Published in final edited form as:

JAMA Pediatr. 2017 June 01; 171(6): 517–518. doi:10.1001/jamapediatrics.2017.0329.

Finding Youths at Risk for HIV Infection:

Targeted Testing, Universal Testing, or Both?

Allison L. Agwu, MD, ScM and Thomas C. Quinn, MD, MSc

Division of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland (Agwu); Division of Adult Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, Maryland (Agwu, Quinn); Division of Intramural Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland (Quinn)

The disparate proportion of new human immunodeficiency virus (HIV) infections occurring annually among young sexual minority men of color in the United States constitutes a public health emergency. Young men of color who have sex with men between the ages of 13 and 24 years make up a group with high HIV incidence, representing approximately 20% of new diagnoses in the United States; they are one of the only groups with rising incidence rates.¹ To improve HIV diagnosis, the Centers for Disease Control and Prevention first recommended in 2006 universal testing of all individuals between 13 and 64 years.² Despite these recommendations, an estimated 40% to 60% of youths living with HIV are unaware of their diagnosis, increasing their risk of immune deterioration and transmission.^{3,4} Furthermore, youths have the lowest rates of progression through the HIV care cascade from diagnosis to viral suppression.⁴ While the United Nations Joint Programme on HIV/AIDS 90-90-90 goal should be attainable, youths are the hardest to reach for the first 90 (testing) and the second 90 (linkage to care).⁵

There are youth-specific and systemic barriers to testing. For youths, particularly young men of color who have sex with men, barriers may include stigma; fear of positive diagnosis; concern for disclosure of sexuality, gender identity, or serostatus; limited access and resources; competing needs (eg, unstable housing); low risk perception; poor knowledge and understanding; and a sense of futility in avoiding infection.^{6,7} There are also fewer routine interactions with the health care system during adolescence and young adulthood, with acute/problem-focused interactions being more common.⁸ Systemic barriers, such as limited testing sites, limited health care professional testing, personnel discomfort, lack of trained personnel, unavailability of youth-friendly, culturally competent, nonjudgmental testing, and mandatory disclosure to parents/guardians in some locales, further diminish uptake of testing.^{9–12} Testing youths is important because if positive, they can be linked to treatment services to prevent disease progression and decrease transmission risk, and if negative, they can be directed to resources and health care services (ie, treatment of sexually transmitted infections, condoms, risk reduction, preexposure prophylaxis, and postexposure prophylaxis) to keep them negative. However, a study of youth-serving community-based nonclinical

Corresponding Author: Allison L. Agwu, MD, ScM, Division of Pediatric Infectious Diseases, Johns Hopkins University School of Medicine, 200 N Wolfe St, Room 3145, Baltimore, MD 21287 (ageorg10@jhmi.edu).

Conflict of Interest Disclosures: None reported.

organizations in Baltimore, Maryland, a city that ranked tenth in the United States for new HIV diagnoses among youths, revealed that 59% of the organizations did not offer HIV testing, and 73% of those did not even have links in place to refer youths to testing sites.¹³ Given the high incidence, the known barriers to testing, and the limited testing uptake, which testing strategy would best improve identification of at-risk young sexual minority men of color: universal or targeted testing?

In this issue of *JAMA Pediatrics*, Miller et al¹⁴ examined differences in the proportion of young sexual minority men aged 13 to 24 years, particularly those of color, living with undiagnosed HIV infection identified using either targeted, universal, or combination testing strategies at 12 adolescent medicine trials units of the Adolescent Trials Network during a 9-month period. In brief, the adolescent medicine trials units, with the input of their local community partners, developed testing strategies (targeted, universal, or combination) to improve identification of undiagnosed sexual minority men of color. The investigators evaluated the number of tests done, number of infected persons identified, and linkage to services for both positive and negative diagnoses. Overall, 3301 youths were tested, with most tested at sites that offered universal testing (29%) and combination testing (56%) strategies. Targeted testing strategies tested fewer young sexual minority men of color but had the highest rates of identification of previously undiagnosed individuals. Combination strategies that tested more sexual minority men of color had a similar but slightly lower proportion of newly identified positives. In an attempt to disaggregate the testing done at combination sites, the investigators reported a significantly higher proportion of new diagnoses at targeted (6.28%) vs universal (0.06%) testing. Rates of referral to preventive services for negative diagnoses were less than ideal but significantly greater at targeted testing sites vs sites that used other strategies. The investigators conclude that community involvement was a key criterion and that targeted testing had the best yield. They further note that community-by-community strategies would likely rely on a combination of both universal and targeted approaches.

Some important study limitations include the fact that this was an observational study, with the usual inherent biases. With unknown uptake of testing at the sites, it was unknown how many youths were exposed to testing and opted to not be tested in either setting. Inherent in this limitation is whether the youths who chose to be tested are somehow different than those who did not (ie, selection bias). It could not be verified that individuals with known positive diagnoses were not being tested, and it was unclear whether the tests represented unique individuals. Not adjusting for adolescent medicine trials units likely limited the unique site characteristics and unknown confounders that may need to be adjusted for. Further, it is important to acknowledge that the included adolescent medicine trials units are highly experienced adolescent treatment sites, with “well-oiled” programs with community collaborations, and therefore, the findings may not be generalizable to other sites.

Despite the limitations, the investigators should be congratulated for a herculean endeavor that aims to answer the important question of how to best identify those young sexual minority men of color at the forefront of the HIV epidemic who are “hiding in plain sight.” Their findings of significantly higher proportions of young sexual minority men of color

identified through targeted testing strategies confirm the need to support these strategies. Universal testing casts a wider net in a bigger sea, with the expected lower yield.

The study clearly shows that youths, particularly young sexual minority men of color, can be identified with investment in infrastructure and dedicated resources and that targeted testing is an essential component of the testing paradigm. In their study, targeted, community-focused testing programs used outreach approaches such as mobile testing units and specialized youth-friendly drop-in centers. This requires community acceptance and incorporation, usually in settings that have strong partnerships with HIV care sites, optimizing early linkage and engagement in care. This was definitely the case in the Miller et al study¹⁴ but may not always be. Thus, to avoid missed opportunities for counseling and HIV testing, both universal and targeted testing are essential, and relying on only one format may not be ideal. Universal or routine testing remains critically important in some settings, and we need to do a better job using those strategies because there are missed opportunities when sexual health and universal testing should be offered. Venue makes a difference because there are some venues, such as sexually transmitted infection clinics, where HIV testing should be offered without exception. However, other sites where universal screening has been recommended in the past, such as emergency departments, may be less feasible, and targeted testing may prove superior and cost-effective.^{15,16} With the ever-expanding HIV epidemic among young sexual minority men of color, investment in resources and services is critical. Evidence-based testing strategies are an essential component of the armamentarium and must be coupled with prompt linkage to services. Involvement of the community, especially the youths themselves, in deciphering what strategies may be most relevant is crucial. In summary, a combination of targeted and universal testing, depending on venue and community acceptance, are likely necessary to identify young sexual minority men of color who are at risk for and living with undiagnosed HIV infection.

References

1. Centers for Disease Control and Prevention. [Accessed February 10, 2017] CDC fact sheet: new HIV infections in the United States. <https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/new-hiv-infections-508.pdf>. Published 2016
2. Branson BM, Handsfield HH, Lampe MA, et al. Centers for Disease Control and Prevention (CDC). Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recomm Rep*. 2006; 55(RR-14):1–17.
3. Centers for Disease Control and Prevention. [Accessed February 9, 2017] HIV among youth. <https://www.cdc.gov/hiv/group/age/youth/index.html>. Published 2016
4. Zanon BC, Mayer KH. The adolescent and young adult HIV cascade of care in the United States: exaggerated health disparities. *AIDS Patient Care STDS*. 2014; 28(3):128–135. [PubMed: 24601734]
5. HIV/AIDS UNJPO. [Accessed February 9, 2017] 90-90-90: An ambitious treatment target to help end the AIDS epidemic. <http://www.unaids.org/en/resources/documents/2014/90-90-90>. Published 2014
6. Pharr JR, Lough NL, Ezeanolue EE. Barriers to HIV testing among young men who have sex with men (MSM): experiences from Clark County, Nevada. *Glob J Health Sci*. 2015; 8(7):9–17.
7. Siegel K, Lekas HM, Olson K, VanDevanter N. Gender, sexual orientation, and adolescent HIV testing: a qualitative analysis. *J Assoc Nurses AIDS Care*. 2010; 21(4):314–326. [PubMed: 20303793]

8. Nordin JD, Solberg LI, Parker ED. Adolescent primary care visit patterns. *Ann Fam Med*. 2010; 8(6):511–516. [PubMed: 21060121]
9. Levy ME, Wilton L, Phillips G II, et al. Understanding structural barriers to accessing HIV testing and prevention services among black men who have sex with men (BMSM) in the United States. *AIDS Behav*. 2014; 18(5):972–996. [PubMed: 24531769]
10. Goyal MK, Dowshen N, Mehta A, Hayes K, Lee S, Mistry RD. Pediatric primary care provider practices, knowledge, and attitudes of human immunodeficiency virus screening among adolescents. *J Pediatr*. 2013; 163(6):1711–1715.e6. [PubMed: 24084105]
11. Ho WW, Brandfield J, Retkin R, Laraque D. Complexities in HIV consent in adolescents. *Clin Pediatr (Phila)*. 2005; 44(6):473–478. [PubMed: 16015393]
12. Tan C, Van Handel M, Johnson C, Dietz P. HIV testing in publicly funded settings, National Health Interview Survey, 2003–2010. *Public Health Rep*. 2016; 131(1):137–144. [PubMed: 26843679]
13. Marcell AV, Okano L, Pilgrim NA, et al. Prevalence of HIV testing provision at community organizations serving young people in a Mid-Atlantic city, 2013–2014. *Public Health Rep*. 2017; 132(2):203–209. [PubMed: 28118800]
14. Miller RL, Boyer CB, Chiaramonte D, et al. Evaluating testing strategies for identifying youths with HIV infection and linking youths to biomedical and other prevention services. *JAMA Pediatr*. [published online April 17, 2017].
15. Hsieh YH, Kelen GD, Beck KJ, et al. Evaluation of hidden HIV infections in an urban ED with a rapid HIV screening program. *Am J Emerg Med*. 2016; 34(2):180–184. [PubMed: 26589466]
16. Physicians ACoE. [Accessed February 10, 2017] HIV testing and screening in the emergency department. <https://www.acep.org/clinical—practice-management/hiv-testing-and-screening-in-the-emergency-department/>. Published 2014