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HIV PREVENTION AND YOUNG MSM

A REVIEW OF RECENT LITERATURE, APRIL 2009

BACKGROUND AND INTRODUCTION

At the Community Planning Group (CPG) quarterly meeting in January 2009, the Populations and Assessment Committee continued their discussion of the HIV risk factors and conditions surrounding young men who have sex with men (MSM). The discussion included a review of articles selected by the CPG members to address pertinent questions previously identified by the Committee.

Addressing the Committee's questions, this document reflects a concise review of the scientific literature available on young MSM[a]. Under each section heading are the original questions posed by the CPG regarding this population, followed by the literature that helps answer the questions.

This review walks through available salient evidence, beginning by framing the socio-cultural context in which young MSM live, and then considers risk factors of young MSM and their social networks, and those specific to racial and ethnic groups. Barriers and facilitators to HIV testing of young MSM are reported before considering what effective interventions with this population may look like. The information is not meant to be exhaustive, but rather to highlight common themes in the scientific literature.

WHY STUDY YOUNG MSM?

The US AIDS epidemic remains concentrated in socially-marginalized groups, such as members of racial minorities and MSM. Since the onset of the AIDS epidemic, the known affected has increasingly become younger, and experts believe young people may comprise up to 30 percent of all cases of HIV in the United States(1, 2). MSM represent approximately half of all US infections (53%)(3), and is the only transmission category showing an increase in infections from 2001-2006 (8.6%)(3). The CDC's 2008 estimates confirmed that young black MSM face a disproportionate burden of HIV infection with the highest number of new infections (5,220); roughly twice that of whites (3,330) and of Hispanics/Latinos (2,300)(4). These alarming numbers are reflected in the incidence rate for HIV in young black MSM (aged 13-24) from 2001-2006 with an increase of 93.1%(3). The white and Hispanic/Latino

[a] The term young MSM refers to males under the age of 30 who have sex with males (also known as "men who have sex with men"). This term includes men who self-identify as gay or bisexual and non-gay/bi-identified men who have sex with men.

sub-populations also have a substantial number of new infections in the 13-29 age groups - greater than any other age group within the Latino population and behind the older age groups of 30-39 and 40-49 in whites. A fair amount of research has been completed to help explain the behavior of young people driving these numbers.

WHAT'S UP WITH YOUNG PEOPLE TODAY?

YOUNG MSM AS YOUNG PEOPLE

Adolescents find themselves in a unique stage of life that is characterized by general physical health and social experimentation with adult behaviors(5). For different segments of the adolescent population, these social experiments take place in challenging social contexts that complicate concerns about HIV.

- Most of those without health insurance in the United States are young people(6, 7).
- One-third of young people report considerable pressure to have sex, and adolescent males report more pressure than adolescent females(8).
- Higher rates of sexually transmitted infections (STIs) can be found in young people across the United States, especially in ethnic and racial minority communities(9, 10); this trend is particularly troublesome as the presence of STIs facilitates HIV transmission and the associated risk behaviors are closely linked, if not the same.

In Texas, youth represent approximately 15% of the state's population, of which over half are African American or Latino(11). Comparing them with their peers across the United States, Texas' youth tend to be more at risk for negative sexual health outcomes.

- Texas' youth report low incidence of condom use at last intercourse, high rates of teen pregnancy and teen births, and high rates of STIs(11).
- Sexuality education in Texas public schools does not teach condom use, and
- Texas remains one of seven states prohibiting positive portrayals of homosexuality in schools(12).

The increase in rates of HIV infection for young MSM could mean rates of transmission have increased, they could mean that rates of HIV testing have increased, or both. Evidence tends to support an increase in transmission, but the second option cannot be ruled out(13). Certainly, recent evidence suggests that subpopulations within Texas (i.e., Hispanic men) are late to test, with considerable consequences(14).

ACCESSING YOUNG MSM

One methodological challenge noted in the review of the literature is that of access to young MSM, especially those below the age of 18. One large-scale study that was

the first attempt to study young MSM and their behaviors has been conducted: the CDC's "Young Men's Survey"(15). This study generated a sample large enough to allow comparisons across urban areas. Due to the sampling methods of surveying only specific large cities and not suburban or rural areas, conclusions about the general population cannot be made from these data. Other studies rely on purposeful sampling such as snowball sampling, yielding glimpses into the lives of young MSM in specific socio-cultural contexts. Broad-scale survey data on adolescent behaviors and health outcomes do not capture the experience of young MSM when the role of sexuality is neglected. Though such data provide insights, it would be a mistake to equate the adolescent development of young MSM with that of their heterosexual peers(6). Nor can data from studies of adult MSM be applied to young MSM, as a myriad of developmental challenges exist during adolescence that adult MSM do not face(16).

RISK BEHAVIORS, RISK CONTEXTS, AND VULNERABILITIES

Across the literature, the term "risk" does not have a uniform meaning. (Please see Figure 1 for examples.) Most studies discussed here characterize "risk" through epidemiology, relying on individual behavioral definitions, such as "unprotected anal intercourse" (UAI) or "unprotected oral or anal intercourse".

The concept of "risk" may also expand beyond individual behaviors to include contextual and situational influences upon sexual decision making(17, 18). For example, individuals with high levels of knowledge about HIV transmission may be in one situation and not take a risk, but in other situations do. These researchers understand sex as a personal and interpersonal event occurring in a dynamic space of emotions, expectations, and individual histories; this complicates understanding HIV transmission in the young MSM population. Understanding the meaning of sex to those involved can enhance HIV/STI prevention messages.

A third frame for "risk" considers social vulnerabilities such as poverty and access to services, access to knowledge, and sex work(19). This framing argues that a lack of access to quality health care or money to get tested constrains an individual's ability to make choices that matter regarding their health.

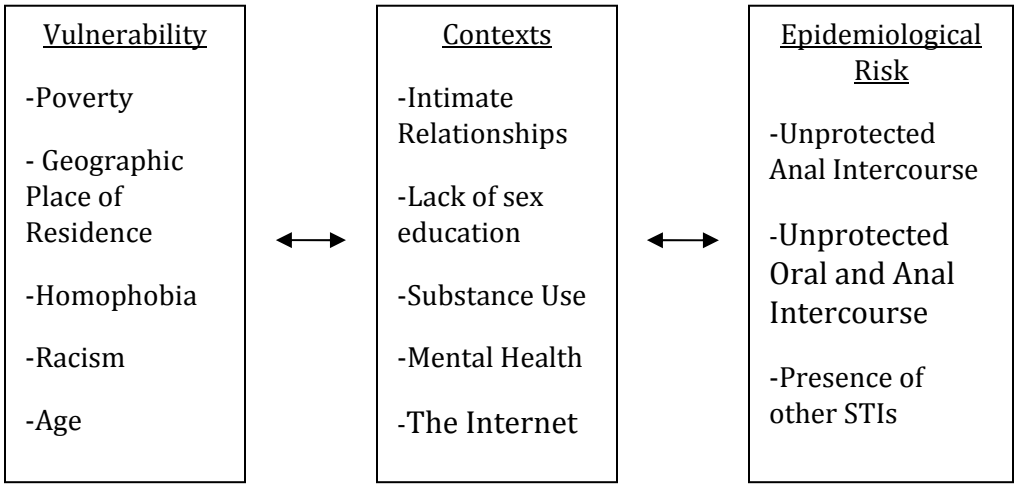

FIGURE 1. THREE WAYS TO UNDERSTAND RISK OF HIV TRANSMISSION IN THE LIVES OF YOUNG MSM

Risks associated with vulnerability are complex. One major area of vulnerability for young MSM lies in the attitudes and beliefs of homophobia and heterosexism. Heterosexism is the belief that heterosexuality is normal and that any sexual behavior that is not heterosexual is *not* normal. The attitude or belief that non-heterosexuality is perceived as not only abnormal but distasteful shuts down conversations, explorations, and questions, and possibly, social and emotional development. Further, homosexual youth are at risk of internalizing these concepts to the point of turning against themselves(20).

The stress of "coming out" at a young age worsens health-related problems for many[1]; the lives of young MSM of color are often further complicated by racial prejudice during this transitional and experimental stage in the life course(21).

Social support for young MSM as a whole is weak; they face rejection or complacence from family, peers, and other important social outlets such as school, sporting teams, and faith communities(22). Some researchers criticize the emphasis on negative health outcomes of LGBT[a] youth, as the majority of these youth do not report negative health(23). Despite the resilience of many, they do encounter considerable challenges associated with a socio-

[a] LGBT represents lesbian, gay, bisexual, and transgender

cultural context characterized by homophobic, racist, and sexist social institutions such as education, medicine, family, and work(22, 24).

One approach, the use of a "syndemic" orientation[a], holds promise for understanding and affecting HIV. Syndemics attempts to describe the multiple social vulnerabilities that young MSM experience, framing young MSM as whole individuals. Patterns of risk factors and conditions operate synergistically creating a syndemic that increases the risk of HIV far beyond the effects of one risk condition alone. Recent findings support the idea that young MSM face a syndemic of co-occurring psychosocial health problems that are linked to the HIV epidemic(22, 25). For example, in an ethnically-diverse sample of 16-24-year-old self-identified MSM in Chicago, the number of psychosocial health problems (high rates of STIs, substance use, psychological distress, and violence) additively increased the risk for HIV, with an increased likelihood of reporting an HIV-positive status or reporting sexual health risk behaviors(24). In comparison to studies of other adolescents, young MSM in this limited urban sample (only 310 participants) reported more victimization, illicit drug/marijuana use, and psychological distress. The results were similar to a larger, more representative adult MSM sample in which HIV infection co-occurred with other psychosocial health problems(25). Other researchers have found an association between increased rates of unprotected anal intercourse and emotional distress(26).

FACTORS INFLUENCING YOUNG MSM BEHAVIORS - CONTEXT

The CPG asked: What are the factors influencing young MSM behaviors? The contextual, or syndemic-related factors must be considered.

Data from the CDC's Youth Risk Behavioral Survey indicate that young people begin having sexual intercourse at early ages; 47% of high school students report having had sexual intercourse. In comparison to their heterosexual peers, on average, young MSM report an earlier age at sexual debut(27), and in comparison to older MSM, young MSM are also more likely to engage in risky sexual behaviors(28). Further, young people frequently have concurrent sexual partnerships or serial monogamous relationships which place them at higher risk for HIV infection(29). The meaning of sex to participants, such as the need for love, contextualizes these statistics and is discussed below. Sexual behavior may also be influenced by victimization, homelessness, and substance use, all of which disproportionately impact young MSM in comparison to their heterosexual peers.

[a] A syndemic orientation is a way of thinking about public health work that focuses on connections among health-related problems, considers those connections when developing health policies, and aligns with other avenues of social change to assure the conditions in which all people can be healthy. (http://www.cdc.gov/syndemics/)

Victimization

Childhood sexual abuse often leads to negative health outcomes, including STI and HIV infection. This abuse is typically under-reported, especially in the case of young men. Abused youth typically begin to have sex at a younger age, also leading to more sexual partners. Studies have found that sexually abused males were twice as likely to be infected with HIV as nonabused males(30).

Homeless Young People

Research shows that LGBTQ young people are overrepresented among homeless and runaway young people. Typically, homelessness for LGBTQ young people has been associated with rejection from family(6, 22, 31). Homeless youth show higher incidence of substance and sexual abuse, unprotected commercial sex and lack of access to health care, exacerbating their vulnerability to HIV infection(31).

Substance Use

While substance use has not been suggested to *cause* HIV risk behavior (UAI), its correlation has been well established. The findings about young MSM and substance use suggest that while substance use is prevalent, the rates of substance use are not uniform within MSM and vary depending upon the function the substance use serves (such as coping with sex or coping with sexuality). Findings include the following:

- Substance use appears to be prevalent among young MSM. From the CDC's Young Men's Survey, 75% of young MSM reported having previously used a drug - most in the past six months(15).

- Substance use among young MSM is linked to unprotected sexual behaviors. Nearly 1/3 of young men participating in the CITY/Young Men's Survey reported UAI while under the influence of alcohol or drugs the last time they had sex with a non-main partner, and these respondents were 60% more likely to have UAI/receptive(32). This finding was not related to race or socioeconomic class.

- Polysubstance appears to be more prevalent among bisexual MSM than gay-identified MSM. Further, bisexual MSM were more likely to be high during sexual encounters(33).

- Labeling oneself as gay, was associated with less drug use, but degree of "outness" measured by frequency of visits to gay community establishments, increased the use of drugs(33).

- Methamphetamine use among young MSM (21%) has been higher than among adult MSM (12%)(16).

- Garofalo(16)and colleagues found in a sample of 310 ethnically diverse young MSM that methamphetamine use was most common among whites (20.2%) and Latinos (16.3%) as compared to African American (2.9%), and more common

among HIV-positive participants (23.3%). Reporting receptive anal sex while high, doing something sexually unintended such as not using a condom, and being encouraged to use drugs by a sexual partner distinguished methamphetamine users in this sample from other substance users.

- Substance use is often regarded as a potential coping mechanism when engaging in stigmatized behaviors such as homosexual sex and being the receptive partner during anal intercourse(22).

- Young African American MSM use less cocaine, heroin, and injecting drugs than their white and Latino peers(34).

Love and Commitment

Many studies report that young MSM in loving relationships are not likely to use condoms within that relationship. For example, Dudley and colleagues(35) report that of the 39% of their sample had UAI in the past three months, a majority (59%) were in a committed relationship. Other research supports this finding: young MSM in relationships are more likely to have unsafe sex than young MSM not in relationships(36, 37).

Love, sex, and health – the interrelated issues are complicated for youth as well as HIV preventionists. Collins(1) highlights the complexity of loving relationships and their association with risk:

> *Many adolescents in the groups most affected by HIV share a common outlook on sex as a means to gain love, affection, or respect. Multiple, complex needs are brought to relationships, and these needs can complicate a young person's ability to insist on safer sex(1:21).*

For marginalized groups such as young MSM, the need for love and use of sex to gain or maintain love complicates the prevention messages that insist on condom usage every time you have sex.

Race/Ethnicity and Vulnerability

Race and ethnicity play a major role in one's vulnerability to HIV infection. Why MSM of color bear a disproportionate burden remains unclear, as research suggests that HIV *sexual risk behavior* among MSM does not vary by racial/ethnic groups(34, 38). However, structural and cultural factors tell more of the story than risk behaviors. For example, lower-income African-American and Latino communities have less access to medical care due to poverty, stigma, and discrimination(21); both African-American and Latino young MSM have been found to be in poorer health overall than their white peers(5). Where testing rates are low and STI prevalence is high, typical adolescent exploration and experimentation becomes rife with risks in tight social sexual networks. This plays a significant role in the overall HIV-transmission rates of young African-American and Latino MSM(21).

Several trends can be seen within the African-American community:

- Within a sample of African-American MSM (n=758), a little more than one-fourth reported UAI. Carrying condoms was not associated with protected insertive anal intercourse, but was for receptive(39).
- These young African-American men also report a history of STIs more than their white and Latino peers and are less likely to be satisfied with their personal lives(5).
- African-Americans report more concurrent partnerships (2.5 times more likely than whites), which happen in dense, overlapping sexual networks(40)
- Young black MSM show a trend towards having older sexual partners than their peers(40)

Young African-American MSM (ages18-29) from Chicago and Atlanta studied by Beeker(41) described individual, situational, and community influences on sexual risk-taking. Perceived homophobia and cultural beliefs about masculinity emerged as key themes, with possible implications on sexual role playing, substance use, self-esteem, community participation, and HIV risk.

For Latino young MSM, there are culturally specific issues that one must consider. Immigrants may arrive in the United States without education about HIV in both the sending country and in the US, since some Latin American countries (by no means all) do not disseminate information regarding the epidemic to their population(10).

Interventions must be culturally sensitive and use the appropriate language. The cultural messages of family and religion often stigmatize homosexuality, especially receptive anal intercourse. They may not identify as gay or bisexual and therefore believe they are not susceptible to HIV(10). In a study on family rejection, Latino men reported the highest number of negative family reactions to their sexual orientation in adolescence(42).

SOCIAL RELATIONSHIPS AND SOCIAL INSTITUTIONS

The CPG had questions about social aspects surrounding young MSM and the risk for HIV. The questions included:

- Can young MSM openly discuss their lifestyle and with whom?
- What is their social network comprised of?
- Whom do they speak to about personal concerns?
- Do their families and friends discriminate against their lifestyle?

A nationally-representative survey of young people revealed that many young people remain reluctant to discuss sexual health issues with their partners, families, and health providers. In research with LGBT youth, open discussion of their sexual behavior may lead to rejection, abandonment, or violence(6, 22).

FAMILY

Research suggests that early and clear parent-child communication regarding values and expectations about sexual behavior delays sexual initiation and informs decision making about sexual behaviors(43); however, this research does not consider the unique developmental processes of LGBT youth (MSM included). In research of family behavior and the health of LGBT youth, Ryan and colleagues established a clear link between rejecting behaviors of families towards lesbian, gay and bisexual adolescents and negative health outcomes in early adulthood(42).

SCHOOLS: SILENCE, STIGMA, AND LACK OF SAFETY

The average age for coming out of the closet continues to decline, from early to mid-20s during the 1970s and 1980s to 16 in the 1990s(6). Many young MSM live with some degree of openness before graduating from high school. For some, increased visibility has come at the cost of increased victimization, particularly in schools(22). In a study of LGBTQ youth of color, the Gay, Lesbian, and Straight Education Network (GLSEN) found that the majority of these youth experienced harassment and violence from peers in their schools based on sexual orientation (8 out of 10), while school administration remained indifferent or condoned abuse, leaving most incidences un-reported. Across the United States, LGBTQ students of color in the South were most likely to report experiences of harassment and violence, in comparison to their peers in the West and Northeast(44).

A large-scale survey of sexuality education found that 94% of Texas public high schools with approximately 3.7 million students do not provide instruction about human sexuality apart from the promotion of sexual abstinence and misinformation regarding condoms(12). The same study demonstrates that sexuality education across the state stigmatizes and marginalizes homosexual behaviors and only mentions homosexual behavior in relation to disease transmission and its condemnation from “God”(12). Texas is one of 7 states that have laws prohibiting the positive portrayal of homosexuality in schools(12).

In an assessment conducted with African Americans in Dallas, TX, participants expressed concern that youth remain unaware of HIV/AIDS, as schools and parents alike continue to not educate youth on HIV/AIDS and sexuality(45).

MEDICAL COMMUNITY AND YOUNG MSM

The CPG asked: What kind of access to care do young MSM have?

As important as the medical community is for the health care of young MSM, many barriers exist to building this bridge. Adolescents and young adults are the least likely of all age groups to have access to care, and even less to needed mental health care outlets(5).

The gap between young MSM and health care providers is due in part to discomfort from both parties and lack of knowledge by the providers. In a study of 140 LGB youth participating at a youth empowerment conference(46), only 35% reported that their physician knew they were LGB. Most of these youth had “come out”; but few to their

providers. Most youth feel uncomfortable discussing their sexual identity, partners, and behaviors with their health care providers(46).

THE INTERNET ENVIRONMENT

The Internet provides both a challenge and an opportunity regarding HIV prevention and intervention. Users access the Internet for varying reasons, yet researchers estimate that at least 50% of all Internet traffic is to sex sites(47). Sex sites may include pornographic images and videos or facilitate the networking of potential sex partners, commonly referred to as "hook up" sites.

A large percentage of young MSM use the internet to find sexual partners(48, 49), and early research speculated that the Internet was driving HIV risk behaviors such as barebacking and anonymous sexual encounters(50, 51). Although data show that online sex-seeking is associated with higher numbers of male partners, it is not associated with higher incidences of unprotected anal intercourse(49).

Some believe the Internet to be a beneficial tool for future interventions with adolescents and MSM(52). Research supports the claim that the Internet is another venue in which MSM engage in the "coming out" process, observing and learning cultural meanings while exploring sex with little fear(53). For rural and isolated MSM, the internet can be key in establishing social connections and to feel a part of a community(49, 54).

HIV TESTING

Preventing the spread of HIV infection implies increasing individual awareness about one's HIV status. The CPG posed two questions about young MSM and HIV testing:

- Why don't young MSM seek HIV testing?
- What are the barriers to testing?

Currently, HIV testing is not considered a part of routine care for young people and their access to care is limited in comparison to adults and children. Past research indicates that voluntary HIV testing on the part of young people is uncommon(8, 54, 55). Barriers and facilitators to testing have been identified.

Barriers to HIV testing

- Few adolescents discuss HIV/AIDS with their physicians(54, 56).
- Adolescents show a low level of knowledge about HIV testing; the believe the results will not be kept confidential, their partners will be notified, the test is not accurate, and the test is already a part of routine care(8, 54).
- Many adolescents do not talk about sexual behaviors with partners(8).

    - According to a CDC study of 5, 589 MSM, 55% of young men (aged 15-22) did not let other people know they were sexually attracted to men and were less likely to seek HIV testing(57).
    - These young men were at equal risk for STIs and less risk for HIV infection compared to those who talked openly about their sexual behaviors, possibly related to reporting more sex with women(57).
- Young MSM show a lack of knowledge of HIV symptoms(39).
- Young MSM claim health care providers lack sensitivity(55).
- Young MSM believe they are at low risk for HIV despite engaging in behaviors that could transmit HIV(56).

Facilitators to HIV testing:

Research has established a variety of facilitators for adolescents in general to get an HIV test(54, 55).

- Adolescents were more likely to get tested if providers recommended it(56). Adolescents who tested because a physician recommended it were more likely to test negative.
- Concern of contracting HIV through sexual behavior influenced adolescents to seek an HIV test, typically based on the number of partners they have had(56).
- Male adolescents will get tested if they feel sick(56).
- Adolescents are more likely to test if they had more than one partner in last year(54).
- Adolescents believe condoms are only somewhat effective and are therefore concerned they may be at risk for HIV(56).
- Adolescents who have discussed AIDS with a physician are more likely to test(54, 55).
- Young MSM are more likely to be reached by testing efforts at clubs and bars than at social organizations(56).

INTERVENTIONS WITH YOUNG MSM

The CPG asked: What kind of message makes the most impact? Radio? TV? Internet?

The most effective intervention in the world will not be effective if it is not delivered to the intended audience. According to a 2006 CDC study of gay and bisexual men in 15 cities, 80% claimed that in the last year they had not been reached by the most effective HIV prevention interventions(4). Further, only a small proportion of evidence-based HIV prevention interventions even target MSM, including young MSM, despite the overwhelming burden of disease this population faces(58, 59).

Using a socio-ecological model, intervention elements can be categorized by individual, interpersonal, organizational, and societal levels. Past research has identified several intervention elements that promote healthy behaviors according to the socio-ecological model. They emphasize the development of skills (individual and interpersonal), the importance of peers (interpersonal), and the need to transform context (organizational and societal). A list of successful elements includes the following:

Individual-level

- Seal(60) asked young MSM what they believed needed to be addressed in interventions, and respondents noted a need for programs that addressed issues related to dating and intimacy, sexuality and arousal, drugs and alcohol, self-esteem and self-worth, abuse and coercion, and sexual identity.

- Of the existing interventions, past research suggests that the most effective interventions for MSM contain small-group or community-level skills training to motivate and maintain sex risk behavior change(37), which must be enacted by the individual.

Interpersonal-level

- Suarez(18) recommends promoting healthy and dynamic gay role models to help reduce fatalistic thinking in young MSM.

- Some interventions, such as MPowerment, mix individual-level and interpersonal-level changes. MPowerment has been proven to reduce the percentage of unprotected anal intercourse for its participants, especially among those not involved in a romantic relationship(37). As syndemic theory claims, HIV may not be the top concern of young MSM; therefore the project focuses more on young men's social concerns and building of community. It uses the theory of diffusion of interventions as the building block of the program, positing that people are more likely to adopt new behaviors based on favorable evaluations of the innovation conveyed to them by others who are similar to them and whom they respect. The model creates community change through informal networks, but ultimately leaves the responsibility of behavior change on the individual. The developers of MPowerment have spent five years tailoring the intervention to young black MSM, as the original intervention was tested on primarily white, suburban communities. Data from the tailored intervention are still being collected.

Organizational-level

- Comprehensive sexuality education programs have been proven to reduce rates of STD infection(61).

Community and Societal-level

- Suarez(18) recommends societal interventions focusing on reducing homophobia.

- Beeker(41) concludes that individual-level interventions will not be capable of sustaining reductions in sexual-risk taking in the African-American MSM community. Community-level interventions are necessary to reduce homophobia and empower African-American MSM to participate in reducing their own health risks.

- A focus group of African American MSM in Dallas stressed the influence that local disc jockeys (DJs) possess(45). They also stressed making any social marketing campaign Dallas-specific, using local statistics and information, and using grassroots efforts.

- Noar(62) found that computer-based interventions (not necessarily web-based) have equivalent impact on influencing risk-taking behaviors. These interventions should be considered as they are more cost-effective since they are self-administered.

INSIGHTS FOR PLANNING

This review of the literature has given a few additional insights on issues to be considered with HIV prevention and interventions among young MSM in Texas.

Interpersonal-level

- Evidence shows that there is a reluctance to disclose sexual behaviors to physicians, yet physicians influence greatly an adolescent's decision to get tested for HIV.

Organizational-level

- The majority of Texas public schools do not provide comprehensive sexuality education. It is necessary to change the environment in schools for young MSM through sexuality education and anti-harassment campaigns.

- As large numbers of young MSM access the Internet's social networking capabilities; strategies for an effective presence of pubic health agencies on the internet are increasingly necessary.

Societal-level

- Health insurance coverage would facilitate better health for all youth in Texas.

- Syndemic theory suggests that young MSM most at risk for HIV infection face victimization, homelessness, substance abuse, and mental health problems. Effective interventions can strive to decrease the burden of any or all of these impairments to the health of young MSM.

The existing evidence implies that effective interventions for young MSM must consider the socio-cultural contexts of their lives, and considering them as whole individuals who face

complex health challenges of which HIV/AIDS is only one. Indeed, HIV is rarely on their "radar" of concerns. Interventions that address only sexual behaviors fail to address the other challenges that young MSM often face, such as negotiating life and love in an often homophobic and racist environment. Many physicians do not address sexuality with young men, and schools may fail to address the concerns of young MSM when they use abstinence-only education or a focus on sexuality as reproduction. There are opportunities for better care and conversations in medical and educational settings. Interventions can look to alternative avenues that reflect the ever-changing epidemic, as newer cohorts of young MSM enter the experimental years of adolescence and older prevention messages often do not apply(59). These interventions may also prove to be a cost-effective and worthwhile investment in reducing adult morbidity and mortality(22) while promoting the health of our entire society.

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