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Editorial

Anticipating the spread of HIV: the past is prologue

In this issue, Bradley et al. report on the investigation of possible bridging between men who have sex with men (MSM) and persons who inject drugs (PWID) in a cluster of HIV infections recently reported in West Virginia [1]. Although they found only modest evidence of bridging, they point to the example of the explosive outbreak of HIV among PWID in Scott County, Indiana [2], as a warning about ongoing risks in West Virginia and other areas of the United States classified by the Centers for Disease Control and Prevention as being "highly vulnerable" to HIV and hepatitis C due to high rates of unsafe injection drug use [3].

The recorded history of the AIDS epidemic in the United States began in 1981, years before the cause was identified as HIV, and virologic testing was available. Systematically, clusters of AIDS (although the term was not then used) were reported and investigated among MSM [4,5], PWID [6], and heterosexual men and women [7], many of whom were sexual partners of PWID and their infants [8]. The investigation of the syndrome in men with hemophilia [9] and recipients of blood transfusions [10] solidified the viral etiology hypothesis and led to prevention recommendations even before HIV was discovered [11,12].

Now there are excellent diagnostic tests and effective therapies for HIV and hepatitis C infections, yet the same underlying factors portend for additional outbreaks and continuous spread. HIV infection often remains silent and undiagnosed for many years and, as in the Bradley article, many persons are diagnosed late or are not in care for their infection, and not virally suppressed. Centers for Disease Control and Prevention estimates that 80% of new HIV transmissions are generated from infected persons who were not diagnosed or not in care [13]. Many factors are responsible for this continuing gap in services including stigma, underlying misunderstandings, homophobia, racism, disdain for those addicted to drugs, and scarcity of treatment for HIV and substance use disorders, and poor coverage of harm reduction services. Often this is related to poverty and inadequate health insurance.

Of course, as Bradley et al. investigated, persons who are members of "key populations" at risk for HIV do not live in the epidemiologic siloes to which we ascribe them. PWID, MSM, and high-risk heterosexual men and women often have overlapping sexual networks [14–16]. Mathematical models have examined ways that HIV epidemics in one key population have shaped epidemics in other key populations [17–19]. For example, Graw's agent-based simulation found that PWID HIV epidemics drove a rise in HIV among heterosexuals in Latvia and were responsible for more than 50% of new cases among heterosexuals [17]. Likewise, HIV-related programs designed for one key population may reduce transmission in other key populations: Friedman et al. found that AIDS incidence among heterosexuals was lower in metropolitan areas with syringe service programs [20].

Poor engagement in the HIV care continuum and gaps in other services in these West Virginia counties are unfortunately common elsewhere. In an ongoing study conducted in Eastern Kentucky with rural PWID and people who use opioids to get high, Young and Cooper are finding that only one-third of participants have ever been tested for HIV; among those who have been tested for HIV, less than half report being tested in the past year. Just 12% have heard of HIV pre-exposure prophylaxis (PrEP), although note that after learning about PrEP, 45% reported that they would be likely to take PrEP if it were free. Accompanying ongoing qualitative analysis with a subset of this sample suggest that inaccurate perceptions of HIV and stigma are powerful barriers to testing in this population: HIV was conceptualized as an affliction of urban gay men and invariably fatal—therefore, at once both irrelevant and catastrophic.

These barriers can be overcome by establishing excellent and ongoing surveillance investigations in vulnerable populations and by extending key services including education, testing, and care for HIV, hepatitis C, and sexually transmitted diseases; evidence-based treatments for substance use disorders; and harm reduction services, including highly effective syringe service programs [21], condom distribution, PrEP, and other prevention services.

In his 2019 State of the Union address, President Trump announced a new initiative to end the public health threat of HIV focusing on the Southern United States where HIV incidence, prevalence, and mortality are highest. This aspirational goal will be best achieved by focusing on enhancing the services noted previously and by working with communities to address the underlying social determinants and other factors underlying HIV transmission within and between vulnerable populations. We must be cautioned against another premature declaration of victory over the spread of HIV or over substance use disorders and make a long-term commitment to breaking down barriers and strive for elimination of both serious public health problems.

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