

QUICK TAKE

USING CLUSTER DETECTION TO END THE HIV EPIDEMIC

HIV CLUSTER DETECTION AND RESPONSE IS A PUBLIC HEALTH STRATEGY that uses a method first used in controlling the spread of tuberculosis and other health threats and applies it to HIV prevention. The Centers for Disease Control and Prevention (CDC) is now working with state and local health departments to use this technology to quickly identify and respond to transmission clusters, i.e. groups of people with HIV whose HIV viruses are closely related, indicating rapid transmission and opportunities for prevention. Indeed, scaling-up the use of this strategy is a central part of the Administration's Ending the HIV Epidemic (EHE) Initiative. This initiative has set a goal of reducing HIV transmission nationally by 90% over the next decade.

HIV TRANSMISSION RATE

NUMBER OF TRANSMISSIONS PER YEAR FOR EVERY 100 PEOPLE WITH HIV

4

UNITED STATES

44

FIRST 60 PRIORITY CLUSTERS EXAMINED BY CDC

CLUSTER DETECTION BASICS

WHAT IT IS

HIV CLUSTER DETECTION IS A PUBLIC HEALTH TOOL FOR IDENTIFYING WHEN AND WHERE HIV IS SPREADING QUICKLY

The National HIV Surveillance System is a vibrant dataset wherein all diagnosed HIV cases are reported to CDC without names. It is used to identify trends in transmission patterns to inform public health responses. Cluster detection complements the information obtained from traditional surveillance to more effectively and quickly identify and respond to instances of rapid HIV transmission.

CLUSTER DETECTION MAKES TRADITIONAL PUBLIC HEALTH METHODS MORE EFFECTIVE

Nationally, the HIV transmission rate, which is the number of infections per year for every 100 people living with HIV, has fallen to about 4. In the first 60 clusters identified by CDC since it began its cluster detection efforts, the transmission rate was 44, eleven times the national rate. Therefore, by understanding where rapid transmission is occurring, health departments can respond in a more comprehensive way with more intensive resources.

HOW IT WORKS

THE HIV VIRUS MUTATES OVER TIME

By comparing the genetic sequence of the virus in different individuals, one can spot viruses that are closely related but cannot show whether one individual transmitted HIV to another. Technological advances make it possible to easily analyze large volumes of genetic sequence data to find groups of people whose viruses are similar, which can signal recent and ongoing transmission clusters. While cluster detection is new, public health authorities have sequence information on the HIV virus of about 40% of newly diagnosed individuals in recent years and about 25% for all people with HIV. The more comprehensively these data are collected, the more effective cluster detection is in spotting areas of rapid transmission in real-time.

REAL WORLD IMPACT

SCOTT COUNTY, INDIANA

A community in southern Indiana that saw about five HIV diagnoses per year had an outbreak in 2014-2015 with over 200 diagnoses. After the fact, molecular analyses demonstrated that transmission likely began in 2011, before the cluster was known. Timely identification and the delivery of syringe and other services could have prevented many of these cases.

SAN ANTONIO, TEXAS

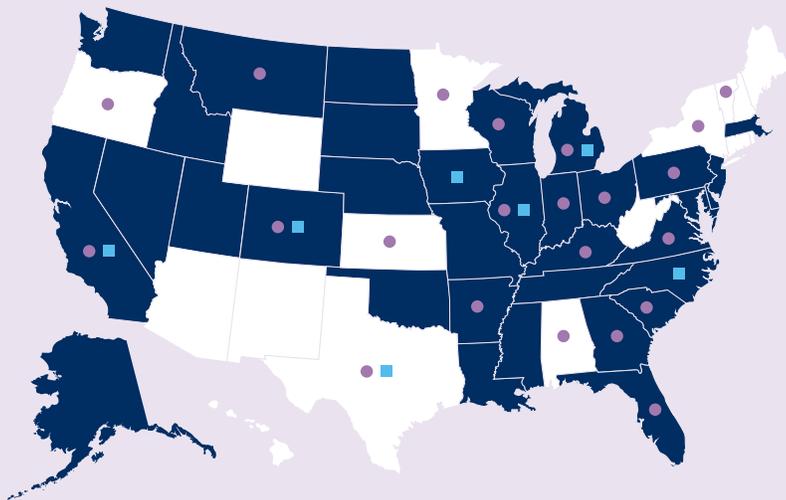
The state identified a cluster of 24 Latinx gay and bisexual men in San Antonio. Public health data enabled them to identify 87 additional sexual or needle-sharing partners. This led to several policy responses, including formation of a new broad-based coalition, the city joining the Fast-Track Cities Initiative, and the state sending provider alerts to urge PrEP access, HIV screening, and highlighting acute infection.

RURAL MARYLAND

A town in rural Maryland that typically observed one diagnosis per year had six in a few weeks, and this raised the concern that an outbreak was happening. Molecular data showed they were unrelated cases, thus sparing resources for an unnecessary outbreak response.



NEW TOOLS CAN SUPPORT AN EFFECTIVE RESPONSE TO HIV TRANSMISSION CLUSTERS AND HELP REDUCE DISPARITIES AMONG COMMUNITIES AFFECTED BY HIV.



HIV CRIMINALIZATION IN THE UNITED STATES

- 34 STATES HAVE HIV-SPECIFIC LAWS OR SENTENCE ENHANCEMENTS FOR PEOPLE WITH HIV**
- 24 STATES HAVE USED GENERAL CRIMINAL STATUTES TO PROSECUTE PEOPLE WITH HIV IN THE PAST 10 YEARS**
- 7 STATES HAVE REPEALED OR REFORMED SOME OR PARTS OF THEIR HIV CRIMINAL LAWS IN RECENT YEARS**

TO LEARN MORE, GO TO HIVLAWANDPOLICY.ORG

SOURCE: Center for HIV Law and Policy, current as of March 1, 2019

Public health officials and many community members are excited by the promise of cluster detection and response and see it as an important tool for reducing disparities, which result in certain communities being at very high risk of HIV infection. Some people living with HIV and others, however, are concerned by the potential use of information from cluster detection and response activities to negatively impact people with HIV. This concern is magnified because many states have laws that criminalize exposure to HIV, and people with HIV continue to be prosecuted even when there is no or low risk of HIV transmission. Cluster detection analysis is possible because HIV-treating providers order drug resistance tests as a routine part of clinical care. Laboratories that conduct these tests are required by law to report this information to state health departments. What is innovative is that technological advances have facilitated the analysis of large volumes of genetic sequence data, enabling public health agencies to identify clusters where transmission is occurring rapidly and tailor public health responses to these clusters. This allows for a better description of the scope and connectivity of situations in which HIV transmission is occurring and thereby enables comprehensive and effective responses.

Building Trust With Affected Communities Is Critical To Success

As shown above, people with HIV are actively prosecuted and punished for living with HIV. In some jurisdictions, prosecutors obtain HIV status and other information from health departments (whether through subpoena, court

order, or other data request mechanism). Even if health departments did not collect drug resistance test information, law enforcement could obtain HIV molecular data from other sources. However, the risk to people with HIV is magnified by health departments compiling and analyzing these data without protections to prohibit disclosure to law enforcement. Federal and state authorities agree that policy makers must take steps to wall off access to these data at health departments from law enforcement and end the unjust prosecution of people with HIV. Entities other than health departments, such as laboratories and academic institutions, hold HIV molecular data, and it is also important to protect those data. Allowing HIV molecular data to be accessed by law enforcement could have a serious chilling effect that inhibits HIV screening or treatment decisions. If no steps are taken, people with HIV and affected communities may resist cluster detection, and its potential benefits will not be fully realized.

TO LEARN MORE

READ OUR **BIG IDEAS BRIEF**, *Policy Action Can Increase Community Support for HIV Cluster Detection*, August 2019, at the link below.

Project Inform and Northwestern University published a report on ethical considerations for HIV cluster detection, available at doi.org/10.18131/G3MT7B.

For more information, see the Centers for Disease Control and Prevention at cdc.gov/hiv/programresources/guidance/cluster-outbreak/index.html.

THE PROMISE OF HIV CLUSTER DETECTION WILL ONLY BE REALIZED WHEN MORE STEPS ARE TAKEN TO MINIMIZE HARMS TO PEOPLE AND COMMUNITIES.

**O'NEILL
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