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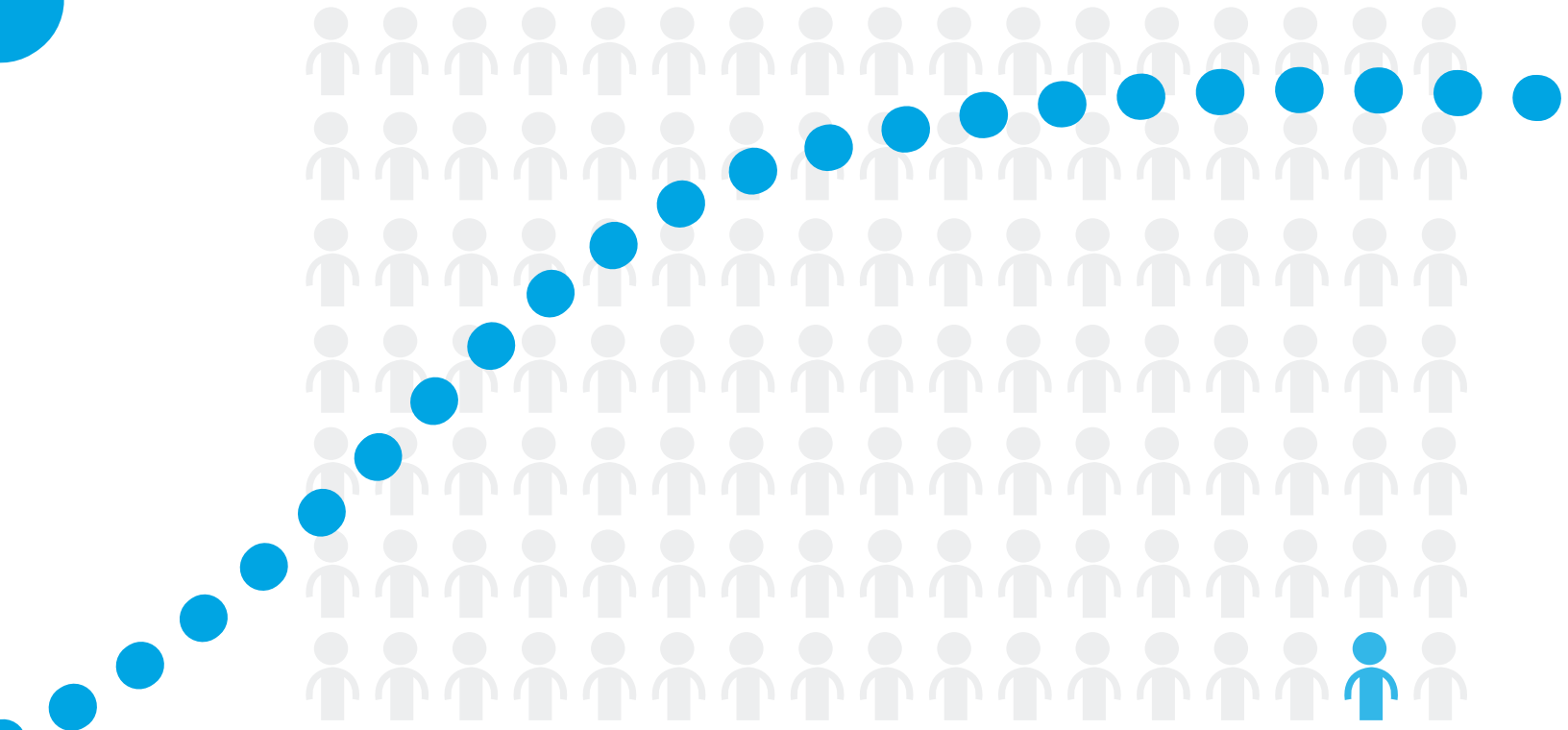
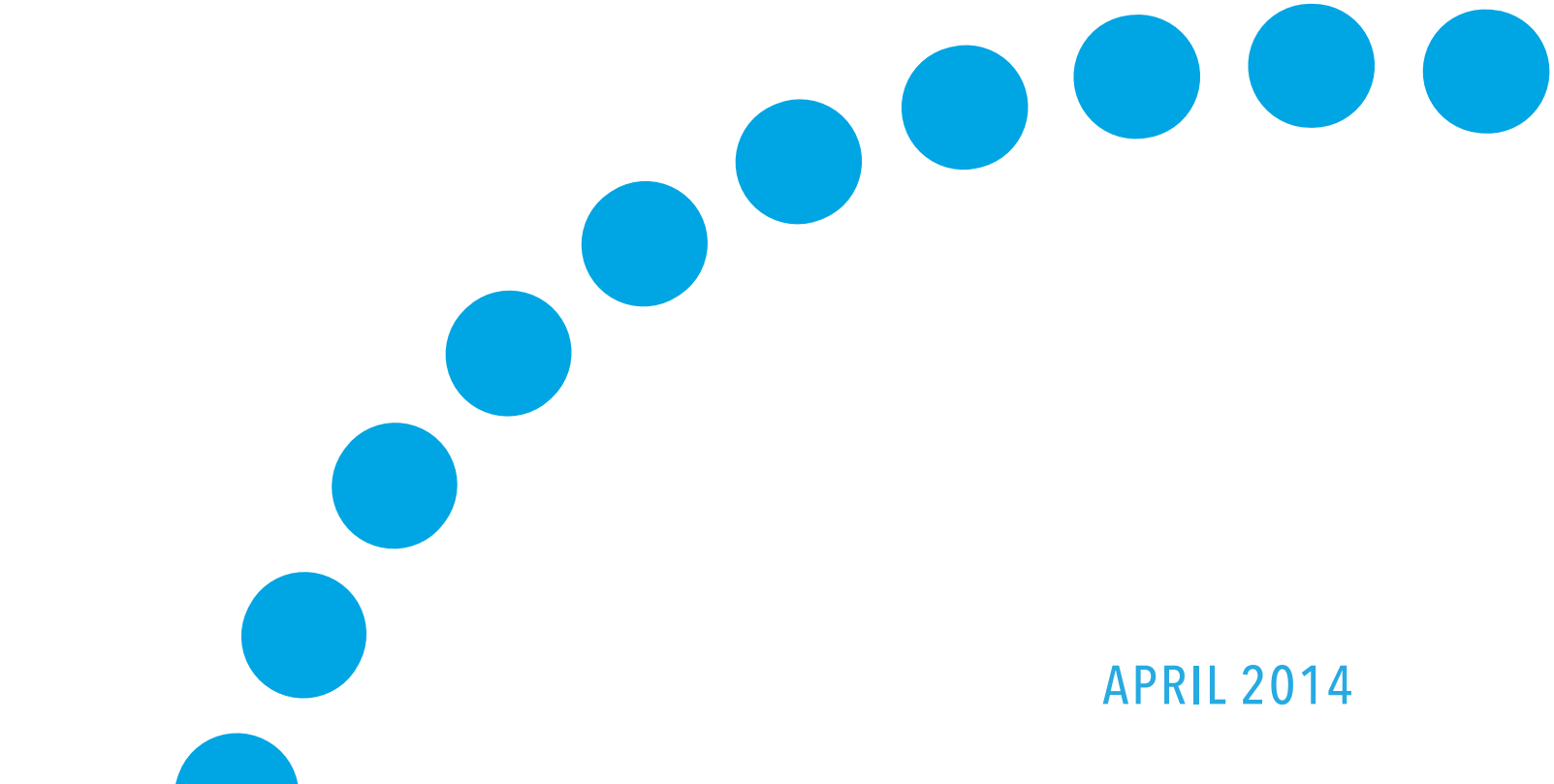


BEST PRACTICES IN HIV PREVENTION:
TRANSLATING INNOVATION INTO ACTION



APRIL 2014

Best Practices in HIV Prevention: Translating Innovation into Action

While advances in antiretroviral treatment have dramatically improved the quality and length of life for individuals infected with HIV, similar improvements have not yet been achieved in HIV prevention; indeed, the annual number of new HIV infections in the United States has plateaued at approximately 50,000 for more than a decade (1). In addition, communities of color, men who have sex with men (MSM), and transgender women continue to be disproportionately affected by HIV, as well as other sexually-transmitted infections (STIs) (1, 2). Recent, randomized, controlled trials demonstrating the benefits of treatment as prevention (TasP) (3) and pre-exposure prophylaxis (PrEP) (4, 5, 6, 7) have provided new tools for HIV prevention. While these strategies offer new hope, they also pose new questions, such as which strategies should be emphasized and how they should be implemented to achieve maximal prevention benefit.

To help fill this gap, we describe here seven best practices for HIV prevention that have emerged from recent epidemiologic, behavioral, clinical, and intervention research. These recommendations were distilled from presentations and discussions at a meeting of experts held at Fenway Health on September 27, 2013. Video selections and slide sets from this meeting are available at **www.lgbthealtheducation.org/training/online-courses/bestpracticesinhivprevention** and can also be accessed by clicking on the links interspersed throughout this document. Information on receiving continuing education credits based on this material can also be found on the web link listed above.

We begin with a discussion of the populations most burdened by HIV infection, as prevention interventions must reach these groups in order to have a significant public health impact. We then describe core interventions that can form the basis of prevention programs in clinical settings. Our discussion is based on scientific evidence whenever possible. Where such evidence is lacking, we rely on expert opinion and the experiences of successful HIV prevention programs. In many cases, a consensus about the optimal ways to implement evidence-based HIV prevention in clinical practice does not exist. We therefore suggest novel strategies which may facilitate uptake of prevention tools, but which need further testing to prove efficacy in real-world settings.

BEST PRACTICES FOR HIV PREVENTION

1. Focus HIV prevention efforts on high-risk, vulnerable populations.
2. Promote universal HIV testing, with periodic testing for individuals at highest risk of infection.
3. Target virologic suppression in all HIV-infected individuals.
4. Offer pre-exposure prophylaxis (PrEP) to individuals at highest risk of infection.
5. Focus additional preventive efforts on patients presenting with sexually-transmitted infections (STIs).
6. Augment prevention efforts with the optimal use of technology.
7. Develop and disseminate behavioral interventions that are scalable and that promote resilience.

1

Focus HIV prevention efforts on high-risk, vulnerable populations.

Preventing new HIV infections in high-risk, vulnerable populations is crucial to decreasing HIV incidence overall. Black MSM; Latino MSM; gay, bisexual, and transgender youth; and transgender women all face a higher risk of HIV infection than the general population (1, 8). These overlapping groups, which constitute a small fraction of the United States population, accounted for at least 28,500 (60%) of the 47,500 new HIV infections in 2010 (1). These populations also share challenges – unemployment, poverty, and discrimination – which concentrate and potentiate their risks of HIV infection and complicate prevention efforts. For individuals experiencing socioeconomic hardships, HIV prevention may not represent a high priority, and other concerns – food, shelter, work, and security – may take precedence.

MSM

MSM are uniquely biologically susceptible to HIV because of the efficiency of anal sex for HIV transmission and because of role versatility (in which an individual engages in both insertive and receptive anal sex roles) (9). Lack of acceptance by key individuals early in life (e.g. family, friends, and clergy) can lead to internalized homophobia, which in turn may manifest itself through depression and/or substance abuse (10). For some MSM, economic insecurity may potentiate the risks of HIV acquisition or transmission, while for others, substances use, as a form of self-medication for lack of self- or societal acceptance, may play an important role in increasing risk-taking behavior. In sum, HIV prevention strategies need to address structural, sociocultural, and biological determinants of risk in order to be effective.

BLACK MSM

Despite the similarities among MSM, this demographic group encompasses a heterogeneous array of subpopulations with diverse cultural experiences and unique challenges with regard to HIV prevention. Among MSM, Black men bear a disproportionate burden of new HIV infections, accounting for approximately one-quarter of all new HIV infections in 2010 (1). Young, Black MSM are the most severely affected and are the only demographic group to have a statistically significant increase in the number of new HIV infections in recent years (11).

What drives the HIV epidemic among Black MSM, especially among the young? Differences in sexual behavior do not account for the gap in HIV incidence between Black and White MSM (12). Instead, structural and socioeconomic factors appear to play key roles. Black MSM encounter multiple, intersecting disadvantages from an early age that increase their risk of HIV; these include lower educational attainment, poverty, higher rates of unemployment, housing instability, and higher rates of incarceration (12, 13, 14). These inequalities all contribute to limited health care access, which may account for the finding that Black MSM are less likely to be diagnosed with HIV at earlier stages of infection. Compared to White MSM, Black MSM with HIV are 40% less likely to be aware of their infections (15). Lower awareness of HIV infection means that Black MSM are more likely to transmit HIV to their sexual partners, given that those who know they are HIV-infected tend to be less likely to engage in unprotected sex. Moreover, compared to MSM of other races, Black MSM have higher rates of STIs, which may facilitate HIV transmission, and are less like-

ly to be taking antiretroviral therapy and to be virologically suppressed if HIV-infected (12). Thus, because Black MSM tend to have other Black MSM as their sexual partners, they are more likely than MSM of other races to have contact with a partner with undiagnosed or untreated HIV infection in any given sexual encounter, facilitating transmission in these sexual networks (12).

> "Interventions are going to have to take different shape; and if we're truly going to talk structural interventions, we're going to have to change structures."
>
> Darrell Wheeler, PhD, MPH, Loyola University, Chicago

Despite the high HIV incidence among Black MSM, there have only been a limited number of culturally-tailored, effective prevention interventions developed for them. A recent systematic review identified only 12 published HIV prevention interventions focused on Black MSM, most of which were focused on reducing unprotected receptive anal intercourse, while not addressing other causes of vulnerability (16). A few recent studies have attempted to bolster intervention efforts for Black MSM. For instance, the HIV Prevention Trials Network (HPTN) 061 study assessed the feasibility of a multifaceted intervention among Black MSM. The intervention consisted of HIV testing, evaluation for STIs, partner referral, and peer navigation to improve health care access. HIV, STIs, and poverty were common in the study; the annual incidence of new HIV infections was 3.0%, and more than 20% had an STI at baseline (17, 18). Additional findings from this study are being analyzed and should help to inform public policy.

Watch Darrell Wheeler, PhD, MPH, of Loyola University, Chicago, discuss this topic.

LATINO MSM

Latino men face many of the same vulnerabilities as Black MSM, including poverty, unemployment, and high rates of incarceration (19). At the same time, however, some Latino MSM may encounter additional barriers to accessing preventive services, due to constraints imposed by limited proficiency in English, depression and substance use stemming from internalized homophobia, and immigration status. Of the nearly 11 million unauthorized immigrants living in the United States, approximately 80% are Latino (20). Unauthorized immigrants are not eligible for any form of government-sponsored health insurance, and this will not change under the Affordable Care Act (ACA). In addition, lawfully-present but un-naturalized immigrants who have been in the country for fewer than five years will also not be eligible for government-sponsored health insurance under the ACA (21). Frequently lacking health insurance, unauthorized, or lawful but recent, immigrants often seek care in emergency rooms, which have historically been poorly equipped to offer preventive services for HIV or other conditions. Without additional health system reforms, many HIV prevention interventions will not be available to immigrant Latino MSM.

Watch Cynthia Gomez, PhD, of the Health Equity Institute discuss this topic.

GAY, LESBIAN, AND BISEXUAL YOUTH

Although young MSM, especially those who are Black, face high risks of HIV infection, some large HIV prevention studies among adults have not enrolled individuals younger than 18 years, particularly if experimental medications or vaccines were used. Thus, there is less evidence on optimal HIV prevention among sexually-active adolescents than among adults. To help fill this knowledge gap, additional prevention studies focused on youth are needed.

Several unique prevention opportunities are possible in this population. For instance, adolescents tend to be avid users of text messaging, chatlines, and social media and thus may be particularly amenable to HIV prevention interventions delivered through these technologies. HIV prevention efforts could also be bundled with primary health services that may be routinely offered to large numbers of young people, such as human papillomavirus vaccination and school-based health screenings. As more adolescents openly discuss their sexuality with their parents, parents should be educated so they can communicate and reinforce HIV prevention messages. Finally, as with other high-risk groups, HIV prevention may alone not be of sufficient interest to attract young people's interest; a more effective strategy may be to combine HIV prevention programs with resources offering entertainment, meals, shelter, and employment assistance in order to reach this population.

Watch Rob Garofalo, MD, MPH, of the Ann & Robert H. Lurie Children's Hospital of Chicago discuss this topic.

TRANSGENDER WOMEN

Transgender women constitute one of the highest risk groups for HIV infection. Estimates of HIV incidence among transgender individuals are lacking, but the prevalence of HIV infection among transgender women in the United States is approximately 28% overall and 56% among Black transgender women (8). While more research is needed on the best HIV preventive strategies for all high-risk populations, the lack of data is most significant for transgender women. Large-scale, population-based studies are crucial in order to reduce invisibility and better understand the HIV epidemic among transgender women.

Although the causes of the high rates of infection among transgender women are not fully understood, they likely stem from widespread discrimination that creates multiple, intersecting vulnerabilities – including depression; substance abuse; harassment and violence; lack of access to knowledgeable, sensitive, affordable health care; and limited employment and housing opportunities. In addition, due to adverse economic circumstances, some transgender women engage in commercial sex work, which places them at higher risk of HIV infection if clients incentivize them to engage in unprotected sex (22). As in other high-risk populations, targeting these underlying structural and socioeconomic factors may help curb the HIV epidemic in this group. While many of these factors may be difficult to modify by individual clinicians and health centers, engagement in care can be improved for transgender patients by training clinicians in transgender-sensitive care and by fostering a welcoming and inclusive environment. Tools through which to accomplish this include displaying posters and brochures that reflect transgender people and their health needs, using appropriate names and pronouns for transgender persons, and including transgender status on intake forms. In addition, the majority of transgender individuals seek care for cross-sex hormone therapy (23); these visits provide an opportunity to perform HIV testing, prevention

counseling, education, and other interventions. However, with any intervention in this marginalized population, it is crucial for public health workers and clinicians to partner with transgender women in order to understand their priorities – for example, they may value employment and housing over HIV prevention – and to build trust. Large scale HIV prevention interventions must also attend to gender minority stressors in order be relevant to this population.

Watch Sari Reisner, ScD, of The Fenway Institute, Fenway Health discuss this topic.

Promote universal HIV testing, with periodic testing for individuals at the highest risk of infection.

HIV testing has long been a core prevention strategy since the tests were first developed. Since 2006, the CDC has recommended universal HIV testing for all patients ages 13 to 64 years in health care settings; annual testing is recommended for those at greatest risk of infection, defined as individuals with multiple sexual partners or whose sexual partners have HIV, those who exchange sex for goods or services, and injection drug users (24). The United States Preventive Services Task Force issued a similar recommendation in 2013 (25). The preventive benefits of HIV testing stem from individuals' reduction in risk behavior following an HIV diagnosis (26) as well as from the identification of those who might be candidates for medications that can reduce transmission risk.

Nevertheless, universal HIV testing has not yet been realized. Approximately half of Americans report never having been tested for HIV (27), and an estimated 18% of individuals with HIV infection have not yet been diagnosed (28). A 2013 Inspector General's Report found that only 20% of health center sites funded by the Health Resources and Services Administration (HRSA) reported offering HIV testing to all patients (29). Moreover, testing is often performed late in the course of the disease; approximately one-third of individuals with HIV are diagnosed with the acquired immunodeficiency syndrome (AIDS) within one year of their HIV diagnosis (30).

Several factors contribute to suboptimal rates of HIV testing in the United States. In many cases, testing may not be available or offered in the settings in which patients typically seek medical care. Although a majority of general internists in one study perceived routine, universal HIV testing to be bene-

ficial for their patients' health, 39% did not offer testing regardless of risk (31). Commonly identified barriers to testing included the perception that it would detract from addressing patients' other health needs, lack of time, and patients' reluctance to be tested (31). In addition, while emergency rooms serve as the primary point of contact to the health care system for many patients, they often do not offer HIV testing; testing was possible in only half of emergency rooms in one recent study (32).

More importantly, clinic-based testing may not reach individuals who cannot or will not access health care. In one study, one-third of young, Black MSM ages 18 to 30 years reported that they lacked a usual place of care; this group was, at the same time, more likely to acquire HIV than older individuals (17). To reach these populations, testing can be incorporated into non-traditional, non-medical settings.

ect in order to understand work flow and overcome barriers to testing. The program developed an approach to HIV counseling and testing, called ACTS – standing for advise, consent, test, and support – to help streamline testing, and they created electronic medical record reminders to foster routine testing. Simultaneously, demand for HIV testing was created through an extensive social marketing campaign, and HIV testing was integrated into community events and health screenings in order to decrease the stigma associated with the test. Three years into the campaign, more than 600,000 Bronx residents had been tested for HIV, and at least 1,700 new HIV diagnoses had been made (33). Multifaceted testing strategies engaging medical and non-medical settings, such as the Bronx Knows, will likely be necessary to realize universal HIV screening. The uptake of testing in diverse

> "Just like we knew early on that you can't tell who is HIV positive by looking at them, you also can't tell who is at risk by looking at them."
>
> Donna Futterman, MD, Albert Einstein College of Medicine

One successful HIV testing program, The Bronx Knows, implemented HIV testing in such non-clinical areas as part of a multipronged approach to test all Bronx residents for HIV infection (33). The program increased the availability of HIV testing by partnering not only with hospitals and community health centers but also with venues not previously associated with health care, such as hair salons and farmers' markets. To facilitate testing in medical settings, the Bronx Knows team engaged front-line staff members in the planning phase of the project in order to understand work flow and overcome barriers to testing. The program developed an approach to HIV counseling and testing, called ACTS – standing for advise, consent, test, and support – to help streamline testing, and they created electronic medical record reminders to foster routine testing. Simultaneously, demand for HIV testing was created through an extensive social marketing campaign, and HIV testing was integrated into community events and health screenings in order to decrease the stigma associated with the test. Three years into the campaign, more than 600,000 Bronx residents had been tested for HIV, and at least 1,700 new HIV diagnoses had been made (33). Multifaceted testing strategies engaging medical and non-medical settings, such as the Bronx Knows, will likely be necessary to realize universal HIV screening. The uptake of testing in diverse clinical and non-clinical settings may also be facilitated by eliminating the imperative to offer prevention counseling with testing (34); indeed, one recent, large, randomized, controlled trial showed no benefit of counseling in the context of routine HIV screening (35).

Watch Donna Futterman, MD of Albert Einstein College of Medicine discuss this topic.

3

Target virologic suppression in all HIV-infected individuals.

One of the major preventive benefits of HIV testing is the identification of individuals who are infected and thus candidates for antiretroviral therapy (ART). In the United States, clinicians are now advised to consider offering ART to everyone with HIV, regardless of CD4 count, because it may slow the progression of disease and because it reduces the likelihood of HIV transmission by lowering viral load in blood and anogenital secretions, thus rendering HIV-infected individuals less infectious (36). This latter rationale is based primarily on HPTN 052, a recent, randomized, controlled trial of sero-discordant, primarily heterosexual couples in which ART reduced by 96% the risk of transmission from an infected to an uninfected partner (3). Some observational studies have also supported the efficacy of TasP on a population level (37, 38). Achieving virologic suppression for all HIV-infected individuals in the United States is thus both a desired clinical and public health target.

However, fewer than 1 out of 3 HIV-infected individuals in the United States are virologically suppressed on ART due to breakdowns in multiple steps of the HIV "care cascade" (39). Failure to diagnosis all HIV-infected individuals is only the first of these breakdowns; there are also significant lapses in the linkage of infected individuals to HIV care, retention in care, and the use of ART (39). Models suggest that improving any one of these lapses, in isolation, will not significantly improve the proportion of HIV-infected individuals who are virologically suppressed. Only by diagnosing, linking, and engaging 90% of HIV patients will significant increase in this proportion be achieved (39).

The causes of attenuation in the care cascade, and thus the barriers to realizing the preventive benefit of TasP, are not primarily biomedical; they are instead social, economic, and structural. In order to achieve virologic suppression, HIV-infected patients must have access to health care and antiretroviral medications. In addition, substance abuse and mental illness, both of which can impair patients' ability to enter into and remain in care, must be addressed. Difficulty navigating the complex and fragmented health care system also precludes successful HIV treatment for many patients, particularly those who belong to vulnerable populations. Several interventions have been shown to improve linkage to and/or retention in HIV care. Use of a time-limited, strengths-based case management intervention increased linkage-to-care among newly diagnosed individuals from 60% to 78% in one randomized trial of poor adults in 4 large United States cities (40). Similarly, retention in care has been improved with patient navigation services, increasing rates of retention from 64% at baseline to 87% and 79% at six and twelve months, respectively, among disadvantaged persons with HIV infection (41). Lower-intensity efforts have also proven effective at improving retention; an inexpensive intervention consisting of brochures and posters combined with brief messages from clinic staff led to a 7% relative increase in retention at 6 HIV specialty clinics (42). Multiple studies are currently underway to test innovative strategies to improve engagement in care, including contingency management and a dedicated "retention clinic" incorporating patient navigation and substance abuse treatment.

4

Offer pre-exposure prophylaxis (PrEP) to individuals at highest risk of HIV infection.

Public health information exchanges are another innovative approach to improving linkage to and retention in HIV care (43). In these exchanges, CD4 count and HIV viral load data are gathered by governmental public health departments from regional clinical laboratories. These data are stored on a secure information exchange server which interfaces with the electronic medical records (EMR) of clinics and hospitals. The use of the EMR in any patient encounter automatically triggers a search of the public health database for that patient; if the patient is found in the database of HIV-infected individuals and a CD4 count or HIV viral load has not been obtained in a pre-specified period of time, such as 6 months or one year, a computerized alert is sent in real time to the clinician using the EMR, with prompts to assist the clinician with re-engaging the patient in HIV care. Preliminary data from a public health information exchange in Louisiana suggest that such systems can successfully identify and re-engage individuals who have fallen out of care (44).

Watch Harvey Makadon, MD, of The Fenway Institute, Fenway Health, discuss this topic.

Although TasP has been shown in a randomized trial to be highly efficacious, in isolation, it is unlikely to curb the epidemic of new HIV infections. In addition to the breakdowns at multiple stages of the HIV care cascade which prevent individuals from achieving virologic suppression, transmission from acutely infected individuals also threatens the benefits of TasP, as acutely infected individuals are highly infectious and unlikely to be taking antiretroviral therapy (45). The effectiveness of TasP among high-risk MSM is also incompletely understood, as nearly all individuals in HPTN 052 were in heterosexual partnerships. Moreover, population-based, observational studies of the effect of TasP on HIV incidence have produced mixed results; increasing antiretroviral treatment had no effect on HIV incidence in MSM in England and Wales (46) but was associated with a decreased number of new HIV infections in San Francisco and Kwa-Zulu Natal (37, 38).

Given the limitations in TasP, other preventive interventions are needed for at-risk, HIV-uninfected persons. Recent randomized, controlled clinical trials have demonstrated the efficacy of tenofovir-emtricitabine for pre-exposure prophylaxis of sexually-acquired HIV infection among high-risk individuals, with relative risk reductions for infection ranging from 42% to 75% (4, 5, 6). A recent study conducted among Thai injection drug users also demonstrated the benefit of tenofovir prophylaxis in decreasing HIV transmission (7). However two PrEP studies, both performed among women in Africa, failed to show a benefit, though the lack of efficacy in these studies appeared to be primarily due to poor medication adherence (47, 48). Indeed, data from the Partners PrEP, iPrEX, and Thai injection drug use

studies showed that adherence constituted a major driver of PrEP efficacy. In a Partners PrEP sub-study, PrEP was 100% effective at preventing HIV infection in those with the high (>90%) adherence (49).

Medication non-adherence is but one barrier to realizing the potential benefits of PrEP. Like TasP, the effectiveness of PrEP depends on a sequence of complex, inter-related steps. Individuals at high risk of HIV infection must be recognized as such, either by themselves or by their health care providers. This step exposes a key challenge for PrEP scale-up, as providers may be uncomfortable discussing sexual risk behavior with patients. Regardless, if patients are identified as PrEP candidates, they must be willing to take PrEP, and their providers must be comfortable prescribing the medication. As the out-of-pocket expense of tenofovir-emtricitabine places it out of reach for many high-risk patients, the cost must often be covered by health insurance or a drug-assistance program. Patients must then adhere to the medical regimen and comply with regular visits for HIV and STI testing and counseling to help them avoid an increase in sexual risk behavior that may counteract the protective benefit of PrEP. That many PrEP candidates belong to marginalized groups with limited health care access only serves to make this intervention all the more challenging to implement.

Nevertheless, multiple projects are underway throughout the country to demonstrate the use of PrEP in vulnerable populations, including Black MSM, transgender women, and adolescent MSM. Several of these projects feature prominent counseling interventions centered on behavioral risk reduction, enhancement of medication adherence, and other strategies to ensure that pill-taking and clinical follow-up become routine. The lessons learned from these demonstration projects may help facilitate the implementation of PrEP in the real-world health care settings where high-risk individuals seek care.

For some populations, bundling PrEP with other prevention interventions may increase uptake and improve adherence. Human papillomavirus vaccination is currently recommended for all adolescents in the United States; completion of the vaccination series requires three health care visits at which PrEP could be discussed, offered, initiated, and monitored. PrEP could similarly be incorporated into the activities of clinics that offer non-occupational post-exposure prophylaxis for HIV, STI evaluation and treatment, or hormone therapy for transgender individuals.

Other strategies to improve PrEP adherence are under investigation. Several current studies are evaluating the use of alternatives to daily tenofovir-emtricitabine, such as "on-demand" PrEP taken only in conjunction with condomless sex or, taking PrEP at fixed, less-than-daily intervals (e.g. before and after the weekend). Advances in drug technology may also permit the use of long-acting, injectable PrEP formulations; incorporation of PrEP into vaginal rings, potentially co-formulated with contraceptives; and rectal microbicides. Several of these strategies are currently in clinical studies (50). The more these innovations increase the uptake, ease of use, and ultimately adherence to PrEP among high-risk individuals, the greater their impact will be on curbing the HIV epidemic.

Watch Ken Mayer, MD, of The Fenway Institute, Fenway Health discuss this topic.

5

Focus additional preventive efforts on patients presenting with sexually-transmitted infections (STIs).

STIs have long been epidemiologically linked to the HIV epidemic. While the presence of concurrent STIs has been theorized to foster HIV transmission by causing ulcerations in the genital mucosa and recruiting immune cells to the genital tissue (51), control of STIs has not been shown to reduce HIV incidence (52). However, if STI treatment cannot prevent HIV transmission, increased HIV preventive services for patients with STIs may.

The presence of STIs is a marker of unsafe sex and thus an indicator for individuals at increased risk of HIV infection. The diagnosis of syphilis, in particular, has been associated with a high risk of subsequent HIV acquisition. In one study, the annual incidence of HIV infection following diagnosis of primary or secondary syphilis was 3.6% among men overall and 5.6% among MSM (53). These data suggest that patients with STIs, and particularly syphilis, are prime candidates for intensive HIV prevention efforts.

However, as with HIV testing, rates of STI testing are suboptimal, even among high-risk groups. One study of HIV-infected MSM and their HIV primary care clinicians in Seattle found that some patients were reluctant to pursue STI testing in primary care settings due to a desire for convenience and anonymity; at the same time, many providers felt uncomfortable taking a sexual history and lacked knowledge of STI testing and treatment recommendations (54). STI self-testing by patients, as well as improved clinician education about STIs, may help overcome these barriers. Moreover, many of the same interventions that aim to increase rates of HIV testing – such as using community organizations to encourage and/or offer testing – could also be employed to boost STI testing. Other strategies include the innovative uses of technology, as described below, to remind patients to test and to guide them to a testing center (55).

When an HIV-uninfected MSM patient is diagnosed with an STI, particularly syphilis, it would ideally trigger a bundle of HIV prevention interventions, such as HIV testing, safer sex counseling, and behavioral interventions. The barriers to incorporating these services into the activities of STI clinics are not only programmatic; reports indicate that some higher-risk STI patients do not consider themselves to be at risk and may be unwilling to take PrEP (56). Consequently, efforts to bundle HIV prevention interventions with STI services may also need to address patients' self-perceptions of risk.

Download a slide set on this topic from Jeanne Marrazzo, PhD.

6

Augment prevention efforts with the optimal use of technology.

The use of the internet and smartphone technologies is widespread in the United States; 85% of American adults use the internet, and 56% own a smartphone. The corresponding proportions for persons ages 18 to 29 years are 98% and 80%. In addition, nearly one-quarter of adults use at least one social networking site (57). While the use of social media to meet sex partners has been identified as a contributor to the spread of STIs (58), these technologies also provide promising new opportunities for HIV prevention.

One distinct advantage of internet and smartphone technologies is their ability to scale-up efforts and disperse them over widespread geographic areas, reaching populations that would otherwise be difficult to access, such as rural MSM (59). In addition, these technologies easily support reminder functions, which can be used to prompt individuals to seek testing for HIV or STIs, as well as mapping functions, which can demonstrate where testing is available. Technological tools could also promote adherence by reminding individuals to take antiretroviral medications. Finally, internet and smartphones can be employed to provide algorithmic decision-making tools, such as assisting a user in deciding whether or not to seek post-exposure prophylaxis following a sexual encounter, or to collect sexual behavior data or distribute HIV or STI test results.

The challenge in harnessing new technologies for HIV prevention lies not in developing programs that can perform these functions, but in enticing at-risk individuals to use them. HIV prevention alone may not provide enough value to maintain use; prevention features of mobile applications ("apps") and websites must be combined with other features of primary interest to users. Ultimately, engaging at-risk individuals in the design and roll-out of these technologies may be key to their success.

Watch Patrick S. Sullivan, PhD, of Emory University discuss this topic.

7

Develop and disseminate behavioral interventions that are scalable and that promote resilience.

In one sense, all HIV prevention interventions are behavioral; they merely differ with regard to the individual and the behavior being targeted. The implementation of PrEP, for instance, depends on changing the behavior of health care providers (to appropriately prescribe and monitor PrEP) and patients (to adhere to the medication, comply with follow-up visits, and avoid increased sexual risk behavior). However, the term behavioral is often applied more narrowly to efforts that aim to change sexual risk behaviors. Several such behavioral interventions have been developed and tested, with different levels of focus (individual, group, or network) and with different structures (led by clinicians or peers) (60). But, in the new era of using antiretrovirals for HIV prevention, better integration of biological strategies and more comprehensive behavioral interventions are needed.

38% in patients with multiple sexual partners (61). Although the effect size of this intervention is relatively small, it is inexpensive and easy to deliver at clinics around the country and thus may have a larger impact than other interventions that require more time or funding.

In addition, researchers have learned that behavioral interventions should be developed with the recognition that sexual risk does not occur in a vacuum, but rather within the context of multiple, intersecting issues, or "syndemics," that afflict many MSM. "Syndemic" refers to the intertwining epidemics of depression, substance abuse, childhood sexual abuse, partner violence, and other psychosocial problems which interact with and amplify one another, elevating HIV risk (10). Failure to address syndemic factors has likely played a role in

> "Prevention or changing adherence is not going to be a one-time activity; it's something that's going to have to occur in an ongoing and sustained fashion."
>
> Richard Wolitski, PhD, CDC

Paradoxically, the more intense and individualized a behavioral intervention is (such as a mulit-session tailored approach) and thus the more efficacious it tends to be, the less feasible it is to bring to scale. HIV prevention programs may therefore elect to prioritize less efficacious but more "scalable" interventions over those that are more efficacious but also more resource-intensive. For example, brief, 3 to 5 minute clinician-led safer sex counseling at each clinic visit with HIV-infected patients has been shown to decrease unprotected anal or vaginal sex by

the inability of evidenced-based behavioral interventions, although efficacious in small study populations, to control HIV in MSM over the course of the epidemic, and may limit the real-world effectiveness of novel interventions that combine behavioral and biomedical strategies.

For many MSM, internalized homophobia constitutes a powerful factor both contributing to sexual risk behavior and impeding use of HIV prevention services; it has been highly associated with depression, substance use and other adverse behavioral

health conditions. For instance, higher levels of internalized homophobia have been associated with greater numbers of sexual partners and decreased HIV testing rates (62). While Black MSM may, as a group, experience more internalized homophobia than other groups, MSM of all racial and ethnic backgrounds can be affected (62). Longitudinal analyses indicate that internalized homophobia decreases over the life course and that such decreases are associated with improved health outcomes (63). These findings suggest that promoting resolution of internalized homophobia may be an effective behavioral HIV prevention intervention.

Traditional evidence-based behavioral prevention interventions for HIV have focused on identifying risk factors for HIV and testing interventions to modulate them, such as programs aimed at reducing unprotected receptive anal sex or decreasing substance abuse. However, these "deficit-based" strategies may be implicitly insulting to MSM. Moreover, focusing on the behavior of the highest-risk individuals may not resonate with lower risk, but still at-risk, MSM, leading to decreased uptake of interventions and compromised effectiveness. In contrast, identifying the ways in which many MSM show resilience – through successfully resolving internalized homophobia, navigating substance use, building healthy relationships, and remaining HIV-uninfected – and then using this knowledge to design resilience-based programs, may enhance the effectiveness of HIV prevention interventions. For example, Proyecto la Familia, an intervention focused on encouraging family and self-acceptance among Latino MSM in the San Francisco area, showed a significant decrease in sexual risk behaviors (64). Addressing internalized homophobia and promoting resilience are thus integral parts of HIV prevention efforts among MSM.

Watch Richard Wolitski, PhD, of the CDC discuss this topic.

Watch Ron Stall, PhD, MPH, of the University of Pittsburgh Graduate School of Public Health discuss this topic.

The way forward

Focusing on effectiveness, rather than efficacy alone, is crucial for the future of HIV prevention. In addition, speedy implementation is essential. HIV prevalence is rising as those with the disease live longer due to effective antiretroviral therapy, but increased prevalence also poses the threat of feeding a "vicious cycle" of increased HIV incidence, since HIV-uninfected persons may have more chances of encountering an HIV-infected partner. In this setting, modest reductions in individual risk behavior may not appreciably decrease incidence.

Structural developments in the health care system, namely changes in Medicaid reimbursement and the implementation of the Affordable Care Act (ACA), can be leveraged to facilitate HIV prevention. Medicaid now provides payment for provider-referred services, meaning that HIV-related counseling provided by allied health personnel or community-based organizations can be reimbursed. Furthermore, by preventing individuals with pre-existing conditions such as HIV from being denied health insurance, expanding Medicaid, and investing in community health centers, the ACA is expected improve access to prevention and treatment services for HIV (65). In addition, in order to optimally reduce HIV incidence, prevention funding must match the epidemic; that is, the distribution of money for HIV prevention should mirror the distribution of HIV in the population, both geographically and demographically.

At the same time that novel biomedical interventions are scaled up, basic messaging around sexual risk behaviors must be reinforced. The proportion of MSM reporting unprotected anal sex within the past 12 months increased from 48% to 57% over 6 years in a recent, nationwide study (66). This trend is concerning, given the high risk of HIV transmission via unprotected anal sex, and highlights that avoidance of unprotected anal sex must be a clear, consistent, and widespread public health message. Concurrently, however, messaging must relate to the real-world circumstances of sexual relationships. Once in a relationship, many couples cease using condoms. Thus, public health guidance addressing how or when couples may safely discontinue condom use with each other, and how they can best negotiate safety in any sexual relationships outside of their primary partnership, is needed.

No single HIV prevention intervention, behavioral or otherwise, can significantly reduce HIV incidence alone. The challenge for primary care and public health systems is thus how to best combine evidence-based interventions and deliver them to at-risk individuals. While the optimal package of interventions may vary according to local needs, the best practices described here – a focus on high-risk demographic groups and those with STIs, universal HIV testing, treatment as prevention, pre-exposure prophylaxis, optimal use of technology, and integration of impactful, resilience-based behavioral interventions into other prevention efforts – provide a foundation on which to build HIV prevention programs. For too long, the number of new HIV infections in the United States has remained stable. Prevention continues to be a formidable challenge, but the opportunities to halt the epidemic have never been better.

We now have more evidence-based HIV prevention tools available than ever before; it is the time to use them in order to bring about the dawn of the end of HIV in the United States.

Acknowledgments

This report was prepared by Kevin Ard, MD, Harvey J. Makadon, MD, and Kenneth H. Mayer, MD, of The Fenway Institute, Fenway Health. Special thanks to Hilary Goldhammer, MS, Adrianna Sicari, MPH, and Anum Awan for their help in preparing this document.

References

1. New HIV infections in the United States, 2007-2010. CDC. 2012. Available from: http://www.cdc.gov/nchhstp/newsroom/docs/2012/HIV-Infections-2007-2010.pdf.

2. Sexually transmitted disease surveillance 2012. CDC. 2012. Available from: http://www.cdc.gov/std/stats12/Surv2012.pdf.

3. Cohen MS, et al. Prevention of HIV-1 infection with early antiretroviral therapy. N Engl J Med. 2011;365:493-505.

4. Grant RM, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. N Engl J Med. 2010;363:2587-2599.

5. Baeten JM, et al. Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. N Engl J Med. 2012;367:399-410.

6. Thigpen MC, et al. Antiretroviral preexposure prophylaxis for heterosexual HIV transmission in Bostwana. N Engl J Med. 2012;367:423-434.

7. Choopanya K, et al. Antiretroviral prophylaxis for HIV in injecting drug users in Bangkok, Thailand (the Bangkok Tenofovir Study): a randomized, double-blind, placebo-controlled phase 3 trial. Lancet. 2013;381(9883):2083-2090.

8. Herbst JH, et al. Estimating HIV prevalence and risk behaviors of transgender persons in the United States: a systematic review. AIDS Behav. 2008;12(1):1-17.

9. Sullivan PS, et al. Successes and challenges of HIV prevention in men who have sex with men. Lancet. 2012;380(9839):388-399.

10. Stall R, et al. Association of co-occurring health problems psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. Am J Public Health. 2003;93:939-942.

11. Prejean J, et al. Estimated HIV incidence in the United States, 2006-2009. PLos ONE. 2011;6(8):e17502.

12. Millett GA, et al. Comparison of disparities and risks of HIV infection in Black and other men who have sex with men in Canada, UK, and USA: a meta-analysis. Lancet. 2012;380:341-348.

13. Brewer R, et al. Exploring the relationship between incarceration and HIV among black men who have sex with men in the United States. J Acquir Immune Defic Syndr. 2014;65(2):218-225.

14. HIV among Black/African-American gay, bisexual, and other men who have sex with men. CDC. 2013. Available from: http://www.cdc.gov/hiv/pdf/risk_HIV_among_Black_AA_Gay.pdf.

15. Wejnert C, et al. HIV awareness and infection among men who have sex with men – 20 cities, United States, 2008 and 2011. PLos ONE. 2013;8(10):e76878.

16. Maulsby C, et al. A systematic review of HIV interventions for Black men who have sex with men (MSM). BMC Public Health. 2013;13:625.

17. Koblin BA, et al. Correlates of HIV acquisition in a cohort of Black men who have sex with men in the United States: HIV Prevention Trials Network (HPTN) 061. Plos One. 2013;8(7):e70413.

18. Mayer KH, et al. Concomitant socioeconomic, behavioral, and biological factors associated with the disproportionate HIV infection burden among Black men who have sex with men in 6 US cities. PLoS One. 2014.

19. Inmate statistics. Federal Bureau of Prisons. 2013. Available from: http://www.bop.gov/about/statistics/statistics_inmate_race.jsp.

20. Hoefer M, Rytina N, Baker BC. Estimates of the unauthorized immigrant population residing in the United States: January 2010. Department of Homeland Security. Available from: http://www.dhs.gov/xlibrary/assets/statistics/publications/ois_ill_pe_2010.pdf.

21. Immigrants and the Affordable Care Act. National Immigration Law Center. 2013. Available from: http://www.nilc.org/immigrantshcr.html.

22. Wilson EC, et al. Transgender female youth and sex work: HIV risk and a comparison of life factors related to engagement in sex work. AIDS Behav. 2009;13:902-913.

23. Grant JM, et al. Injustice at every turn: a report of the National Transgender Discrimination Survey. National Center for Transgender Equality and National Gay and Lesbian Task Force. 2011. Available from: http://www.thetaskforce.org/downloads/reports/reports/ntds_full.pdf.

24. Branson BM, et al. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. MMWR. 2006;55(RR14):1-17.

25. Moyer VA, et al. Screening for HIV: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med. 2013;159(1):51-60.

26. Weinhardt LS, Carey MP, Johnson BT, Bickham NL. Effects of HIV counseling and testing on sexual risk behavior: a meta-analytic review of published research, 1985-1997. Am J Pub Health. 1999;89(9):1397-405.

27. HIV testing in the US. CDC. 2010. Available from: http://www.cdc.gov/nchhstp/newsroom/docs/Vital-Signs-Fact-Sheet.pdf.

28. HIV testing. CDC. 2013. Available from: http://www.cdc.gov/hiv/testing/background.html.

29. Levinson DR. HIV Testing in HRSA-Funded Health Center Sites. Department of Health and Human Services, Office of Inspector General. January 2013.

30. Vital signs: HIV testing and diagnosis among adults – United States, 2001-2009. MMWR. 2010;59(47):1550-1555.

31. Korthuis PT et al. General internists' beliefs, behaviors, and perceived barriers to routine HIV screening in primary care. AIDS Educ Prev. 2011;23(3 Suppl):70-83.

32. Haukoos JS, et al. HIV testing in emergency departments in the United States: a national survey. Ann Emerg Med. 2011;58(1 Suppl 1):S10-6.

33. The Bronx Knows HIV Testing Initiative Final Report. New York City Department of Health and Mental Hygiene. 2011. Available from: http://www.nyc.gov/html/doh/downloads/pdf/ah/bronx-knows-summary-report.pdf.

34. Haukoos JS, et al. Eliminating prevention counseling to improve HIV screening. JAMA. 2013;310(16):1679-1680.

35. Metsch LR, et al. Effect of risk-reduction counseling with rapid HIV testing on risk of acquiring sexually-transmitted infections: the AWARE randomized clinical trial. JAMA;2013:310(16):1701-1710.

36. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. 2013. Available from: http://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv-guidelines/0.

37. Das M, et al. Decreases in community viral load are accompanied by reductions in new HIV infections in San Francisco. PLoS ONE. 2010;5(6):e11068.

38. Tanser F, et al. High coverage of ART associated with decline in risk of HIV acquisition in rural KwaZulu-Natal, South Africa. Science. 2013;339(6122):966-971.

39. Gardner EM, et al. The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. Clin Infect Dis. 2011;52(6):793-800.

40. Garnder LI, et al. Efficacy of a brief case management intervention to link recently diagnosed HIV-infected persons to care. AIDS. 2005;19(4):423-431.

41. Bradford JB, Coleman S, Cunningham W. HIV system navigation: an emerging model to improve HIV care access. AIDS Patient Care STDs. 2007;21 Suppl 1:S49-58.

42. Gardner LI, et al. A low-effort, clinic-wide intervention improves attendance for HIV primary care. Clin Infect Dis. 2012;55(8):1124-1134.

43. Herwehe J, et al. Implementation of an innovative, integrated electronic medical record (EMR) and public health information exchange for HIV/AIDS. J Am Med Inform Assoc. 2012;19(3):448-452.

44. Magnus M, et al. Improved HIV-related outcomes associated with implementation of a novel public health information exchange. Int J Med Inform. 2012;81(10):e30-8.

45. Hollingsworth TD, Anderson RM, Fraser C. HIV-1 transmission, by stage of infection. J Infect Dis. 2008;198:687-693.

46. Birrell PJ, et al. HIV incidence in men who have sex with men in England and Wales 2001-10: a nationwide population study. Lancet Infect Dis. 2013;13(4):313-318.

47. Van Damme L, et al. Preexposure prophylaxis for HIV infection among African women. N Engl J Med. 2012;367:411-422.

48. Marrazzo J, et al. Pre-exposure prophylaxis for HIV in women: daily oral tenofovir, oral tenofovir/emtricitabine, or vaginal tenofovir gel in the VOICE study (MTN 003). CROI 2013.

49. Haberer JE, et al. Adherence to antiretroviral prophylaxis for HIV prevention: a substudy cohort within a clinical trial of serodiscordant couples in East Africa. PLoS Med. 2013;10(9):e1001511.

50. AVAC: Global advocacy for HIV prevention. 2014. Available from: www.avac.org.

51. Cohen MS. HIV and sexually transmitted diseases: lethal synergy. Top HIV Med. 2004;12(4):104-107.

52. Nq BE, et al. Population-based biomedical sexually transmitted infection control interventions for reducing HIV infection. Cochrane Databse Syst Rev. 2011;3:CD001220.

53. Pathela P, et al. Population-based HIV incidence among men diagnosed with infectious syphilis, 2000-2011. Sex Transm Infect. 2013;89:A47-A48.

54. Barbee LA, et al. Barriers to bacterial STI screening of HIV+ men who have sex with men in HIV primary care settings. ISSTDR, 2013. Abstract no: O08.3.

55. Saunders JM, et al. Where do young men want to access STI screening? A stratified random probability sample survey of young men in Great Britain. Sex Transm Dis. 2012;88(6):427-432.

56. Whiteside YO, et al. Self-perceived risk of HIV infection and attitudes about pre-exposure prophylaxis among sexually transmitted disease clinic attendees in South Carolina. AIDS Patient Care STDs. 2011;25(6):365-370.

57. Internet and American life spring tracking survey, April 17-May 19, 2013. Pew Research Center. 2013. Available from: http://www.pewinternet.org.

58. Internet use and early syphilis infection among men who have sex with men – San Francisco, California, 1999-2003. MMWR. 2003;52(50):1229-1232.

59. Sullivan PS, Grey JA, Rosser BRS. Emerging technologies for HIV prevention for MSM: what we have learned, and ways forward. J Acquir Immune Defic Syndr. 2013;63:S102-107.

60. Compendium of evidence-based HIV behavioral interventions. CDC. 2013. Available from: http://www.cdc.gov/hiv/prevention/research/compendium/rr/complete.html.

61. Richardson JL, et al. Effect of brief safer-sex counseling by medical providers to HIV-1 seropositive patients: a multi-clinic assessment. AIDS. 2004;18(8):1179-86.

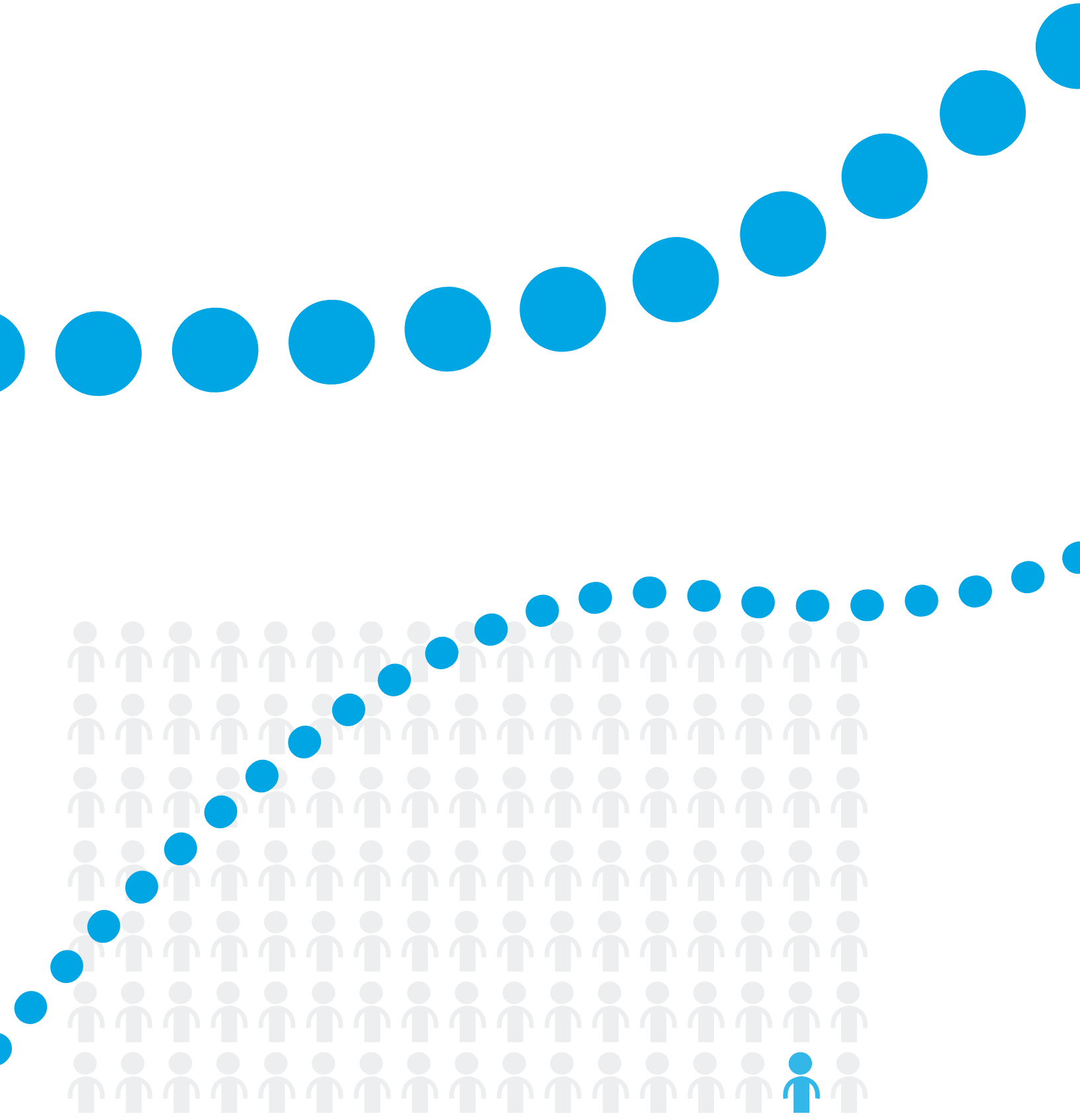
62. Shoptaw S, et al. Homonegativity, substance use, sexual risk behaviors, and HIV status in poor ethnic men who have sex with men in Los Angeles. J Urban Health. 2009;86 Suppl 1:77-92.

63. Herrick AL, et al. It gets better: resolution of internalized homophobia over time and associations with positive health outcomes among MSM. AIDS Behav. 2013;17(4):1423-1430.

64. Zepeda J, et al. Proyecto La Familia: an intimate space to work on Latino gay self and family acceptance. 2012. 19th International AIDS Conference: Abstract no. TUPE544.

65. The Affordable Care Act and HIV/AIDS. 2013. Available from: http://aids.gov/federal-resources/policies/health-care-reform/index.html.

66. HIV testing and risk behaviors among gay, bisexual, and other men who have sex with men – United States. MMWR. 2013;62(47):958-962.



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