Evidence Tables

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Title: Decreasing rates of HIV in MSM under 40 in Washington D.C through increasing access to PrEP and patient education

Evidence Table A: Significance of Health Issue

Why is HIV in MSM under 40 years old a significant public health issue? - Lisette & Elizabeth		
Author(s), Year	**Research Method**	**Findings Relevant to Selecting Health Issue**
Mayer et al. (2021)	● It is a **systematic review** article based on peer-reviewed articles from various PubMed and Embase databases for English-language manuscripts published between January 1, 2010, through August 30, 2019, and it gathers information on why HIV continues to affect MSM in America ● It identifies factors such as biological, behavioral, and social, that are associated with the disproportionate burden of HIV among MSM ● It identifies the epidemic of HIV in Black and Latino MSM, particularly those under 35 years old	<u>Prevalence of HIV:</u> - Since 1981, men who have sex with men have been the first population associated with HIV, and since then, MSM intercourse has been the largest number of new HIV infections diagnosed. There is approximately 35-68% of new infections in committed relationships of MSM under 25 years old in the USA <u>Factors that contribute to HIV and its effects</u>: Biological: - higher efficiency of transmission via anal sex, especially if MSM are both receptive and insertive partners there is an increasing chance of acquiring and transmitting HIV Social: - Young MSM often chooses partners within their social group, so the exposure within partnerships continues to grow. - MSM experience societal stigma, hate crimes, and familial attitudes that negatively affect their mental health. American MSM and other MSM experience higher levels of mental health conditions than heterosexual men, like depression, anxiety, and substance abuse. - Discrimination and negative experiences with healthcare providers also discourage HIV testing and prevention services Behavioral: - Young MSM have poor impulse control, feel invisible to acquiring HIV, and are less aware of the risks; therefore, they underestimate the risks of HIV - High rates of alcohol and party drug use in MSM lead to risky behaviors such as condomless sex and multiple partners, which increase the risk of acquiring HIV The syndemic (social factors and health conditions that increase MSM risk for HIV acquisition and transmission) makes prevention and care more difficult. <u>Gaps in HIV Care of Young Black and Latino MSM</u>

Why is HIV in MSM under 40 years old a significant public health issue? - Lisette & Elizabeth		
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		- Young Black and Latino MSM have lower rates of pre-exposure prophylaxis use compared to white men and lower rates of viral suppression among those living with HIV. Why?
		  - Individual-level motivation to access PrEP
		  - Behavioral factors
		  - Racial bias on behalf of providers: their reduced willingness to prescribe PreP to black patients and minorities

Matthews et al., 2016	● This is a meta-analysis, cross-sectional, and epidemiologic modeling study. The authors gathered data from PubMed and the Conference on Retroviruses and Opportunistic Infections. The information was also gathered based on prevalent HIV data from two surveys: the National HIV Behavior System (NHBS) and Promoting Our Worth Equality and Resistance (POWER). These surveys were conducted on Black MSM in cities across the United States, including Washington, D.C.
	● With the data collected from the surveys and the peer-reviewed articles, the article gives an overview of the average HIV incidence rates and uses this data to model how HIV prevalence will continue to grow over time in Black MSM aged 18 to 40 years old.
		<u>High Incidence Rate</u>:
		- Black MSM have a very high incidence rate of about 4.16% per year, double the average rate among MSM overall
		- A rapid increase in prevalence with age:
		  - By the age of 30, nearly 40% of the Black MSM population is projected to be HIV positive
		  - By the age of 40, nearly 61% of the Black MSM population is projected to be HIV positive
		- Higher HIV prevalence among young Black MSM means more transmission, more health complications, and a greater demand on the healthcare system. The authors describe HIV prevalence as “running backward” (getting worse) than “running in place”
		<u>Prevention efforts</u>:
		- The U.S. inadequately allocates its resources for this specific marginalized community despite deeply investing in funding for programs on a global scale, committed to the prevention of the disease. The National HIV/AIDS Strategy (NHAS) aims to target groups based on epidemiological needs. However, funding is scarce for Black MSM overall, and there is little effort made nationally in funding for the research, prevention, and reduction.
		- The Affordable Care Act is in place to combat this issue, yet systemically, Black MSM face a complex multitude of barriers in their living communities:
		  - Access to quality healthcare
		  - Lack of patient adherence to ART treatment
		  - Limited culturally competent services available
		  - Limited HIV testing services
		  - Stigma and mistrust in the medical system

Why is HIV in MSM under 40 years old a significant public health issue? - Lisette & Elizabeth		
Author(s), Year	**Research Method**	**Findings Relevant to Selecting Health Issue**
(Dean et al., 2020)	● Using a retrospective observational cohort study, groups of gay and bisexual men who have sex with men (GBMSM) are tracked by researchers to compare the financial burden between those with and those without HIV. A compilation of data was collected from the Multicenter AIDS Cohort Study (MACS) to achieve this; the groups were followed over a time frame consisting of every six months. ● The research collected encompasses data from two varying times of enrollment in the study, from 2001-2003 and post-2010. A total of 1,721 MSM were studied. Data was analyzed with a statistical method called Generalized Estimating Equations (GEE) to compare the financial factors. ● This article highlights that HIV spending has increased over time and explains how spending on HIV places pressure on the budget for public health and insurance programs ● Also, it discusses the financial hardships GBMSM living with HIV face in comparison to GBMSM not living with HIV	Pressure on Public Health: - 16% were more likely to have insurance through public assistance; however, it shows dependence on assistance programs, which is a marker for a higher economic burden - Basic living necessities are more difficult to afford once a confirmed diagnosis of HIV in GBMSM is made, including food, housing, and transportation, in comparison to those without a positive status Employment Instability: - GBMSM living with HIV were 12% less likely to be employed and were 2.7 times more likely to lose their jobs than GBMSM living without HIV due to their health status from HIV - GBMSM living with HIV are 9% more likely to experience financial difficulty than GBMSM living without HIV because despite having an income they face higher costs from medical expenses Financial difficulty may pose a challenge in maintaining treatment, and patients will also be less likely to seek medical care for HIV

Evidence Table B: Specific Priority Group

Which group(s) is a priority or target population and why? (Nayalise and Rochelle)		
Author(s), Year	**Research Method**	**Findings Relevant to Selecting Priority Group**
Mayer et al. (2021)	● This is a **systematic review** of peer-reviewed literature conducted to identify the biological, social, behavioral, and structural factors contributing to the ongoing HIV epidemic among men who have sex with men (MSM) in the United States. ● The authors conducted a structured search of PubMed (MEDLINE) and Embase for English language studies published between January 2010 and August 2019. ● The review focused on studies describing HIV acquisition, transmission, prevalence, and disparities among MSM across different subgroups, including young MSM, older MSM, Black and Latino MSM, and transgender MSM. ● Studies were assessed within an eco-social framework, organizing findings across biological (e.g., anal mucosal susceptibility), individual (e.g., depression, substance use), network (e.g., assortative mixing), and structural (e.g., stigma, incarceration, poverty) levels. ● The review also included data on disparities in PrEP uptake, syndemics involving behavioral health conditions, and promising culturally-tailored interventions. The purpose was to summarize multi-level drivers of HIV in MSM and evaluate current and emerging prevention strategies in the context of persistent and disproportionate HIV risk in this population.	● Nationally, men who have sex with men (MSM) continue to represent the population most affected by HIV in the United States, with particularly high prevalence and incidence among young MSM, Black and Latino MSM, and MSM living in the South. ● Biological factors, including the high efficiency of HIV transmission through receptive anal sex and role versatility, combined with asymptomatic STIs and mucosal inflammation, significantly increase the risk of HIV acquisition and transmission in MSM. ● Black and Latino MSM experience the greatest disparities in new HIV infections, in part due to high prevalence sexual networks, assortative mixing, systemic racism, and reduced access to PrEP and HIV treatment, especially in under-resourced communities. ● Younger MSM are at greater risk due to factors such as limited impulse control, less familiarity with HIV prevention strategies, and the invisibility of HIV in their social environments. Older MSM, particularly those aging with HIV, require long-term support for chronic comorbidities. ● Mental health conditions and substance use, driven by experiences of stigma and discrimination, create syndemics that magnify HIV vulnerability. These overlapping issues interfere with protective behaviors and medication adherence. ● Transgender MSM and MSM in primary partnerships are understudied priority populations, with evidence suggesting increased vulnerability due to low PrEP uptake, undiagnosed infections, and inconsistent risk mitigation discussions within relationships. ● Effective prevention must include culturally responsive, multi-level interventions, including mental health support, digital outreach, and provider training to address stigma and improve access to PrEP, testing, and HIV care.

German et al. (2017)	• This was a **cross-sectional study** using data from the CDC's 2011 National HIV Behavioral Surveillance (NHBS) cycle. • Researchers recruited Black men who have sex with men (BMSM) through venue-based time-location sampling across three U.S. cities with high HIV prevalence: Washington, DC; Baltimore; and Philadelphia. • Eligible participants were 18 years or older, identified as male, had at least one male sex partner in the past year, and had not previously participated in that NHBS cycle. • Participants completed a standardized 45-minute interviewer-administered socio-behavioral survey and were offered voluntary HIV testing (rapid or conventional based on city). • Western blot was used to confirm HIV results. Analyses were conducted on full samples and subgroups aged 18–24 years. • Variables included demographics, sexual behavior, substance use, partner meeting places, HIV testing history, and service utilization. • Statistical comparisons were made across cities using chi-square tests and logistic regression.	• HIV prevalence among BMSM was highest in Baltimore (48%), followed by Washington, DC (23%), and Philadelphia (15%); nearly 40% of BMSM aged 18–24 in Baltimore were HIV positive, compared to 11% and 10% in DC and Philadelphia, respectively. • Rates of unrecognized HIV infection were high in all three cities, especially among youth, 74% of HIV-positive young BMSM in Baltimore were unaware of their status, compared to 60% in Philadelphia and 0% in DC. • BMSM in Baltimore experienced greater socioeconomic challenges, including higher rates of unemployment, incarceration, homelessness, lower educational attainment, and sex exchange. They were less likely to identify as gay and to meet partners online. • Philadelphia BMSM were more likely to meet partners in bars/clubs and engage in receptive condomless anal sex, while DC BMSM reported greater use of amphetamines, higher syphilis diagnoses, and greater access to free condoms. • Across all cities, BMSM showed low knowledge of partner HIV status, low rates of recent HIV/STD testing, and inconsistent condom use, especially with partners of unknown status, indicating shared behavioral risks. • Structural indicators such as public insurance, past incarceration, and low educational attainment were associated with HIV positivity, reinforcing the role of social determinants in the disproportionate HIV burden. • These findings support the need for city specific strategies and coordinated regional approaches tailored to local epidemic profiles, as well as interventions grounded in structural and behavioral contexts, especially for young BMSM in Baltimore.

Sun et al. (2022)	• This study is a **systematic review and meta-analysis** that examined global awareness of and willingness to use pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM). • Researchers searched four major databases, PubMed, Embase, Web of Science, and the Cochrane Library, for peer reviewed studies published before August 31, 2021. • Eligible studies included cross-sectional, cohort, mixed-methods, and qualitative designs that reported data on HIV-negative MSM. • A total of 156 studies involving over 228,000 participants were included. Data were extracted on factors such as study population characteristics, policy environment, and types of PrEP. • The researchers assessed study quality using standardized tools and conducted random effects meta analyses to pool prevalence estimates. They also used subgroup analysis, LOESS and linear regression, and dose response meta-analysis (DRMA) to evaluate trends and identify factors influencing PrEP willingness. • The study found significant variability across studies and highlighted both facilitators and barriers to PrEP uptake among MSM.	• Globally, the pooled proportion of MSM aware of PrEP was about 50%, and willingness to use PrEP was about 58.6%, indicating a gap between awareness and potential uptake. • Younger MSM, MSM with higher perceived risk of HIV, and those engaging in condomless sex were more willing to use PrEP. • MSM in low and middle income countries (LMICs) reported lower awareness but higher willingness to use PrEP compared to those in high income countries, suggesting educational barriers but strong interest where access is limited. • Awareness of PrEP was highest in Europe and lowest in Southeast Asia, and MSM in countries with national PrEP approval policies had higher awareness and willingness to use it. • MSM with more sexual partners and lower levels of education were more willing to use PrEP, suggesting that those at highest behavioral risk are also most open to prevention. • Key barriers included doubts about PrEP's effectiveness and concerns about side effects, while facilitators included social network influence and higher risk perception. Over time, awareness and willingness increased significantly after 2014, especially in regions where PrEP policies were implemented. • These findings highlight young MSM, MSM with multiple partners, and MSM in LMICs or without national PrEP policies as priority groups for targeted education and access initiatives, while also addressing misconceptions and structural barriers to uptake.

Evidence Table C: Specific Health Behavior

Which behavior(s) needs to be addressed to implement PreP to reduce HIV in MSM? (Dolma and Melissa)		
Author(s), Year	**Research Method**	**Findings Relevant to Selecting Health Behavior**
Kristen Hess, BS; Jessica Crawford, MPH et al, (2019)	Study method: ● A **Qualitative mixed-method** study conducted on 15 latino MSM participants between the ages of 18 and 24 y.o. In San Diego, California ○ Participants had used HIV testing services through "Good to Go," a free HIV testing service >3 and <24 months before their current test session ○ Participants had not used PrEP within the last 12 months ○ Participants were ranked in order of increasing decreasing and stable risk ○ Participants completed a risk-behavior based survey each time they were tested to determine change, or lack thereof, in HIV risk ○ Participants were interviewed on their views on PrEP and dialogue was recorded by trained interviewers.	● The most common theme observed was avoidance of PrEP due to misinformation ● Young MSM with access to PreP view daily dosing as burdensome ● Participants think that their risk behaviors are not significant enough to warrant PrEP use ● Participants fear adverse effects such as kidney and bone pathology secondary to PrEP ● Participants also worry about stigmatization as PrEP users, as taking the pill is associated with "slut shaming," and risky sexual behavior in the queer community ● Intervention strategies, including individual and community based PrEP education, risk evaluation, stigma reduction and the development of new non-daily formulations are proposed solutions
Rolle et al., 2017 Serota et al, 2019	This was a prospective cohort study in HIV negative young black MSM aimed at examining partner-level and event-level relationships between substance use and HIV risk that began in 2015 ● Participants were recruited using venue-day-time-space sampling and advertisements posted on Facebook, Grindr, and MARTA(Metropolitan Atlanta Rapid Transit Authority). Eligible participants were aged 16-29 years old, identified as black, non-Hispanic, were assigned male at birth, and reported having ≥1 male sex partner in the previous 3 months ○ Primary study ■ EleMENt study visit occurs in 4 4-hour time blocks called "study events" held 3-4x times weekly at various metro Atlanta sites, including evenings and weekends, with up to 20 participants each session	● There's limited PrEP awareness, as half of the participants had never heard of PrEP before entering the study ● Adherence to Daily Medication ○ Those who did not start PrEP were more likely to say that having to take it daily was a drawback ○ Another reason for not being interested was already using condoms consistently. ● Delayed follow-through after interest ○ Many MSM, especially YBMSM, express interest in PrEP but do not follow through with initiation or medication start ○ Over half the participants showed interest in PrEP at the start, but many didn't follow through. Among the interested men, the median time to start PrEP was 16 weeks. And of those prescribed PrEP, 38% never began taking it

	■ At each visit, participants received HIV rapid testing, STI screening, and HIV NAAT for early infection. Comprehensive risk reduction counseling, condoms, and lubricants were provided ■ Participants complete computer-based surveys on demographics, PrEP use, and sexual behavior. HIV neg patients were followed prospectively with study visits at 3,6,12,18,24 months post-enrollment, while those with HIV and STIs were linked to appropriate care and treatment by study staff. ○ Optional PrEP program ■ All participants, regardless of risk or PrEP interest, were eligible and offered non-incentivized daily oral TDF/FTC (Truvada), in addition to comprehensive STI counseling, condoms, and free transportation. ■ At enrollment, participants received PrEP education via lay counseling and short videos, followed by a brief survey assessing interest. Those interested needed to complete lab tests, be HIV negative, have adequate kidney function, have no medical contraindication, and were willing to take daily PrEP and attend quarterly visits ■ At the initiation visit, participants got rapid HIV testing, received risk education counseling, a prescription for oral TDF/FTC, a pillbox chain, and help with insurance/copay cards or enrollment with manufacturer assistance if uninsured ■ PrEP users had 3 3-month follow-up visits, including lab monitoring, adherence and side effects, and survey completion. A follow-up phone call occurred 1 month after PrEP initiation ■ Participants could enroll, pause, or resume PrEP at any time. Those who wanted to	● Many MSM get stuck in the early stages of behavior change ○ Pre-contemplative: not willing to take PrEP or don't see themselves as good candidates ○ Contemplative: open to PrEP but have no real plans to start ● Low perceived Risk/Self-assessment ○ Baseline PrEP interest survey found initial barriers to willingness include self-perceived low HIV risk and concern about needing daily adherence ○ Men with recent STIs were more likely to start PrEP, as the likelihood of initiating PrEP increased by 50% in individual with STIs ● Participants experienced major socioeconomic and mental health challenges, such as housing instability and psychological distress, which may have played a role in stopping PrEP

	continue PrEP after study completion were linked to external PrEP providers	
Levy et al., 2017	This was a quantitative, cross-sectional, and observational study and used data analysis to assess the willingness of MSM in Washington, DC, to use LAI PrEP or prefer it to daily oral PrEP ● Venue-based time sampling was used to recruit MSM >18 years old ● Eligible participants completed an interviewer-administered behavioral study ● Voluntary HIV testing was offered to all participants following the survey ● Only those who reported as HIV negative were used for data analysis, and then used multivariable logistic regression to identify factors associated with being "very likely" to use LAI PrEP and preferring it over daily oral PrEP	● The increased convenience of LAI PrEP versus oral PrEP is seen favorably here ● 62% of participants reported being very likely to use PrEP and 27% reported being most likely to use PrEP if either free or covered by their insurance ● 67% of participants preferred the LAI version over the oral pill version of PrEP ○ This conclusion was drawn across different racial/ethnic groups, especially including men of color ● Although non-Hispanic black MSM report willingness to use LAI PrEP, when given the choice between it and oral PrEP more non-Hispanic Black MSM choose oral ○ This paradox may suggest distrust in the medical system ■ Injections are seen as a more "medicalized" form of treatment and less understood/trusted ■ The black community in particular have faced major disparities in healthcare ● Hurdles limiting access to PrEP include obtaining access to health care, discussing PrEP with a health care provider, obtaining the prescription, and consistently attending follow-up injections ● Oral prep barriers are discussed as well, including lack of knowledge oon accessing it, especially without insurance, discomfort talking about sexual behaviors with providers and worries about its effectiveness

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