Sims, 2008).

Furthermore, rates of childhood sexual abuse are higher for gay men than for their heterosexual peers. In the studies looking at CSA to date, the rates have been relatively high and similar to those of women (Purcell et al., 2008). CSA rates for gay men range from 11.8 percent to 37 percent, but the CSA rate for men in general is less than 10 percent (Purcell et al., 2008).

Compared to heterosexuals, gay men, as a population, are also heavy users of illicit drugs (Stall et al., 2001). Studies have found the range of gay men who had used cocaine in the past six months to be from 15.2 percent to 52 percent and the range for six-month prior usage of amphetamines was from 11.7 percent to 28.1 percent (Ostrow &

Stall, 2008). There are definitely four co-occurring epidemics in urban gay men; this paper will analyze if current evidence-based preventative interventions are taking into account these four co-occurring epidemics in their approach.

In Stall's 2003 study, he found statistically significant associations between drug use and IPV and HIV infection: (OR=2.2; 95% CI=1.7, 2.8) and (OR=1.5; 95% CI=1.2, 1.9), respectively (Stall et al., 2003). Depression and CSA were positively associated with HIV infection, but not significantly. He further found that drug use (OR=2.0; 95% CI=1.5, 2.7), IPV (OR=1.7; 95% CI=1.3, 2.3), and CSA (OR=1.4; 95% CI=1.1, 1.9) were significantly associated with UAI, where again, depression was positively associated, but not to a statistically significant degree (Stall et al., 2003). In the same study, Stall found that the odds of UAI increased by the number of psychosocial health problems (i.e., depression, drug use) a person experienced: 1 problem (OR=1.6; 95% CI=1.2, 2.1), 2 problems (OR=2.4; 95% CI=1.6, 3.4), 3 and 4 problems (OR=3.5; 95% CI=2.2, 5.6) (Stall et al., 2003). Additionally, odds of HIV infection also increased based on the number of psychosocial problems a person was affected by: 1 problem (OR=1.8; 95% CI=1.4, 2.3), 2 problems (OR=2.7; 95% CI=2.0, 3.6), 3 and 4 problems (OR=2.2; 95% CI=1.4, 3.5) (Stall et al., 2003).

Other researchers have validated Stall's syndemic theory. Mustanski et al., in their 2007 study, found the same additive effects from substance use, psychological distress, partner violence, and sexual assault increased risk factors for HIV infection in a sample of Young Men Who Have Sex With Men (YMSM) between the ages of 16 and 24 years of age (Mustanski et al., 2007). The additive effects of these four psychosocial problems increased the odds of HIV risk behaviors, such as having multiple anal sex

partners (OR=1.24), UAI (OR=1.42), and being HIV-positive (OR=1.42) (Mustanski et al., 2007). Additionally, Ellickson and colleagues found similar results in a longitudinal study of young adults where more than 80 percent of the young adults at high risk for HIV were suffering from at least two psychosocial problems, like violence or substance use (Ellickson et al., 2005). Furthermore, Rosario and colleagues found that young MSM who reported mental health problems and CSA were significantly more likely to report more sexual partners and UAI (Rosario, Schrimshaw & Hunter, 2006).

Additional validation for syndemic theory in gay men comes from piecemeal findings by others who have demonstrated that there are linkages between HIV infection and each individual epidemic: depression (Beck, McNally & Petrak, 2003; Perdue et al., 2003; Strathdee, Hogg & Martindale, 1998), IPV (Koblin et al., 2006a), CSA (Paul et al., 2001; Arreola et al., 2008), and drug use (Stall & Purcell, 2000; Catania et al., 2001). Furthermore, several studies have called for more research looking into syndemic theory because these researchers agree that there are multiple epidemics co-occurring, which increases HIV risk behavior of MSM (Koblin et al., 2006b; Ibañez et al., 2005; Stall & van Griensven, 2005).

With syndemic theory in gay men explained, this paper will now look to see if the CDC, which is this nation's premiere HIV prevention governmental organization, promotes prevention strategies that address the complexity of syndemics. The CDC promotes certain research it finds credible enough to pass along to other governments, policy makers, and program planners. This process is explained below followed by a review of the literature.

CDC Compendium of Evidence-Based HIV Prevention Interventions

The CDC's HIV strategic plan calls for the adoption of evidence-based interventions to prevent the spread of HIV (Lyles et al., 2006). Much of HIV/AIDS prevention is based in the behavioral sciences; therefore, a large portion of the CDC strategic plan includes behavioral interventions. To provide policy makers and program planners with the best evidence-based interventions to plan well, the CDC created the HIV/AIDS Prevention Research Synthesis (PRS) project in 1996.

The purpose of the PRS project was to provide recommendations to the HIV/AIDS prevention field based on cumulative scientific evidence (Lyles et al., 2006). The PRS project wanted to aid states and cities in developing their HIV prevention plans (Lyles et al., 2007). The main activity the PRS project undertakes to accomplish its mission is to identify evidence-based behavioral interventions (EBIs) in the scientific prevention literature that have been scientifically proven to be effective. The PRS project has published these EBIs since 1999 in the CDC's Compendium of Evidence-Based HIV Prevention Interventions (formally named the Compendium of HIV Prevention Interventions with Evidence of Effectiveness) (Centers for Disease Control and Prevention, 2008a). The analysis of this paper will focus on EBIs that are in the 2008 edition that target MSM, even if MSM is not the main population targeted so as to cast a wider net for analysis purposes. The literature review will subsequently go through the published literature on these select interventions using the syndemic theory discussed above as a framework.

As of December 19, 2008, there are 57 evidence-based HIV behavioral interventions, which are categorized as either "Best-Evidence Interventions" or

“Promising-Evidence Interventions” (Centers for Disease Control and Prevention, 2008a). Since the analysis of this paper will later use HIV Prevention Plans in state and local jurisdictions, 4 best-evidence interventions targeting MSM (Healthy Living Project, Living in the Face of Trauma, Positive Choice: Interactive Video Doctor, and Safe In The City) and 2 promising-evidence interventions targeting MSM (Drug Users Intervention Trial and Options/Opciones Project) were removed from this list because the most recent update to the CDC Compendium (December 19, 2008) took place after all of the current plans were written, so these new interventions would not be found in the plans.

A) Best-Evidence Interventions (Centers for Disease Control and Prevention, 2009)

For an intervention to be labeled “Best-Evidence,” strict scientific criteria must be met. The most important criterion is that participants of an intervention are randomly or quasi-randomly assigned to the arms of the study to minimize selection bias (Lyles et al., 2006). Additionally, the study must be prospective in design and the length of follow-up must be at least 3 months to verify the effect of the intervention. Furthermore, to be considered for best-evidence status, an intervention’s arms must retain 70 percent of study participants at follow-up. When conducting the quantitative analysis of a study, researchers must use the intention-to-treat approach in their analysis, which includes participants, for example, who were randomized to an intervention arm but did not receive the intervention or participants who only attended 4 of 6 intervention sessions. PRS also requires that a study’s sample size cannot be too small (fewer than 50 participants) to meet best-evidence certification. There are 29 Best-Evidence Interventions in the Compendium, of which 7 percent (n=2) focus specifically on MSM,

and another 7 percent (n=2) that include MSM in their target populations (Centers for Disease Control and Prevention, 2009). Two Best-Evidence interventions for MSM have been omitted in this analysis because an update to the CDC Compendium website from the authors of the intervention studies suggest not using their intervention due to limited efficacy (Centers for Disease Control and Prevention, 2006a; Centers for Disease Control and Prevention, 2006b).

For MSM:

- 1) Brief Group Counseling
- 2) Personalized Cognitive Risk-Reduction Counseling (with optional sex diary)

Includes MSM:

- 1) Choosing Life: Empowerment, Actions, Results (CLEAR) (In-person delivered intervention)
- 2) Healthy Relationships

B) Promising-Evidence Interventions (Centers for Disease Control and Prevention, 2008g)

PRS understands that in some communities and for certain target populations, best-evidence interventions do not meet the needs of the community. Therefore, PRS has developed a lower-tier of “Promising-Evidence” interventions that are evidence-based, but lack the rigorous review of Best-Evidence interventions (Lyles et al., 2006; Centers for Disease Control and Prevention, 2008c). CDC notes that if programming agencies use promising-evidence interventions, they should also conduct effectiveness evaluations to make sure the intervention is achieving its goals and to increase the evidence available on the intervention. There are 18 Promising-Evidence interventions in the Compendium, of which none focus specifically on MSM, but 17 percent (n=3) include MSM in their target populations (Centers for Disease Control and Prevention, 2008g).

Includes MSM:

- 1) Partnership for Health (Loss-frame Intervention)
- 2) Sniffer
- 3) Together Learning Choices (TLC)

C) Previous Compendium Interventions: (Centers for Disease Control and Prevention, 2001)

In 1999 (and later updated in 2001), the CDC released a previous version of the Compendium. It included a total of 25 interventions, with 20 percent (n=5) specifically tailored for MSM. All 5 interventions are not included in the 2008 Compendium. Since 2004, CDC has required a higher standard in evaluating interventions (Centers for Disease Control and Prevention, 2008c), which has excluded the following interventions from the current compendium, but since some states and cities still include these interventions in their HIV Prevention Plans, it is worth noting them here.

For MSM:

- 1) AIDS Community Demonstration Projects
- 2) Mpowerment Project
- 3) Behavioral Self-management and Assertion Skills
- 4) Popular Opinion Leader (POL)
- 5) Small Group Lecture Plus Skills Training

Interventions (in alphabetical order):

AIDS Community Demonstration Projects

(The CDC AIDS Community Demonstration Projects Research Group, 1999)

Published in 1999, the AIDS Community Demonstration Projects was a community-level intervention conducted in 5 cities intended to support individual's desire to change risky behavior by changing the norms and practices of the community.

The intervention included three pieces: 1) using key community members to spread and reinforce the behavioral science-based prevention messages and materials to their peers, 2) the creation of role-model stories designed as small-media materials (e.g., community newsletters, pamphlets, baseball cards), and 3) increased access to condoms (and bleach for IDUs). Recruitment and training of peer leaders to distribute materials occurred between 1991 and 1994 and they distributed 585,000 pieces of material in the 5 cities.

MSM were not the focus of this study. Non-gay identified MSM, the MSM population for this study, only accounted for 5.7 and 6.6 percent of the intervention and comparison group participants, respectively. However, the study found that MSM exposed to the intervention were more likely to be further along the transtheoretical model of behavior change (TTM) stages-of-change spectrum (meaning they were more likely to use condoms) than those who had not been exposed to the intervention. This change was not only associated on the individual level, but also appeared at the community level. Additionally, MSM were more likely to carry condoms on them if they had been exposed to the intervention. One shortcoming of the intervention is that it was so complex that the researchers were unable to single out what part of the intervention caused the change (e.g., handing out condoms, messages by community members). Another major flaw of the study was that it was not designed to be a representative sample, so the results can only showcase what can happen in a community sample, and not necessarily what will happen in the larger at-risk community or other communities.

Behavioral Self-management and Assertion Skills

(Kelly et al., 1989)

This intervention, published in 1989, focused on behavior change in 104 gay men in a medium-sized city that had a history of risk behaviors for AIDS. The researchers noted that changing behavior in men who have UAI can be difficult and may need assistance because 1) MSM have been practicing UAI for a long time and it is part of their history, 2) the act of UAI is pleasurable and the negative consequences are distant, and 3) others prompt men to have UAI.

Risk histories were taken at baseline, and in addition, to minimize recall bias, the men were asked to complete a 4-week self-monitoring report of sexual behaviors—essentially a diary of sexual practices. Research participants went through a series of role-playing scenarios with a male researcher to foster skills needed to negotiate safer sex, which also provided a baseline measure. The actual intervention was a group-level intervention, which included twelve weekly 75- to 90-minute sessions led by two clinical psychologists and two research assistants. The sessions included information on how HIV/AIDS is transmitted, risk reduction practices, behavioral self-management, assertion training, and relationship skills and social support development. Session leaders explained how men could lessen the risk of unsafe sex by lowering their alcohol consumption, but from the study, it does not appear they mentioned other substances that cause decision impairment, such as illicit drug use.

Results indicate that the intervention worked. Prior to the intervention, the men in the study (both experimental and control arms) used condoms during anal sex 23-24 percent of the time; after four months of follow-up, men in the experimental and control arms used condoms 66 percent and 19 percent of the time, respectively. Furthermore,

after the intervention, men were more successful in being assertive in negotiating safer sex during role-plays. Additionally, participants in the interventions scored the intervention program highly in a satisfaction survey designed to gauge how useful the program was to them (mean of 9.8 out of 10, where 10 is very valuable).

One weakness of the study is that it was not created to determine which component led to the decrease in UAI and promotion of assertive, safer sex behavior. Therefore, implementing only pieces of this intervention may not achieve similar results.

Brief Group Counseling

(Choi et al., 1996)

Published in 1996, the brief group counseling intervention targeted homosexual Asian and Pacific Islander men. Brief group counseling was based on the Health Belief Model, theory of reasoned action, and social cognitive theory. The study took place in San Francisco and recruited 329 men. Inclusion criteria included: being Asian or Pacific Islander, engaging in homosexual sex, being at least 18 years of age, and not being an injection drug user. Men were either randomized to the immediate experimental arm of the intervention (n = 208) or a 3-month wait-list control group (n = 121).

The intervention consisted of one group session that lasted approximately 3 hours and was conducted by two facilitators: 1) a highly trained intervention coordinator and 2) a community volunteer that received 6 hours of training. Group sessions included approximately 8 participants and focused on four themes: 1) development of positive self-identity and social support, 2) safer sex education, 3) eroticizing safer sex, and 4) negotiating safer sex.

The average age of participants was 29 years of age and most participants were immigrants. Seventy-eight percent of the participants in this study completed the follow-up at month 3. Results show that participants in the experimental arm of the intervention reported significantly fewer sexual partners at follow-up. The number of sexual partners was decreased by 46 percent based on participating in the experimental arm of the intervention. Additionally, sub-group analysis showed a significant reduction in UAI in Chinese and Filipino men compared to their peers in the control arm of the intervention. Two limitations of this study are that 1) the follow-up was only for 3 months post intervention, and 2) the authors note that a one-session intervention may not be the best method of trying to adopt behavior change.

Choosing Life: Empowerment, Actions, Results (CLEAR)

(In-person delivered intervention) (Rotheram-Borus et al., 2004)

Published in 2004, the CLEAR intervention targeted young people living with HIV (YPLH) (16 to 29 years of age) and focused on reducing the number of unsafe sexual and drug use acts where HIV could be transmitted in addition to improving their overall mental and physical health. Enrollment for this study was limited to YPLH who had used drugs 5 times in the past 3 months because the researchers wanted to target the link between drug use and unsafe sexual acts.

253 YPLH were recruited in Los Angeles, San Francisco, and New York City, and 175 YPLH participated in the intervention. Sixty-nine percent of the research participants were MSM. Participants were randomized into either the treatment arm with immediate intervention or the comparison arm with delayed intervention. The

intervention focused on three modules, one for improving physical health, one for reducing unsafe sexual acts or drug use, and another for improving mental health. Each module was made up of 6 sessions, each lasting 2 hours. Sessions were 1-to-1 and either occurred face-to-face or over the phone; however, the CDC has only certified the in-person delivery method for this intervention. Sessions were led by either a licensed therapist, a clinical social worker, or by someone who had finished his or her clinical program in therapy or social work and were short of licensure because of required field hours. However, only 35 percent of the youth in the study completed all 18 sessions but analysis showed no difference between the characteristics of those who attended the sessions and those who did not.

Follow-up was provided at months 3, 6, 9, and 15 where measures on participants' sexual and drug using behaviors and mental health symptoms of the previous week were collected. The median number of lifetime sexual partners for participants in the study was 50, but 21 YPLH reported having more than 1,000 lifetime sexual partners. At follow-up, YPLH in the in-person immediate intervention cohort increased the proportion of safer sexual acts compared to YPLH in the delayed intervention cohort. There were no real differences between the two intervention arms in terms of hard drug use, injection drug use, dependency, and the number of different drugs. Additionally, there were no real differences between the two groups in terms of mental health outcomes.

Healthy Relationships

(Kalichman et al., 2001; Kalichman, Rompa & Cage, 2005)

Published in 2001, Healthy Relationships is a behavioral risk-reduction intervention targeting people living with HIV (PLH) and was based on social cognitive theory. Unlike other studies, to be eligible for Health Relationships, all a person needed to be was HIV-positive and willing to participate. The intervention took place in Atlanta and 52 percent of the total participants (men and women) identified as gay and 9 percent as bisexual; men accounted for 70 percent of the total population. Measurements were taken at baseline, immediately after the intervention, and at months 3 and 6 of follow-up.

The intervention was structured as group sessions with 6 to 10 people per group, men and women grouped separately. The intervention lasted for 2.5 weeks with a total of 5 sessions lasting 120 minutes a piece. The intervention sessions focused on three things: 1) enhancing participants' ability to cope with HIV-related stressors and situations of possible sexual risk, 2) improving HIV status disclosure decision-making to sexual partners, and 3) reducing the number of unprotected sexual acts participants engaged in. The possibility of violence and the appropriate reactions were discussed and role-played in the sessions on HIV status disclosure decision-making. Seventy-eight percent completed the intervention with follow-up at 6 months.

At 6 months of follow-up, participants in the experimental arm of the study were less likely to engage in unprotected intercourse (average of 1.2 versus 3.4 episodes of unprotected intercourse, respectively) and were less likely to have HIV-negative sexual partners (34 percent of experimental arm participants versus 42 percent of control arm participants). One drawback to this study is that it did not use an audio computer-assisted self-interviewing (ACASI) system to administer the study assessments. Given the effect

of social desirability bias on sensitive questions, ACASI—as has been used widely in other studies—would have kept this bias to a minimum.

Mpowerment Project

(Kegeles, Hays & Coates, 1996)

Published in 1996, the Mpowerment Project study was a peer-led community-level intervention aimed at young gay men. The two communities in the study (Eugene, Oregon and Santa Barbara, California) were selected based on their similarities, with Eugene randomly selected to receive the intervention first and Santa Barbara used as the control with delayed intervention. Aside from the intervention, a sample of young gay men (18 to 29 years of age) in Eugene were assessed for various demographic and risk behaviors and to see if they were exposed to the community-level intervention.

The intervention included peer outreach to spread safer sex messages and to recruit young men to join the Mpowerment project, small group sessions, and a publicity campaign. The goal was to not only have touched participants to adopt safer sex practices, but to then go on and diffuse the messages to their social networks and have them join the project. The intervention lasted for 8 months and the study researchers estimate that they reached approximately 500 young gay men in Eugene with at least one project activity.

Of the 191 and 109 young men who participated in pre-intervention assessment in Eugene and Santa Barbara, respectively, 65 and 81 percent completed post-intervention assessment. The men who were lost to follow-up in Eugene were less likely to report having sex in public environments, but were similar on every other measure. Likewise, the men who were lost to follow-up in Santa Barbara reported significantly fewer sexual

partners in the previous 2 months, but were similar on every other measure. Results from the study revealed a significant reduction in the amount of UAI in the experimental community (reduction of 27 percent from baseline) while there were no significant changes in the control community. Additionally, young men in the experimental community reported a stronger ability to resist UAI when aroused compared to the comparison community, the experimental community participants increased their sexual communication skills while the experimental community participants decreased theirs, and the experimental community participants reported enjoying UAI less post-intervention while the comparison community reported an increase over time. The Mpowerment project was able to reach a large segment of their target audience in Eugene. Eighty-seven percent of the post-intervention assessment participants had heard of the Mpowerment project and 77 percent reported participating in at least two project activities or events. One drawback to this study is that it was conducted in a midsized community, so relevance to larger communities may be an issue; also, the study did not address any of the four co-occurring epidemics in syndemic theory.

Partnership for Health

(Loss-frame Intervention) (Richardson et al., 2004)

Published in 2004, Partnership for Health was a counseling intervention that targeted HIV-positive patients by medical providers. The CDC has only certified the loss-frame approach of this intervention, where the negative consequences of unsafe sex are highlighted as opposed to highlighting the positives in practicing safer sex. The intervention focused on the team aspect of the provider and patient relationship in keeping the patient healthy.

The intervention was conducted at 6 HIV clinics in California. Two clinics were randomly selected to promote the positive consequences of safer sex (gain-frame), two were randomly selected to promote the negative consequences of not practicing safer sex (loss-frame), and two were randomly selected to provide an intervention promoting treatment adherence to antiretroviral therapy (ART) and serve as controls. Inclusion criteria included knowing that one's self was HIV-positive, being at least 18 years of age, having been sexually active in the previous 3 months, fluent in English or Spanish, and intent to receive medical care at the participating clinic for the next year. Approximately 150 participants were recruited at each site for a total of 886 participants. Depending on which treatment arm, MSM accounted for between 65 and 80 percent of clinic participants.

Providers were given a 4-hour training that included instruction in the behavior change theories, building communication skills, how to conduct a counseling session with the particular frame specific to their clinic, and practice in role-playing scenarios. An additional booster training session was given to providers one month after the beginning of the intervention. The intervention took only 3-5 minutes to complete by providers and was conducted at each medical visit except in cases of emergencies. In addition to the counseling session, providers gave their patients printed material that consisted of the same messages.

The main outcome measures for this study were reported unprotected anal (receptive and insertive) and vaginal sex within the past 3 months. Sixty-six percent of the participants completed follow-up assessment. At follow-up, unprotected anal and vaginal sex for participants with 2 or more partners was reduced in the loss-frame by 38

percent, from 53 percent at baseline to 33 percent at follow-up. However, the intervention had no effect on participants with only one partner. Forty-five percent of the MSM in this study had 2 or more partners at baseline, compared to 4 percent of heterosexuals, so the findings of this study are significant for MSM. The researchers note that their findings may only be applicable to MSM with multiple partners. One criticism of the study was that it could not decipher the motivation behind the behavior change, whether it was self-protection or partner-protection, which is needed to further other prevention interventions.

Personalized Cognitive Risk-Reduction Counseling (with optional sex diary)

(Dilley et al., 2002)

The Personalized Cognitive Risk-Reduction Counseling intervention was published in 2002 and focused on HIV-negative MSM who sought repeat HIV testing (repeat testers). The intervention was a randomized longitudinal trial targeted at the self-justification these men gave themselves to practice UAI. The work of this study was based on previous findings from Gold et al (Gold & Skinner, 1992; Gold, Skinner & Ross, 1994; Gold & Skinner, 1996; Gold & Rosenthal, 1998; Gold & Skinner, 1997; Gold & Rosenthal, 1995).

MSM were recruited at an anonymous HIV-testing clinic in San Francisco and had to be between 18 and 49 years of age and have had at least one negative HIV antibody test in the previous 6 months. The intervention included four study arms: 1) standard HIV counseling and testing (control), 2) standard counseling with a sex diary, 3) standard counseling plus the intervention counseling, and 4) standard counseling, sex diary, and intervention counseling.

Intervention counseling sessions occurred during the one- to two-week period between a participants blood draw for the HIV antibody test and the results session with post-test counseling. Intervention counseling sessions were led by licensed mental health professionals who had access to participants' self-justification questionnaire completed at baseline. The intervention counseling session lasted for approximately one hour and was divided into four parts: 1) introduction, 2) recent story, 3) critical examination, and 4) closure. During the recent story portion of the session participants were asked to describe in great detail their last UAI with a partner of unknown or discordant HIV status, including events during that day which led up to the event and the participant's feelings, thoughts, attitudes, and ideas he had in his mind. During the critical examination portion of the session the counselor walked the participant through the self-justifications for UAI and addressed the participant's ideas of risk when he is not in an aroused (off-line) state and when he is in an aroused (on-line) state.

The main outcome measure was the change in UAI among nonprimary partners of unknown or discordant HIV status in the previous 90 days. Although two of the four groups used diaries to follow their sexual encounters, primary outcome measure data were not collected from the diaries, but rather from in person assessments to allow for cross group comparisons. Follow-up assessments occurred at months 6 and 12. All four study arms reported fewer UAI at month 6 of follow-up; however, there was a significantly higher decrease in the intervention arms with a drop from 66 percent at baseline to 21 percent at 6 months. At 12 months of follow-up, the decrease in UAI in the control arm from baseline was only 1 percent whereas the decrease in the intervention arms were 26, 40, and 28 percent for the diary only arm, intervention counseling arm, and

intervention counseling arm plus diary arm, respectively. Although it is possible that intervention counselors targeted issues of depression, substance use, CSA, and IPV during the individual sessions with participants, addressing these four co-occurring epidemics was not a priority or goal of this study. Additionally, in the current era of rapid testing (Greenwald et al., 2006), this intervention could most likely be adapted to occur during the same session as an oral or blood-drawn rapid test since patients receive their results just 20 to 30 minutes after the HIV test. The intervention could be conducted during the waiting time between testing and results by just increasing the wait time by another 30 minutes.

Popular Opinion Leader (POL)

(Kelly et al., 1991)

Published in 1991, the Popular Opinion Leader (POL) intervention was targeted at MSM by using peer leaders and social influence to shape risk behavior norms. POL was conducted in the small cities of Biloxi and Hattiesburg, Mississippi, and Monroe, Louisiana because they were small and isolated cities with one or two large gay bars. Baseline assessment consisted of two samplings of a survey gleaned from bar patrons' knowledge of safer sex practices, their perceived social norms to protected or unprotected intercourse, and information on their sexual behaviors.

For the intervention, Biloxi was randomly assigned to be the experimental city under study and the other two cities served as controls. The first step of the intervention was to identify and approach popular opinion leaders. To do this, bartenders were asked to watch the social interactions of bar patrons for one week and identify 30 men who met this criterion. After this process, 39 men and 4 women were trained as opinion leaders

for the intervention during 4 weekly sessions each lasting 90 minutes. Thirty-five of the 43 opinion leaders attended all 4 sessions. Opinion leaders were asked to initiate conversations with friends during a two-week period and during this time 371 conversations were reported. Additionally, posters of a traffic light with red, yellow, and green lights were placed in the bars and opinion leaders were given buttons with the same image. The posters and buttons did not have anything explaining the significance of the image, so this induced bar patrons to ask opinion leaders what their purpose was, and gave opinion leaders an opportunity to discuss high-, medium-, and low-risk sexual practices with their friends.

Follow-up assessments were performed at 3 and 6 months after the opinion leader training had ended. Follow-up assessments were conducted for 608 men, which represented an average of 81 percent of the bars' population during the study period. The average age for assessment participants was 29.1 years of age. Results showed that men in the experimental city were approached an average of 7.1 times in relation to the POL study. UAI decreased for intervention bar patrons by 25 percent from baseline: 36.9 percent to 27.5 percent. Additional measures found a 16 percent increase in condom usage during anal sex and an 18 percent decrease in men with more than one sex partner. Looking at just the opinion leaders who participated in this study, 39 percent engaged in UAI before the intervention, whereas only 24 percent did so post intervention. There was no change in bar patrons in the two control cities. One limitation to this study is that it only looked at MSM in a small, isolated city, which is not where most MSM live. With that in mind, POL may not be an efficacious intervention for large cities in their development of an HIV Prevention Plan.

Small Group Lecture Plus Skills Training

(Valdiserri et al., 1989)

Published in 1989, the Small Group Lecture Plus Skills Training intervention was conducted in Pittsburgh and involved gay and bisexual men. The intervention was randomly divided into two arms: those men who received a small group lecture informing them on general HIV/AIDS knowledge (experimental arm I) and men who received a small group lecture plus skills training (experimental arm II). The skills training in the experimental arm II included such psychotherapeutic techniques as role-playing, psychodrama, and group process. The intervention consisted of one session lasting about 140 minutes for experimental arm II and for about 60 to 90 minutes for experimental arm I.

Five hundred and eighty-four men participated in this study. Forty-five percent of the participants were randomized into experimental arm I and 55 percent were randomized into experimental arm II. Follow-up was high at month 6 with 77 percent of both arms completing follow-up assessment, but this went down to 54 percent of experimental arm I and 47 percent of experimental arm II at month 12 of follow-up. Results from the study at month 12 of follow-up show that men in experimental arm II increased condom use during insertive anal intercourse 33 percent more than men in experimental arm I. One limitation of this study is that the finding does not apply to receptive anal intercourse, which is the position with the highest risk of HIV transmission.

Sniffer

(Des Jarlais et al., 1992)

Sniffing is a colloquial term for using heroin intranasally (i.e., snorting it).

Published in 1992, Sniffer was an HIV prevention intervention targeting sniffers and was based on social learning principles. To be eligible for the study, sniffers had to have been sniffing for at least 6 months, could not have injected drugs more than 60 times in the previous 2 years, and had to be HIV and hepatitis B virus (HBV) negative. Recruitment for this study occurred in New York City from 1986 until 1988.

Baseline assessment included gleaning demographic data, HIV/AIDS knowledge, drug use history, sexual behaviors, a urine sample for testing for drugs, and a blood sample for HIV antibody testing (if the participant agreed to it) and required testing for HBV. After baseline assessment, participants were randomized to either the control arm, or the experimental arm, which consisted of 4 HIV prevention sessions. The 4 sessions lasted 60 to 90 minutes each and occurred over two weeks. One hundred and four sniffers participated in the study and the average age was 27.3 years. About 70 percent of participants in both study arms were men; additionally, about 11 percent of the total participants in each group were homosexual and about 14 percent in each group were bisexual. Forty-five percent of participants reported having ever injected drugs and 12 percent reported having injected drugs in the previous 6 months.

The main outcome measure was to prevent injection drug use in sniffers who had never injected before and to stop injection drug use in sniffers who had in the past. Follow-up data collection occurred between months 5 and 21 (mean = 8.9 months). Retention was 80 percent. Of those retained for follow-up assessment, 24 percent had injected drugs since the intervention. However, significantly fewer participants in the

experimental arm injected drugs during follow-up than participants in the control arm: 15 verses 33 percent, respectively. The main criticism of this study is its small sample size and its applicability to drug users today, some 17 years later, if left unchanged.

Together Learning Choices (TLC)

(Rotheram-Borus et al., 2001a; Rotheram-Borus et al., 2001b; Rotheram-Borus et al., 2002)

Published in 2001, the Together Learning Choices (TLC) intervention targeted HIV-positive youth based on the social action model. TLC consisted of two modules of sessions: the first was “Stay Healthy,” which promoted overall health and wellness of the HIV-positive youth, and the second, “Act Safe,” attempted to decrease risk behaviors, including substance use, due to altruism. Stay Healthy was made up of 12 sessions, where as Act Safe consisted of 11, and all sessions lasted for 2 hours. Assessments occurred at baseline, after the Stay Healthy module, and at the completion of the study, which was after the Act Safe module.

TLC was conducted in Los Angeles, New York City, San Francisco, and Miami at 9 adolescent clinics. To establish a stable baseline, assessment, lasting 2.5 hours, was initially done twice 3 months apart. The study included 310 participants and the intervention was delivered in small groups of approximately 15 participants. Males comprised 72 percent of the study sample, and of these males, 88 percent were MSM. The age range for participants was 13 to 24 years of age. Fifty-one percent of the participants had had more than 20 sexual partners, 27 percent had traded sex for money or drugs, and 87 percent had used hard drugs, while 16 percent had injected drugs.

Seventy-three percent of participants attended at least one session in either module. At the fifteenth month assessment, only 30 percent of the participants reported

any sexual activity. Results indicate the experimental arm of the TLC study reduced the amount of unprotected sex by 82 percent and the number of HIV-negative partners by 50 percent. Additionally, participants in the experimental arm reduced their number of sexual partner by 45 percent and reported 31 percent less substance use. The main criticism of this study is its feasibility to replicate in a real-world setting. An intervention requiring 23 sessions is a lot to ask of HIV-positive youth and evidence of its problems is seen in that few participants completed all 23 sessions.

The goal of the Compendium is to showcase evidence-based interventions that national, state, and local governments should focus on using when developing HIV prevention plans. After going through the compendium literature for MSM, there is very little policy makers can work with. Additionally, the interventions included in the Compendium and detailed above are very complex and there is limited, if any, data available on the sustainability of the reduction in risk behaviors in the study samples.

It is surprising that the HIV prevention field is not more mature than it is. MSM have constituted one of the first, and continue to be, one of the populations most affected by HIV/AIDS, but very few science-based prevention interventions exist to reduce the spread of the virus within this population. Members of the PRS project team and others at CDC have reached similar conclusions in the past (Lyles et al., 2007; Johnson et al., 2002). For example, PRS has identified 18 best-evidence interventions for heterosexual adults and 7 for high-risk youth, but only 2 exist specifically for MSM (with another 2 interventions that included MSM in their study populations) (This excludes the 5

interventions for MSM added in December 2008). This raises important research questions. Is MSM, as a population, more difficult to document scientific results in or do prevention interventions just not work as well in MSM than they do in other populations? If studies exist, why are researchers not designing them to be scientifically rigorous enough to meet CDC PRS criteria? Are the CDC PRS criteria too stringent?

Out of the 12 interventions reviewed above, none target the syndemic theory of urban gay men approach to HIV prevention {See Figure 1}. Some of the 12 interventions were published before Stall published his syndemic theory, but the co-occurring epidemics were known to be affecting MSM. Most often targeted is the co-occurring epidemic of substance use (4 interventions) followed by that of depression (2 interventions). IPV is targeted by one intervention whereas no interventions target CSA. Stall believes to be most effective in reducing the spread of HIV in gay men interventions need to address and disrupt all four co-occurring epidemics. This analysis of the literature will provide ideas for future research to be detailed in the discussion section of this paper.

Figure 1: Results of Literature Review

Intervention	Four Co-occurring Epidemics with HIV			
	Depression	Substance Use	CSA	IPV
AIDS Community Demonstration Projects	No	No	No	No
Behavioral Self-management and Assertion Skills	No	No	No	No
Brief Group Counseling	No	No	No	No
CLEAR	Yes	Yes	No	No
Healthy Relationships	No	No	No	Yes
Mpowerment	No	No	No	No
Partnership for Health	No	No	No	No
Personalized Cognitive Risk-Reduction Counseling	No	No	No	No
POL	No	Yes	No	No
Small Group Lecture Plus Skills Training	No	No	No	No
Sniffer	No	Yes	No	No
TLC	Yes	Yes	No	No

CSA = child sexual abuse

IPV = intimate partner violence

Chapter 3: Methods

In the previous section, this paper examined whether CDC-recommended prevention interventions reflected a syndemic approach to prevention among MSM. The current section explains the methods this paper will use to analyze the implementation of these interventions at the community level to determine if a sample of state and local governments are using these evidence-based interventions in addressing prevention in MSM.

To qualify for CDC HIV prevention funding, grantees (i.e., state and local health departments—usually cities) must form Community Planning Groups (CPGs) that are tasked with three goals: 1) support broad-based community participation in HIV prevention planning, 2) identify priority HIV prevention needs (a set of priority target populations and interventions for each identified target population) in each jurisdiction, and 3) ensure that HIV prevention resources target priority populations and interventions set forth in the comprehensive HIV prevention plan (Centers for Disease Control and Prevention, n.d. a). This third goal is the primary goal of CPGs and is what this paper will focus on. Each state and large metropolitan cities must create an HIV Prevention Plan every 5 years at a minimum. These plans are completed by the CPGs in each jurisdiction and members of these groups are extremely diverse and representative of the populations at risk for HIV and subsequently, the populations the HIV Prevention Plans target. If a researcher wanted to know what the HIV prevention priorities were in the state of Florida, he or she could review the latest version of Florida's HIV Prevention Plan. He

or she could see the at-risk populations prioritized based on epidemiological surveillance data and community input and could see the interventions that the Florida Department of Health is funding to reduce HIV transmission in those priorities.

CPGs perform a series of steps to create an HIV Prevention Plan. The first such step is to take an epidemiological profile of the jurisdiction. This includes identifying the number of established AIDS and HIV cases and which populations these are in, as well as the number of new HIV cases and in what populations these are occurring in. This epidemiological profile will serve as the scientific foundation on which to build the HIV Prevention Plan and where limited resources should be targeted. Additionally, the CPGs need to perform a Community Services Assessment, where it identifies the needs of the community in terms of prevention services and where gaps in services exist. CPGs also need to prioritize the various at-risk populations in the community as identified by the epidemiological profile and associated prevention interventions the CPGs want to use to address these populations. At-risk populations are supposed to be prioritized based on the number of new infections that can be prevented.

This paper will strategically select 10 HIV Prevention Plans—5 state plans and 5 city/county plans—as a sample out of all the states and major cities in which to serve as an original data source for analysis. The analysis will determine if this sample of 10 prevention plans include interventions approved by CDC's Prevention Research Synthesis project and identified earlier in the literature review of this paper. This paper will focus on interventions identified in state and city/county HIV Prevention Plans that target MSM, as different risk groups are identified separately in the plans.

The 10 HIV Prevention Plans selected for analysis in this paper come from the following jurisdictions:

- City of Washington, District of Columbia
- City of New York, New York
- County of Los Angeles, California
- City of San Francisco, California
- City of Chicago, Illinois
- State of Georgia
- State of Florida
- State of Texas
- State of New Jersey
- State of Connecticut

The five cities were selected for several reasons. {See Figure 2 for selection criteria.} First, cities with large populations of MSM and that are considered the historical epicenters of HIV/AIDS in the U.S. were selected, thus including New York City, Los Angeles, San Francisco, Chicago, and Washington, DC. Washington, DC was also included because DC has one of, if not the, highest AIDS prevalence rates in the Country (depending on if analysis treats DC as a state or as a city) at 2,016.5 per 100,000, which is comparable to countries in Sub-Saharan Africa (Centers for Disease Control and Prevention, n.d. b).

The 5 states were picked to supplement the selected cities and because of their high prevalence of AIDS per 100,000 population (Georgia 227.7, Florida 304.8, Texas

181.1, New Jersey 236.8, and Connecticut 252.1) (Centers for Disease Control and Prevention, n.d. c). {See Figure 2 for selection criteria.} The state of Maryland was originally chosen for analysis because it has a higher prevalence rate than Connecticut at 311.8, but Maryland does not list individual interventions that it supports in its HIV Prevention Plan, thus making analysis based on the plan impossible (Centers for Disease Control and Prevention, n.d. c; Maryland HIV Prevention Community Planning Group, n.d.). Assuming Washington, DC is not considered to be in the South, Texas, Florida, and Georgia were selected to bring southern representation since the South has seen an increase in HIV/AIDS cases through minority MSM and heterosexual contact and the region now accounts for half of the 1.1 million people living with HIV/AIDS in the U.S. (Glanton, 2009). Furthermore, New Jersey and Florida were selected due to the impact of HIV/AIDS on the Hispanic population in these two states; New Jersey was second in the country in terms of its HIV rate among Hispanics (after New York) and sixth in the country in terms of the number of Hispanics living with AIDS, whereas Florida was third for its HIV rate and eighth in the country in the number of Hispanics living with AIDS (Centers for Disease Control and Prevention, 2007a).

Nine of the 10 HIV Prevention Plans for this paper were publicly available on the websites of the state or local health departments. The New York City HIV Prevention Plan was requested and received by the author from the New York City Department of Health and Mental Hygiene via email.

The HIV Prevention Plans used in this analysis include the most recent plan available in each jurisdiction. However, since plans are updated at different intervals in each jurisdiction, the time frames of plans generally do not match up with each other.

{See Figure 3} Additionally, since none of the current plans were written after the most recent update of the CDC Compendium (December 2008), interventions that were added in this update to the Compendium are not included since none of the plans would have had access to these interventions.

The selection of the 10 HIV Prevention Plans serves as a purposive sample, and consequentially, conclusions cannot be drawn that apply to the entire country. However, this sample of plans will offer a preliminary guide as to how well MSM as an at-risk group is being addressed in HIV prevention efforts, whether the interventions approved by CDC are being used, and whether the syndemic approach to HIV prevention is being used.

Figure 2: Selection Criteria for Inclusion in Analysis

Jurisdiction	Criteria for Selection				
	HIV/AIDS Epicenter (cities) or High AIDS Prevalence Rate* (states)	Large Population of MSM	High Proportion of African American MSM**	High Proportion of Hispanic MSM**	Located in the South
Washington, DC	Yes	Yes	Yes	Yes	No
New York City	Yes	Yes	Yes	Yes	No
Los Angeles	Yes	Yes	Yes	Yes	No
San Francisco	Yes	Yes	No	No	No
Chicago	Yes	Yes	Yes	Yes	No
Georgia	No	No	Yes	No	Yes
Florida	Yes	Yes	No	No	Yes
Texas	No	No	No	Yes	Yes
New Jersey	No	No	Yes	Yes	No
Connecticut	Yes	No	No	No	No

*High AIDS Prevalence Rate = Greater than 250 adult and adolescent AIDS cases per 100,000 (Centers for Disease Control and Prevention, n.d. c)

**US Census Bureau. (U.S. Census Bureau, n.d.)

Table C: Date Ranges for Current State and City/County HIV Prevention Plans

	HIV Prevention Plan Operational Date Ranges									
Jurisdiction	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Washington, DC										
New York City										
Los Angeles										
San Francisco										
Chicago										
Georgia										
Florida										
Texas										
New Jersey										
Connecticut										

Chapter 4: Results

As can be seen in Figures 4 and 5, New York City is implementing 6 different interventions that target MSM; however, only 4 are included in the CDC Compendium. The HIV Prevention Plan for Los Angeles County recommends 32 interventions targeting MSM, of which only 9 are included in the CDC Compendium. The San Francisco HIV Prevention Plan recommended 9 interventions for MSM, of which only 6 are included in the CDC Compendium. Out of the 4 interventions Chicago chose to recommend, only one is from the CDC Compendium: Popular Opinion Leader (POL). Additionally, 2 of the other 3 interventions in Chicago's plan not included in the CDC Compendium also target MSM. The DC HIV Prevention Plan recommended 12 interventions for MSM, of which 8 are included in the CDC Compendium.

Figure 4: Interventions of 5 City/County HIV Prevention Plans

Intervention	City/County HIV Prevention Plans				
	New York ¹	Los Angeles ²	San Francisco ³	Chicago ⁴	Washington, DC ⁵
AIDS Community Demonstration Projects	No	No	No	No	No
Behavioral Self-management and Assertion Skills	No	No	No	No	No
Brief Group Counseling	No	Yes	Yes	No	Yes
CLEAR	No	Yes	No	No	Yes
Healthy Relationships	Yes	Yes	No	No	Yes
Mpowerment	Yes	Yes	Yes	No	Yes
Partnership for Health	No	Yes	No	No	Yes
Personalized Cognitive Risk-Reduction Counseling	No	Yes	Yes	No	No
POL	Yes	Yes	Yes	Yes	Yes
Small Group Lecture Plus Skills Training	No	No	Yes	No	No
Sniffer	No	Yes	No	No	Yes
TLC	Yes	Yes	Yes	No	Yes

¹ New York: (New York City Department of Health and Mental Hygiene, Bureau of HIV/AIDS, 2009)

² Los Angeles: (Los Angeles County Department of Public Health, n.d.)

³ San Francisco: (San Francisco HIV Prevention Planning Council, 2004)

⁴ Chicago: (Chicago HIV Prevention Planning Group, n.d.)

⁵ Washington, DC: (District of Columbia Department of Health, HIV/AIDS Administration and the District of Columbia HIV Prevention Community Planning Group, 2008)

Figure 5: Interventions of 5 City/County HIV Prevention Plans with Syndemic Overlay

Note: cells with a white background denote the intervention was recommended by the plan

Intervention	City/County HIV Prevention Plans				
	New York ⁶	Los Angeles ⁷	San Francisco ⁸	Chicago ⁹	Washington, DC ¹⁰
AIDS Community Demonstration Projects	No	No	No	No	No
Behavioral Self-management and Assertion Skills	No	No	No	No	No
Brief Group Counseling	No	N/A	N/A	No	N/A
CLEAR	No	D & SU	No	No	D & SU
Healthy Relationships	IPV	IPV	No	No	IPV
Mpowerment	N/A	N/A	N/A	No	N/A
Partnership for Health	No	N/A	No	No	N/A
Personalized Cognitive Risk-Reduction Counseling	No	N/A	N/A	No	No
POL	SU	SU	SU	SU	SU
Small Group Lecture Plus Skills Training	No	No	N/A	No	No
Sniffer	No	SU	No	No	SU
TLC	D & SU	D & SU	D & SU	No	D & SU

D = Depression

SU = Substance Use

CSA = Childhood Sexual Abuse

IPV = Intimate Partner Violence

N/A = Not Applicable

⁶ New York: (New York City Department of Health and Mental Hygiene, Bureau of HIV/AIDS, 2009)

⁷ Los Angeles: (Los Angeles County Department of Public Health, n.d.)

⁸ San Francisco: (San Francisco HIV Prevention Planning Council, 2004)

⁹ Chicago: (Chicago HIV Prevention Planning Group, n.d.)

¹⁰ Washington, DC: (District of Columbia Department of Health, HIV/AIDS Administration and the District of Columbia HIV Prevention Community Planning Group, 2008)

As can be seen in Figures 6 and 7, the Georgia HIV Prevention Plan recommended 10 interventions for MSM, of which 5 were from the CDC Compendium. Six interventions were recommended for MSM in the Florida HIV Prevention Plan, but only 4 were from the CDC Compendium. Combining Texas' HIV Prevention Plans created a total of 13 interventions targeted at MSM, of which 5 are from the CDC Compendium. New Jersey's HIV Prevention Plan included 4 interventions from the CDC Compendium out of total of 7 interventions in the plan targeting MSM. Connecticut's HIV Prevention Plan consisted of 11 interventions targeted to MSM, but only 7 were included in the CDC Compendium.

Figure 6: Interventions of 5 State HIV Prevention Plans

Intervention	State HIV Prevention Plans				
	Georgia ¹¹	Florida ¹²	Texas ¹³	New Jersey ¹⁴	Connecticut ¹⁵
AIDS Community Demonstration Projects	No	No	No	No	Yes
Behavioral Self-management and Assertion Skills	No	No	No	No	Yes
Brief Group Counseling	No	No	No	No	No
CLEAR	No	No	No	No	No
Healthy Relationships	Yes	Yes	Yes	Yes	Yes
Mpowerment	Yes	Yes	Yes	Yes	Yes
Partnership for Health	Yes	No	Yes	No	No
Personalized Cognitive Risk-Reduction Counseling	No	No	No	No	No
POL	Yes	Yes	Yes	Yes	Yes
Small Group Lecture Plus Skills Training	No	No	No	No	Yes
Sniffer	No	No	Yes	No	No
TLC	Yes	Yes	No	Yes	Yes

¹¹ Georgia: (Georgia Community Planning Group, 2008)

¹² Florida: (State of Florida, n.d.)

¹³ Texas: (Texas Department of State Health Services, 2006a-f)

¹⁴ New Jersey: (New Jersey HIV Prevention Community Planning Group, n.d.)

¹⁵ Connecticut: (Connecticut HIV Prevention Community Planning Group, n.d. a-b)

Figure 7: Interventions of 5 State HIV Prevention Plans with Syndemic Overlay

Note: cells with a white background denote the intervention was recommended by the plan

Intervention	State HIV Prevention Plans				
	Georgia ¹⁶	Florida ¹⁷	Texas ¹⁸	New Jersey ¹⁹	Connecticut ²⁰
AIDS Community Demonstration Projects	No	No	No	No	N/A
Behavioral Self-management and Assertion Skills	No	No	No	No	N/A
Brief Group Counseling	No	No	No	No	No
CLEAR	No	No	No	No	No
Healthy Relationships	IPV	IPV	IPV	IPV	IPV
Mpowerment	N/A	N/A	N/A	N/A	N/A
Partnership for Health	N/A	No	N/A	No	No
Personalized Cognitive Risk-Reduction Counseling	No	No	No	No	No
POL	SU	SU	SU	SU	SU
Small Group Lecture Plus Skills Training	No	No	No	No	???
Sniffer	No	No	SU	No	No
TLC	D & SU	D & SU	No	D & SU	D & SU

D = Depression

SU = Substance Use

CSA = Childhood Sexual Abuse

IPV = Intimate Partner Violence

N/A = Not Applicable

¹⁶ Georgia: (Georgia Community Planning Group, 2008)

¹⁷ Florida: (State of Florida, n.d.)

¹⁸ Texas: (Texas Department of State Health Services, 2006a-f)

¹⁹ New Jersey: (New Jersey HIV Prevention Community Planning Group, n.d.)

²⁰ Connecticut: (Connecticut HIV Prevention Community Planning Group, n.d. a-b)

The city/county HIV Prevention Plans tended to include more interventions than the state plans. Seven Compendium interventions was the most any one state included in its plan (Connecticut), whereas Los Angeles, the city/county with the most, included 9 Compendium interventions in its plan. The most common Compendium intervention among all the plans was Popular Opinion Leader (POL), which all 10 plans included, followed by Mpowerment, which 9 out of the 10 plans included. However, POL only targets the co-occurring epidemic of substance abuse. The only two multi-epidemic targeted interventions from the Compendium included in any of the plans were Choosing Life: Empowerment, Actions, Results (CLEAR) and Together Learning Choices (TLC). Both CLEAR and TLC target depression and substance use. The only two jurisdictions that did not include CLEAR or TLC were Chicago and Texas.

As evidenced from these results, local program planners who implement HIV prevention programs for MSM do not have any CDC approved evidence-based interventions they can use to fully interrupt the additive effect of the co-occurring epidemics of depression, substance use, CSA, and IPV. At best, most jurisdictions have access to one or two interventions that target depression and substance use. Additionally, 8 out of the 10 jurisdictions have access to an intervention that targets IPV independently: Healthy Relationships. These results do not favor a systematic approach to tackling syndemics in urban gay men and will give substance to the next section, where the paper will discuss policy implications for policymakers and ideas for future research on this topic.

Chapter 5: Discussion

From the previous sections of this paper it is apparent that there are no evidence-based HIV preventative interventions in the Compendium being used by CPGs targeting MSM using an approach to interrupt the syndemic occurring in this population.

Furthermore, interventions that are being used are only targeting substance use and depression together. Other interventions only independently target substance use or IPV. The results of this paper have policy ramifications for federal and local health officials.

Syndemics is a relatively new theory of how urban gay men become infected with HIV; many gay men are at the crossroads where HIV and four other epidemics meet. The epidemiological data supports this claim and other researchers are joining this view of HIV in gay men. However, interventions are not keeping pace with the scientific theory around them. Syndemic theory suggests that more is needed to stem the rise in HIV infections among gay men than simply promoting the use of condoms. If a gay man is depressed, he may have trouble using condoms each time he has sex. If he is suffering from IPV, he may have trouble negotiating condom use with his main and casual partners. If he is the victim of CSA, he may be unable to use condoms consistently. Furthermore, if he is using drugs, he may be unable to resist the temptation of UAI or be unable to use condoms correctly. Interventions need to address the root causes of risky behavior: gay men are suffering at disproportionate amounts of depression and IPV; they have lingering issues of CSA and use drugs at high rates. Research needs to be designed

to take these multifaceted factors into account when planning behavioral change interventions.

Local policy makers, those that are tasked with recommending and supporting behavioral interventions targeting gay men (i.e., CPGs), are in a difficult position. They are being asked to do more with the same old interventions that do not address this new view of HIV infection in the hardest hit population. Policy makers should set aside part of their plan to target interventions that address depression, substance use, IPV, and CSA, even if they are not CDC-approved. Recommending new interventions that focus on syndemics will allow data to be gathered in program evaluation, which can lead to further refinement of the interventions and spur the creation of better ones, and possibly lead to CDC approval.

Federal policy makers, such as officials at CDC and the National Institutes of Health (NIH), should support researchers with funding that are developing interventions that target syndemics over researchers not focusing on syndemics. Although currently limited due to the economic woes of the country, CDC and NIH still have the ability to fund new and innovative projects that could lead to real potential in reducing at-risk behaviors in gay men by focusing on co-occurring depression, substance use, CSA, and IPV. Additionally, CDC and NIH should work with researchers or foster a “researchers-helping-researchers” collaborative to improve research design and other factors so that once a study is done, and if a positive effect is shown, the study will meet the strict criteria to make it into the Compendium.

One important finding from this analysis is that jurisdictions, especially states, tended to only use interventions that were included in the CDC’s Diffusion of Effective

Behavioral Interventions (DEBI) project, even though most DEBIs do not meet the strict evidence-based criteria to make it into the Compendium. The DEBI project is the main mechanism CDC uses to translate scientific interventions into the field (Centers for Disease Control and Prevention, 2007c). DEBI interventions (DEBIs) come prepackaged for a local government or community organization to use and CDC offers training and technical assistance through the National Network of STD/HIV Prevention Training Centers. The assumption is that states and other local governments relish the ease of use since DEBIs are prepackaged interventions that come with training for their staff and other technical assistance. Therefore, to make it from research to implementation, CDC needs to work especially hard to get effective interventions into the DEBI system. Currently, only 6 of the Compendium interventions targeting MSM are listed as DEBIs (Academy for Educational Development Center on AIDS and Community Health, n.d.). When interventions come along that target syndemics, CDC needs to fast track them into the DEBI program. Combining interventions from the Compendium, which have been found to be evidence-based to a strict degree, and the training and technical assistance offered through the DEBI project allows states to put important interventions into practice.

The usefulness of the CDC Compendium is doubtful. First, many of the interventions being used by states and cities are not included in the Compendium. Most of the interventions being used are coming from the DEBI project. Additionally, two best-evidence interventions are listed in the Compendium, which means CDC certifies them, but the authors of the studies suggest not using them because the interventions' efficacy is in doubt. One wonders why CDC still includes them in its list of Compendium

interventions because this sends a mixed message to local program planners.

Furthermore, if the Compendium interventions are so effective, why does CDC not send all of them through the DEBI program, which would make it easier for state and local governments to implement them? Additionally, the Compendium does not offer CPGs viable choices in addressing HIV prevention in MSM regardless of syndemics. This seems to be a problem with the strict criteria set with which interventions are allowed to be included in the Compendium and not for a lack of researchers attempting to address this problem. Evidence for this is that states and cities are using many non-Compendium interventions in targeting their MSM populations.

Cities with large MSM populations, such as the 5 included here, should partner with their local School of Public Health to develop culturally appropriate interventions for gay men that target syndemics. For example, officials with the New York City Department of Health and Mental Hygiene could partner with researchers from the Columbia University Mailman School of Public Health and officials from the San Francisco Department of Public Health could partner with researchers from the University of California, Berkeley School of Public Health. The nature of Schools of Public Health is that they tend to be community-oriented and would probably welcome another linkage between their research and their local community. These partnerships could be laboratories in which officials and researchers address the HIV prevention needs of gay men and once an intervention is developed, other cities can take it, make adjustments, and implement it for its residents.

In addition to academic research, more funding should be given to local programs and research performed by community-based organizations (CBOs) that target HIV

prevention in MSM using a syndemic approach. For example, the AIDS Foundation of Chicago, along with the city's department of public health and other local CBOs, are taking a syndemic approach to preventing HIV and the use of methamphetamine in their community (Life Lube: Gay, Sexy, Healthy, n.d.). Furthermore, local health departments could also partner with CBOs that have a reputation of strong research, like the AIDS Foundation of Chicago and the San Francisco AIDS Foundation. It does not take the backing of a university to carry out sound scientific research, so interventions that address syndemics and make an impact may be found at the community level.

In the void of any Compendium interventions targeting syndemics, CPGs should move forward by recommending non-traditional HIV prevention efforts. Since there are no interventions that weave together the psychosocial sequelae of depression, substance use, IPV, and CSA, CPGs should find interventions that target these co-occurring epidemics that are not in the realm of HIV. For example, a CPG should work with their local public health department to identify interventions targeting IPV and recommend adapting the intervention's use for MSM even though the goal of the intervention is not to prevent HIV infections. This may be going outside the authority of the CPGs, but the evidence strongly suggests that these co-occurring epidemics are related to HIV infection and they are powerless to confront it because no HIV interventions exist to stop it. CPGs should work to mesh together interventions that will interrupt the syndemic forces even if it is beyond their authority because their primary goal is to prevent HIV in their communities.

Further research studies on behavioral interventions should explore on-line delivery of programmatic material over the Internet. This is a burgeoning area of HIV

prevention research and it should be used to encapsulate syndemic theory. The advantages of delivering an intervention over the Internet are numerous. For example, the intervention has the potential to reach a much larger sample of the target population than if it were done in-person because 1) the scalability of the intervention when delivered over the Internet is much larger, and 2) because some gay men will not participate in an intervention that is clinic-based. Additionally, it would generally cost much less to run an intervention delivered on-line. In the same logic that early, 1980's AIDS-era researchers performed interventions from sampling gay bars and clubs, bathhouses, and other local gathering spots of gay men, current research should reach out to men over the Internet since this is a venue where many gay men are meeting to have sex, and potentially unsafe sex. If this is where risky behavior is occurring, then HIV prevention interventions need to keep up and target men online. In reviewing the 10 HIV Prevention Plans, a few of the plans included Internet-based outreach, but there are no Compendium interventions delivered via the Internet, and this needs to change quickly.

Structural changes that lead to better mental health, self-esteem, and overall health and wellness of gay men should also be included in the future research agenda. Examples include enacting marriage equality for gays and lesbians in the U.S. at the state and national levels, which would foster gay men's self image, self-worth, self-acceptance, and increase monogamy. With the current system, gay men may feel like second-class citizens in their own country, which may lead to depression and may have associations with IPV and substance use. Additionally, policymakers at both the state and federal level should enact hate crimes legislation, which would improve gay men's trust in the government and judicial system and would deter violent crimes committed

against gay men, which is an everyday reality and mental health stressor for most gay men that also may lead to depression and be associated with IPV and substance use. One other local structural policy recommendation is for school districts to enact Gay-Straight Alliances in each high school, so young gay men have a place to feel comforted and safe and where they can learn about health and wellness as they reach sexual debut.

There are several limitations to this paper. First, not all of the state and city HIV Prevention Plans were from the same time periods, although they were all the most recent available plans for the jurisdictions under analysis. This lack of uniformity made analysis difficult since some interventions were available when some of the plans were written but not when the other plans were. An effort to correct this was attempted by eliminating the new interventions from analysis. Another limitation is that the sample of state and city HIV Prevention Plans was a purposive sample and may not be representative of all HIV Prevention Plans. Finally, another limitation of this paper is that it did not analyze DEBIs and only focused on Compendium interventions. Future research into this topic should cast a wider net to include interventions included in the DEBI project to determine if DEBIs are similar to Compendium interventions in their lack of attempt to account for syndemics in gay men.

Bibliography

- Academy for Educational Development Center on AIDS and Community Health. (n.d.) *DEBI: Diffusion of effective behavioral interventions*.
<http://www.effectiveinterventions.org>
- Arreola, S., Neilands, T., Pollack, L., Paul, J., & Catania, J. (2008). Childhood sexual experiences and adult health sequelae among gay and bisexual men: Defining childhood sexual abuse. *Journal of Sex Research*, 45(3), 246-252.
- Beck, A., McNally, I., & Petrak, J. (2003). Psychosocial predictors of HIV/STI risk behaviours in a sample of homosexual men. *Sexually Transmitted Infections*, 79(2), 142-146.
- Berg, R. C. (2009). Barebacking: A review of the literature. *Archives of Sexual Behavior*, *In Press*, 1-11.
- Catania, J. A., Osmond, D., Stall, R. D., Pollack, L., Paul, J. P., Blower, S., et al. (2001). The continuing HIV epidemic among men who have sex with men. *American Journal of Public Health*, 91(6), 907-914.
- Catanzaro, A. (2009). In Tilley D. (Ed.), *Guest lecture for PubH 209.25: Organizational responses to the HIV/AIDS epidemic*. The George Washington University School of Public Health and Health Services.
- Centers for Disease Control and Prevention. (n.d. a) *2003-2008 HIV prevention community planning guidance*. <http://www.cdc.gov/hiv/pubs/hiv-cp.pdf>
- Centers for Disease Control and Prevention. (n.d. b) *AIDS by region, 2006 (slide 14)*. http://cdc.gov/hiv/topics/surveillance/resources/slides/aids_regional/slides/AIDS_Regional_14.pdf
- Centers for Disease Control and Prevention. (n.d. c) *Estimated prevalence rates for adults and adolescents living with AIDS (per 100,000 population), 2006, united states and dependent areas (slide 22)*. http://cdc.gov/hiv/topics/surveillance/resources/slides/epidemiology/slides/EPI-AIDS_22.pdf
- Centers for Disease Control and Prevention. (n.d. d) *HIV/AIDS surveillance report: Cases of HIV infection and AIDS in the united states and dependent areas, 2007*. <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2007report/pdf/2007SurveillanceReport.pdf>

Centers for Disease Control and Prevention. (n.d. e) *Nine and a half minutes*.
<http://www.cdc.gov/nineandahalfminutes/>

Centers for Disease Control and Prevention. (2001). *Compendium of HIV prevention interventions with evidence of effectiveness*.
http://www.cdc.gov/hiv/resources/reports/hiv_compendium/index.htm

Centers for Disease Control and Prevention. (2006a). *EXPLORE*.
<http://www.cdc.gov/hiv/topics/research/prs/resources/factsheets/EXPLORE.htm>

Centers for Disease Control and Prevention. (2006b). *Seropositive urban Men's intervention trial (SUMIT) enhanced peer-led intervention*.
<http://www.cdc.gov/hiv/topics/research/prs/resources/factsheets/SUMIT.htm>

Centers for Disease Control and Prevention. (2007a). HIV/AIDS among Hispanics --- United States, 2001-2005. *MMWR*, 56(40), 1052-1057.

Centers for Disease Control and Prevention. (2007b). *HIV/AIDS and men who have sex with men (MSM)*. <http://www.cdc.gov/hiv/topics/msm/index.htm>

Centers for Disease Control and Prevention. (2007c). *PRS, REP, and DEBI*.
http://www.cdc.gov/hiv/topics/research/prs/prs_rep_debi.htm

Centers for Disease Control and Prevention. (2008a). *2008 compendium of evidence-based HIV prevention interventions*.
<http://www.cdc.gov/hiv/topics/research/prs/evidence-based-interventions.htm>

Centers for Disease Control and Prevention. (2008b). *Definition: Syndemic*.
<http://www.cdc.gov/syndemics/definition.htm>

Centers for Disease Control and Prevention. (2008c). *Efficacy review: Efficacy criteria*.
http://www.cdc.gov/hiv/topics/research/prs/efficacy_criteria.htm

Centers for Disease Control and Prevention. (2008d). *HIV incidence*.
<http://www.cdc.gov/hiv/topics/surveillance/incidence.htm>

Centers for Disease Control and Prevention. (2008e). HIV prevalence Estimates—United States, 2006. *MMWR*, 57(39)

Centers for Disease Control and Prevention. (2008f). *HIV/AIDS in the United States*.
<http://www.cdc.gov/hiv/resources/factsheets/us.htm>

Centers for Disease Control and Prevention. (2008g). *Promising-evidence interventions*.
<http://www.cdc.gov/hiv/topics/research/prs/promising-evidence-interventions.htm>

Centers for Disease Control and Prevention. (2009). *Best-evidence interventions*.
<http://www.cdc.gov/hiv/topics/research/prs/best-evidence-intervention.htm>

Chicago HIV Prevention Planning Group. (n.d.) *Chicago: 2007-2009 comprehensive HIV prevention plan*.
http://www.ci.chi.il.us:80/webportal/COCWebPortal/COC_ATTACH/0709CompHIVPre vPlan.pdf

Choi, K., Lew, S., Vittinghoff, E., Catania, J. A., Barrett, D. C., & Coates, T. J. (1996). The efficacy of brief group counseling in HIV risk among homosexual asian and pacific islander men. *AIDS*, 10(1), 81-87.

Cochran, S. D., & Mays, V. M. (2008). Prevalence of primary mental health morbidity and suicide symptoms among gay and bisexual men. In R. J. Wolitski, R. Stall & R. O. Valdiserri (Eds.), *Unequal opportunity: Health disparities affecting gay and bisexual men in the united states* (pp. 97-120). Oxford: Oxford University Press.

Connecticut HIV Prevention Community Planning Group. (n.d. a) *Connecticut comprehensive HIV prevention plan 2005-2008*.
<http://www.ct.gov/dph/cwp/view.asp?a=3135&q=387126>

Connecticut HIV Prevention Community Planning Group. (n.d. b) *Connecticut comprehensive HIV prevention plan 2005-2008: 2007 updates*.
http://www.ct.gov/dph/lib/dph/aids_and_chronic/care/pdf/comprehensive_hiv_prevention_plan_2007_updates.pdf

Des Jarlais, D. C., Casriel, C., Friedman, S. R., & Rosenblum, A. (1992). AIDS and the transition to illicit drug Injection—Results of a randomized trial prevention program. *British Journal of Addiction*, 87(3), 493-498.

Dilley, J. W., Woods, W. J., Sabatino, J., Lihatsch, T., Adler, B., Casey, S., et al. (2002). Changing sexual behavior among gay male repeat testers for HIV. *JAIDS*, 30(2), 177-186.

District of Columbia Department of Health, HIV/AIDS Administration and the District of Columbia HIV Prevention Community Planning Group. (2008). *District of Columbia HIV prevention plan for 2006-2009*.
http://dchealth.dc.gov/doh/frames.asp?doc=/doh/lib/doh/services/administration_offices/hiv_aids/pdf/hiv_prevention_plan_2006-2009.pdf

Ellickson, P. L., Collins, R. L., Bogart, L. M., Klein, D. J., & Taylor, S. L. (2005). Scope of HIV risk and co-occurring psychosocial health problems among young adults: Violence, victimization, and substance use. *Journal of Adolescent Health*, 36(5), 401-409.

Fergusson, D. M., Horwood, J., Ridder, E., & Beautrais, A. (2005). Sexual orientation and mental health in a birth cohort of young adults. *Psychological Medicine*, 35(7), 971-981.

Georgia Community Planning Group. (2008). *Comprehensive HIV prevention plan 2009-2013 State of Georgia*. <http://health.state.ga.us/pdfs/hivaids/2009HIVPreventionPlan.pdf>

Glanton, D. (2009, April 13, 2009). HIV/AIDS: South struggles against rising problem. *The Chicago Tribune*, Retrieved from <http://www.chicagotribune.com/news/nationworld/chi-black-aidsapr13,0,2563107.story>

Gold, R. S., & Rosenthal, D. A. (1995). Preventing unprotected anal intercourse in gay men: A comparison of two intervention techniques. *International Journal of STD and AIDS*, 6(2), 89-94.

Gold, R. S., & Rosenthal, D. A. (1998). Examining self-justifications for unsafe sex as a technique of AIDS education: The importance of personal relevance. *International Journal of STD and AIDS*, 9(4), 208-213.

Gold, R. S., & Skinner, M. J. (1992). Situational factors and thought processes associated with unprotected intercourse in young gay men. *AIDS*, 6(9), 1021-1030.

Gold, R. S., & Skinner, M. J. (1996). Judging a book by its cover: Gay Men's use of perceptible characteristics to infer antibody status. *International Journal of STD and AIDS*, 7(1), 39-43.

Gold, R. S., & Skinner, M. J. (1997). Unprotected anal intercourse in gay men: The resolution to withdraw before ejaculating. *Psychological Reports*, 81(2), 496-498.

Gold, R. S., Skinner, M. J., & Ross, M. W. (1994). Unprotected anal intercourse in HIV-infected and non-HIV-infected gay men. *Journal of Sex Research*, 31(1), 59-77.

Greenberg, A., & Benator, D. (2009). In Tilley D. (Ed.), *Personal electronic communication* The George Washington University School of Public Health and Health Services and the Washington, DC Veterans Administration Medical Center.

Greenwald, J. L., Burstein, G. R., Pincus, J., & Branson, B. (2006). A rapid review of rapid HIV antibody tests. *Current Infectious Disease Reports*, 8(2), 125-131.

Herek, G. M., & Sims, C. (2008). Sexual orientation and violent victimization: Hate crimes and intimate partner violence among gay and bisexual males in the United States. In R. J. Wolitski, R. Stall & R. O. Valdiserri (Eds.), *Unequal opportunity: Health disparities affecting gay and bisexual men in the United States* (pp. 35-71). Oxford: Oxford University Press.

- Hoy-Ellis, C. P., & Fredriksen-Goldsen, K. I. (2007). Is AIDS chronic or terminal? The perceptions of persons living with AIDS and their informal support partners. *AIDS Care, 19*(7), 835-843.
- Ibañez, G. E., Purcell, D. W., Stall, R., Parsons, J. T., & Gomez, C. A. (2005). Sexual risk, substance use, and psychological distress in HIV-positive gay and bisexual men who also inject drugs. *AIDS, 19*(Supplement 1), S49-S55.
- Johnson, W. D., Hedges, L. V., Ramirez, G., Semaan, S., Norman, L. R., Sogolow, E., et al. (2002). HIV prevention research for men who have sex with men: A systematic review and meta-analysis. *JAIDS, 30*(Supplement 1), S118-S129.
- Kalichman, S. C., Eaton, L., Cain, D., Cherry, C., Fuhrel, A., Kaufman, M., et al. (2007a). Changes in HIV treatment beliefs and sexual risk behaviors among gay and bisexual men, 1997–2005. *Health Psychology, 26*(5), 650-656.
- Kalichman, S. C., Eaton, L., White, D., Cherry, C., Pope, H., Cain, D., et al. (2007b). Beliefs about treatments for HIV/AIDS and sexual risk behaviors among men who have sex with men, 1997–2006. *Journal of Behavioral Medicine, 30*(6), 497-503.
- Kalichman, S. C., Rompa, D., & Cage, M. (2005). Group intervention to reduce HIV transmission risk behavior among persons living with HIV-AIDS. *Behavior Modification, 29*(2), 256-285.
- Kalichman, S. C., Rompa, D., Cage, M., DiFonzo, K., Simpson, D., Austin, J., et al. (2001). Effectiveness of an intervention to reduce HIV transmission risks in HIV-positive people. *American Journal of Preventive Medicine, 21*(2), 84-92.
- Kegeles, S. M., Hays, R. B., & Coates, T. J. (1996). The empowerment project: A community-level HIV prevention intervention for young gay men. *American Journal of Public Health, 86*(8), 1129-1136.
- Kelly, J. A., St. Lawrence, J. S., Diaz, Y. E., Stevenson, L. Y., Hauth, A. C., Brasfield, T. L., et al. (1991). HIV risk behavior reduction following intervention with key opinion leaders of population: An experimental analysis. *American Journal of Public Health, 81*(2), 168-171.
- Kelly, J. A., St. Lawrence, J. S., Hood, H. V., & Brasfield, T. L. (1989). Behavioral intervention to reduce AIDS risk activities. *Journal of Consulting and Clinical Psychology, 57*(1), 60-67.
- Koblin, B. A., Torian, L., Xu, G., Guilin, V., Makki, H., Mackellar, D., et al. (2006a). Violence and HIV-related risk among young men who have sex with men. *AIDS Care, 18*(8), 961-967.

Koblin, B. A., Husnik, M. J., Colfax, G., Huang, Y., Madison, M., Mayer, K., et al. (2006b). Risk factors for HIV infection among men who have sex with men. *AIDS*, 20(5), 731-739.

Life Lube: Gay, Sexy, Healthy. (n.d.) *Project CRYSP and sexual health xchange – SHX*. <http://lifelube.org/about.php>

Los Angeles County Department of Public Health. (n.d.) *Los Angeles County Department of Public Health HIV prevention plan 2009-2013*. <http://publichealth.lacounty.gov/aids/PreventionPlan.htm>

Lyles, C. M., Crepaz, N., Herbst, J. H., & Kay, L. S. (2006). Evidence-based HIV behavioral prevention from the perspective of the CDC's HIV/AIDS prevention research synthesis team. *AIDS Education and Prevention*, 18(4 Supplement A), 21-31.

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*, 91(7), 133-143.

Mansergh, G., Marks, G., Miller, L., Appleby, P. R., & Murphy, S. (2000). Is 'knowing people with HIV/AIDS' associated with safer sex in men who have sex with men? *AIDS*, 14(2), 1845-1851.

Maryland HIV Prevention Community Planning Group. (n.d.) *Maryland's comprehensive HIV prevention plan: 2004-2008*. <http://www.dhmh.state.md.us/AIDS/reports/StatewidePriorities.pdf>

Mustanski, B., Garofalo, R., Herrick, A., & Donenberg, G. (2007). Psychosocial health problems increase risk for HIV among urban young men who have sex with men: Preliminary evidence of a syndemic in need of attention. *Annals of Behavioral Medicine*, 34(1), 37-45.

New Jersey HIV Prevention Community Planning Group. (n.d.) *New Jersey comprehensive HIV prevention plan: 2006-2008*. <http://hpcpsdi.rutgers.edu/NJHPG/downloads/Prevention%20Plan%202006-2008.pdf>

New York City Department of Health and Mental Hygiene, Bureau of HIV/AIDS. (2009). *New York City Department of Health & Mental Hygiene Bureau of HIV/AIDS prevention and control interim HIV prevention plan 2007*. Received via email from Terrance Gardet, Director, Community Prevention Planning Group, Bureau of HIV Prevention and Control, New York City Department of Health and Mental Hygiene, April 14, 2009.

Ostrow, D. E., Fox, K. J., Chmiel, J. S., Silvestre, A., Visscher, B. R., Vanable, P. A., et al. (2002). Attitudes towards highly active antiretroviral therapy are associated with sexual risk taking among HIV-infected and uninfected homosexual men. *AIDS Care*, *16*(5), 775-780.

Ostrow, D. G., & Stall, R. (2008). Alcohol, tobacco, and drug use among gay and bisexual men. In R. J. Wolitski, R. Stall & R. O. Valdiserri (Eds.), *Unequal opportunity: Health disparities affecting gay and bisexual men in the United States* (pp. 121-158). Oxford: Oxford University Press.

Paul, J. P., Catania, J., Pollack, L., & Stall, R. (2001). Understanding childhood sexual abuse as a predictor of sexual risk-taking among men who have sex with men: The urban men's health study. *Child Abuse and Neglect*, *25*(4), 557-584.

Perdue, T., Hagan, H., Thiede, H., & Valleroy, L. (2003). Depression and HIV risk behavior among seattle-area injection drug users and young men who have sex with men. *AIDS Education and Prevention*, *15*(1), 81-92.

Purcell, D. W., Patterson, J. D., & Spikes, J., Pilgrim S. (2008). Childhood sexual abuse experienced by gay and bisexual men: Understanding the disparities and interventions to help eliminate them. In R. J. Wolitski, R. Stall & R. O. Valdiserri (Eds.), *Unequal opportunity: Health disparities affecting gay and bisexual men in the United States* (pp. 72-96). Oxford: Oxford University Press.

Quinn, T. C. (2008). HIV epidemiology and the effects of antiviral therapy on long-term consequences. *AIDS*, *22*(S3), S7-S12.

Richardson, J. L., Milam, J., McCutchan, A., Stoyanoff, S., Bolan, R., Weiss, J., et al. (2004). Effect of brief safer-sex counseling by medical providers to HIV-1 seropositive patients: A multi-clinic assessment. *AIDS*, *18*(8), 1179-1186.

Rosario, M., Schrimshaw, E. W., & Hunter, J. (2006). A model of sexual risk behaviors among young gay and bisexual men: Longitudinal associations of mental health, substance abuse, sexual abuse, and the coming-out process. *AIDS Education and Prevention*, *18*(5), 444-460.

Rotheram-Borus, M., Murphy, D. A., Coleman, C., & Swendeman, D. (2002). Counseling adolescents: Designing interventions to target routines, relationships, roles, and stages of adaptation. In M. A. Chesney, & M. H. Antoni (Eds.), *Innovative approaches to health psychology: Prevention and treatment lessons from AIDS* (pp. 15-44). Washington, DC: American Psychology Association.

Rotheram-Borus, M. J., Lee, M. B., Murphy, D. A., Futterman, D., Duan, N., Birnbaum, J. M., et al. (2001a). Efficacy of a preventive intervention for youths living with HIV. *American Journal of Public Health*, *91*(3), 400-405.

Rotheram-Borus, M. J., Murphy, D. A., Wight, R. G., Lee, M. B., Lightfoot, M., Swendeman, D., et al. (2001b). Improving the quality of life among young people living with HIV. *Evaluation and Program Planning*, 24(2), 227-237.

Rotheram-Borus, M. J., Swendeman, D., Comulada, W. S., Weiss, R. E., Lee, M., & Lightfoot, M. (2004). Prevention for substance-using HIV-positive young people: Telephone and in-person delivery. *JAIDS*, 37(Supplement 2), S68-S77.

San Francisco HIV Prevention Planning Council. (2004). *2004 San Francisco HIV prevention plan*. http://sfhiv.org/files/plan_2004/2004_SF_HIV_Prevention_Plan.pdf

Sandfort, T. G., de Graaf, R., Bijl, R. V., & Schnabel, P. (2001). Same-sex sexual behavior and psychiatric disorders: Findings from the Netherlands mental health survey and incidence study (NEMESIS). *Archives of General Psychiatry*, 58(1), 85-91.

Stall, R., Friedman, M., & Catania, J. (2008). Interacting epidemics and gay Men's health: A theory of syndemic production among urban gay men. In R. J. Wolitski, R. Stall & R. O. Valdiserri (Eds.), *Unequal opportunity: Health disparities affecting gay and bisexual men in the United States* (pp. 251-274). Oxford: Oxford University Press.

Stall, R., Mills, T. C., Williamson, J., Hart, T., Greenwood, G., Paul, J., et al. (2003). Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. *American Journal of Public Health*, 93(6), 939-942.

Stall, R., Paul, J. P., Greenwood, G., Pollack, L. M., Bein, E., Crosby, G. M., et al. (2001). Alcohol use, drug use and alcohol-related problems among men who have sex with men: The urban Men's health study. *Addiction*, 96(11), 1589-1601.

Stall, R., & Purcell, D. W. (2000). Intertwining epidemics: A review of research on substance use among men who have sex with men and its connection to the AIDS epidemic. *AIDS and Behavior*, 4(2), 181-192.

Stall, R., & van Griensven, F. (2005). New directions in research regarding prevention for positive individuals: Questions raised by the seropositive urban men's intervention trial. *AIDS*, 19(Supplement 1), S123-S127.

State of Florida. (n.d.) *State of Florida 2007-2009 HIV/AIDS prevention plan*. http://www.doh.state.fl.us/Disease_ctrl/aids/Prevention/2007-2009%20Comprehensive%20Plan.pdf

Stolte, I. G., de Wit, J. B. W., van Eeden, A., Coutinho, R. A., & Dukers, N. H. T. M. (2004a). Perceived viral load, but not actual HIV-1-RNA load, is associated with sexual risk behaviour among HIV-infected homosexual men. *AIDS*, 18(14), 1943-1949.

Stolte, I. G., Dukers, N. H. T. M., Geskus, R. B., Coutinho, R. A., & de Wit, J. B. F. (2004b). Homosexual men change to risky sex when perceiving less threat of HIV/AIDS since availability of highly active antiretroviral therapy: A longitudinal study. *AIDS Care*, 18(2), 303-309.

Strathdee, S. A., Hogg, R. S., & Martindale, S. L. (1998). Determinants of sexual risk-taking among young HIV-negative gay and bisexual men. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology*, 19(1), 61-66.

Texas Department of State Health Services. (2006a). *Area 1 west Texas HIV prevention area action plan*.

http://www.dshs.state.tx.us/hivstd/Planning_Profiles/AAP_2006_West.pdf

Texas Department of State Health Services. (2006b). *Area 6 south Texas HIV prevention area action plan*.

http://www.dshs.state.tx.us/hivstd/Planning_Profiles/AAP_2006_South.pdf

Texas Department of State Health Services. (2006c). *Central Texas HIV prevention area action plan*. http://www.dshs.state.tx.us/hivstd/Planning_Profiles/AAP_2006_Central.pdf

Texas Department of State Health Services. (2006d). *East Texas HIV prevention area action plan*. http://www.dshs.state.tx.us/hivstd/Planning_Profiles/AAP_2006_East.pdf

Texas Department of State Health Services. (2006e). *Lubbock Odessa Midland Amarillo (LOMA) HIV prevention area action plan*.

http://www.dshs.state.tx.us/hivstd/Planning_Profiles/AAP_2006_East.pdf

Texas Department of State Health Services. (2006f). *North central Texas HIV prevention area action plan*.

http://www.dshs.state.tx.us/hivstd/Planning_Profiles/AAP_2006_N_Central.pdf

The CDC AIDS Community Demonstration Projects Research Group. (1999). Community-level HIV intervention in 5 cities: Final outcome data from the CDC AIDS community demonstration projects. *American Journal of Public Health*, 89(3), 336-345.

U.S. Census Bureau. (n.d.) *2005-2007 American community survey 3-year estimates*.

http://factfinder.census.gov/home/saff/main.html?_lang=en

Valdiserri, R. O., Lyter, D. W., Leviton, L. C., Callahan, C. M., Kingsley, L. A., & Rinaldo, C. R. (1989). AIDS prevention in homosexual and bisexual men: Results of a randomized trial evaluating two risk reduction interventions. *AIDS*, 3(1), 21-26.