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The Usefulness of Individual-Level HIV Surveillance Data to Initiate Statewide HIV Partner Services: Experiences From Hawaii and New Mexico

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Abstract

Context—Partner services are a broad array of services that should be offered to persons with human immunodeficiency virus (HIV) and that are based on a process through which HIV-infected persons are interviewed to elicit information about their sex and needle-sharing partners. Human immunodeficiency virus testing of partners can result in a high yield of newly diagnosed HIV positivity, but despite this yield and the benefits of partners knowing their exposures and HIV status, partner services are often not conducted.

Objective—We sought to determine the newly diagnosed HIV positivity and benefits to 2 health departments that conducted demonstration projects that focused on statewide HIV partner services.

Design—The main sources of information used for this case study analysis included the health department funding applications, progress reports and final reports submitted to the Centers for Disease Control and Prevention, and records of communications between Centers for Disease

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The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

John Beltrami conceptualized the article, conceived and designed the analysis, reviewed and synthesized the literature, analyzed and interpreted data, wrote and revised initial and subsequent drafts of the article, and provided analytic and technical support. Andrew Gans conceived and designed the project; acquired, analyzed, and interpreted the data; critically reviewed and revised the article for important intellectual content; supervised; and provided administrative and technical support. Michelle Wozniak conceived and designed the project; acquired, analyzed, and interpreted the data; critically reviewed and revised the article for important intellectual content; supervised; and provided administrative and technical support. John Murphy collected, analyzed, and reported data; critically reviewed the article for comment; and contributed to the writing. Benjamin Puesta, Daphne Kennebrew, and Mary Angie Allen each acquired and interpreted data, critically reviewed the article for comment, and provided administrative and technical support. Kevin O'Connor is a national expert in HIV/STD Partner Services who consulted during the category C projects, provided technical support, and was significantly involved with the conceptualizing, writing, and editing of the manuscript and its revisions.

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Control and Prevention and the health departments. Required quantitative reporting included the number of partners tested and the number of partners with newly diagnosed confirmed HIV infection. Required qualitative reporting included how health departments benefited from their demonstration project activities.

Setting—Hawaii and New Mexico.

Participants—Sex and needle-sharing partners of persons who were newly diagnosed with HIV infection.

Intervention—The use of HIV surveillance data to initiate statewide HIV partner services.

Main Outcome Measure—Newly diagnosed HIV positivity.

Results—During 2012–2015, the newly diagnosed HIV positivity among partners was 18% (78/427): 16% (17/108) in Hawaii and 19% (61/319) in New Mexico. The health departments benefited from improved collaborations among HIV prevention program and surveillance staff and among the health departments, providers, and AIDS service organizations.

Conclusions—Hawaii and New Mexico each achieved a high newly diagnosed HIV positivity and benefited from improved local collaborations. As a result of the success of these projects, both health departments have continued the activities since the end of category C funding by securing alternative funding sources.

Keywords

HIV surveillance; newly diagnosed HIV infection; partner services

Partner services are a broad array of services that should be offered to persons with human immunodeficiency virus (HIV) and other sexually transmitted diseases (STDs) and that are based on a process through which HIV-/STD-infected persons are interviewed to elicit information about their sex and needle-sharing partners.[1–3] Goals of partner services include confidentially notifying partners of their possible exposures and offering early HIV/STD testing and other interventions and services, such as HIV pre-exposure prophylaxis for partners who test HIV-negative, linkage to HIV medical care for partners who are newly diagnosed with HIV, and reengagement to HIV care for partners who are previously diagnosed with HIV but currently not in care.[1,2,4–7] Human immunodeficiency virus testing of partners can yield a newly diagnosed HIV positivity of 6% to 14%,[7–11] but despite this high yield and the benefits of partners knowing their exposures and HIV status, often partner services are not conducted.[12,13] Challenges to the successful implementation of partner services include state laws and policies that discourage or hinder the ability to conduct partner services, patient and community concerns, negative perceptions of partner services by prevention and care partners, partners who are anonymous or not otherwise able to be located, the workload of staff who are responsible to conduct partner services, and the shortage of trained staff.[1–3,14,15]

The Centers for Disease Control and Prevention (CDC) strongly recommends that all persons with newly diagnosed or reported HIV infection receive partner services with active health department involvement. Since 2008, the CDC has encouraged health departments to

use HIV surveillance data to initiate partner services, but many health departments do not, despite improved partner services with the use of HIV surveillance data.[12] The main CDC Funding Opportunity Announcements for both comprehensive HIV prevention program activities (PS12-1201)[16] and HIV surveillance case reporting (PS13-1302)[17] have allowed the use of HIV surveillance data for programmatic purposes since 2012 and 2013, respectively. For example, PS12-1201 requirements for routine HIV prevention activities include the use of HIV surveillance data such as CD4 and viral load to maximize the number of persons identified as candidates for partner services, and PS13-1302 requirements include supporting the improvement of health department operations and HIV prevention through the sharing of HIV surveillance data. In addition to the aforementioned challenges to conducting partner services, the widespread use of HIV surveillance data for partner services is limited in jurisdictions with information systems for HIV surveillance and partner services that are incompatible.[2,14]

As part of PS12-1201 funding, health departments were able to compete for additional funds to conduct nonresearch demonstration projects known as category C projects. Of the 30 health departments funded for category C activities, only Hawaii and New Mexico proposed and implemented projects that focused on using HIV surveillance data for statewide HIV partner services. Hawaii conducted HIV partner services prior to category C funding in select publicly funded clinical sites and experienced challenges with private providers and community-based organizations that did not participate. Category C funding was an opportunity to expand HIV partner services statewide and modernize their activities by using surveillance data and integrating HIV and STD partner services. New Mexico health department staff who were assigned to regional offices conducted HIV partner services prior to category C funding. However, referrals for partner services were primarily from HIV testing sites rather than from the use of surveillance data. Category C funding provided an opportunity to expand HIV partner services statewide, detect more persons with newly diagnosed HIV, and modernize their partner services by using surveillance data.

The main objectives of this article were to determine the newly diagnosed HIV positivity based on the use of HIV surveillance data for statewide HIV partner services in Hawaii and New Mexico and document lessons learned and how the health departments have benefited from using HIV surveillance data for HIV partner services.

Methods

As previously reported, category C was a novel way for CDC to use HIV funds for programs and conduct nonresearch demonstration projects by requiring program and scientific staff to work closely together at the federal and local levels.[18] At CDC, 2 types of staff (project officers and scientists) were mainly responsible to work with the health departments. Program project officer responsibilities included monitoring adherence to funding opportunity announcement requirements and project progress, fiscal oversight, provision of programmatic technical assistance, oversight of infrastructure development, and brokerage of local partnerships to ensure program and science collaboration. A scientist serving as a technical monitor had the responsibility to monitor project results, provide feedback, and facilitate any needed technical assistance for epidemiologic, surveillance, cost analysis, or

monitoring activities. The CDC determined that each of these projects was a public health program activity and thus not human subjects research.

Hawaii

Partner services are permitted under state statute. Health department staff obtained support from physicians and the HIV community by providing materials to physicians on the rationale of partner services and how they could participate. Physicians and staff from AIDS service organizations were also engaged through the formal statewide HIV planning process. Health department management developed protocols and a system for HIV surveillance staff to share client-level data with HIV prevention program staff in a secure and confidential manner[19] and then trained staff who were responsible for releasing data from the HIV surveillance and laboratory databases and other staff responsible for conducting partner services. State HIV surveillance staff provided the names and contact information of all persons with newly diagnosed and reported HIV infection (except for persons in the military) to health department prevention program staff on a weekly basis. Investigation specialists worked with physicians, AIDS service organizations, and HIV case management agencies to prioritize and locate these persons for partner services. Initial contact with an HIV-infected person could be conducted by a physician, HIV case manager, or an investigation specialist. Any information found that was missing in the HIV surveillance database (eg, current locating address, HIV risk factor) was shared with HIV surveillance staff, who in turn would update the HIV surveillance database.

New Mexico

During the 2010 state legislative session, the state's HIV Test Act was amended to eliminate the legal barrier that prevented persons with newly diagnosed HIV in the HIV surveillance database from being referred by HIV surveillance staff specifically for the purpose of providing partner services. This legislation was supported by the state's HIV Prevention Community Planning and Action Group and the Governor's HIV/AIDS Policy Commission. The state health department then finalized protocols for partner services. Based on findings from a prior survey of providers' knowledge, attitudes, and barriers related to partner services, the health department developed and distributed brochures and referral cards for partner services that were tailored to each of the 5 public health regions in the state. The health department then sponsored training in partner services and data security and confidentiality[19] for public health staff throughout the state and led discussions in each region to address challenges related to partner services, which included clinician and provider resistance to assess client sexual risks and make referrals, particularly for persons living with HIV who had new "sentinel risk events" such as a new STD diagnosis. To make interviews for partner services most effective, training also focused on motivational interviewing and cultural competence. Two epidemiologists from the state HIV and Hepatitis Epidemiology Program referred all persons with newly diagnosed and reported HIV infection to the Disease Prevention Team in each region where the newly diagnosed and reported persons resided. These epidemiologists made referrals by direct data entry of case information (eg, name, contact information) into a secure data system. Regional Disease Prevention Staff then accessed the information and conducted partner services. In addition, the disease prevention staff also conducted HIV partner services for persons living with HIV

who were not newly diagnosed. For example, persons living with HIV who had a new "sentinel" event that indicated ongoing risk behaviors, such as an STD diagnosis, also received HIV partner services.

Data requirements

The main sources of category C information used for this case study analysis included the health department funding applications, progress reports, final reports submitted to the CDC, and records of communications between the CDC and the health departments, such as e-mails and meetings. Throughout the 4 years of funding, the health departments submitted to the CDC progress reports, which were required every 6 months and included responses to standardized quantitative and qualitative questions. In addition, a comprehensive final report was submitted to the CDC within 3 months of the end of funding.

For health departments that received category C funds to conduct partner services, required quantitative reporting included the number of HIV-infected persons interviewed for partner services, the number of named partners, the number of partners tested, and the number of partners with newly diagnosed confirmed HIV infection. For all category C health departments, required qualitative reporting included lessons learned, how health departments benefited from their category C activities, and whether they sustained category C activities after the end of category C funding. All health departments were allowed to submit additional information, for example, data on HIV viral load suppression, which means that the amount of HIV in the blood of an infected person is either undetectable or so low that the probability of HIV transmission is reduced by at least 96%.[20,21] Hawaii, for example, submitted data on viral load suppression and defined it as less than 200 copies per mL.[3]

Results

During 2012–2015, the 2 health departments interviewed 756 persons who were diagnosed and reported with HIV infection (see the Table). These 756 persons named 838 partners. Of 427 named partners who were tested, the newly diagnosed HIV positivity was 18% (78/427).

Hawaii

In Hawaii during 2013–2015, 311 persons were diagnosed and reported with HIV infection, of whom 145 (47%) were interviewed for partner services (see the Table). These 145 persons named 204 partners. Of 108 named partners who were tested, the newly diagnosed HIV positivity was 16% (17/108). Of these 17, 6 moved out of state and 11 were monitored with viral load testing; 73% (8/11) achieved viral load suppression.

Hawaii reported 4 main lessons learned specific to partner services. First, relationship building with providers and AIDS service organizations was critical (eg, invitations to meet with health department staff and participate in the HIV prevention community planning process, provision to physicians of written materials that included the rationale for partner services and how to participate, and training AIDS service organizations on data security and confidentiality),[19] which led to their understanding and trust of the process of partner services and participation with partner services. Second, the integration of HIV and STD partner services and cross-training of HIV and STD staff led to more efficient and timely

partner services and less disruption of work when staff turnover occurred. Third, the health department changed requirements in its contracts so that local organizations involved with partner services understood how best to conduct work related to partners services, which has led to improved participation and accountability. Fourth, when providers and other staff who are involved with partner services find information that is useful to HIV surveillance staff, then that information is entered into the HIV surveillance database, which enhanced the quality and timeliness of the surveillance data.

Category C funding helped the health department in 2 main ways. The policy and work that started using HIV surveillance data for partner services expanded to include the use of these data for engaging out-of-care clients into care (eg, 14 previously HIV-infected persons were successfully reengaged to care) and to incorporate HIV pre-exposure prophylaxis into partner services (ie, partners who test HIV negative or STD positive are referred to HIV pre-exposure prophylaxis services). Also, enhanced collaborative relationships occurred among the health department, providers, and AIDS service organizations and among prevention, treatment and care, and surveillance programs. Since category C funding ended, routine PS12-1201 HIV prevention activities and AIDS Drug Assistant Program Rebates are now used as alternative funding sources for all category C activities and staff positions.

New Mexico

In New Mexico during 2012–2015, 611 persons were interviewed for partner services, of whom 526 were newly diagnosed and reported with HIV (see the Table). These 611 persons named 634 partners. Of 319 named partners tested, the newly diagnosed HIV positivity was 19% (61/319). During the 4 years before category C funding (2008–2011), the newly diagnosed positivity was 16% (30/191) among tested partners of HIV-infected persons. Results from the category C project also compared favorably in productivity (ie, number of new diagnoses found and percentage of tested partners who were newly diagnosed with HIV), with 2 pilot projects conducted in New Mexico before category C funding. Using routine HIV testing in primary care settings as an HIV case-finding strategy, these 2 pilot projects combined identified only 2 new HIV diagnoses among 946 persons tested. Given that New Mexico has low/moderate HIV prevalence overall, the Category C strategy for partner services was proposed as a more targeted approach to find more newly diagnosed persons than prior efforts that used broad-based and nontargeted testing.

As the main lesson learned, New Mexico reported that surveillance-based partner services are an important and useful way to initiate partner services. Policies and procedures that were created for state epidemiology staff to send information about new HIV diagnoses via a secure data system to regional disease prevention staff resulted in a consistent and uniform statewide approach to partner services. Direct entry of case information into a secure data system was more efficient than calling regional staff, which has led to reduced barriers and an increase in the number of successful referrals.

Category C funding helped the health department in 2 main ways. The productivity of HIV partner services increased, and enhanced collaborative relationships occurred among prevention, HIV medical case management, and surveillance programs. Since category C funding ended, Medicaid billing revenue is now used as an alternative funding source to

support regional disease prevention team staff to ensure continuity of the category C activities.

Discussion

Hawaii and New Mexico conducted demonstration projects that focused on the use of HIV surveillance data to initiate HIV partner services, and they each achieved a newly diagnosed HIV positivity that was higher than previously reported in the literature.[7–11] Because of these projects, the health departments benefited from improved collaborations among HIV prevention program and surveillance staff and among the health departments, providers, and AIDS service organizations. As a result of the success of these projects, both health departments have continued the activities since the end of category C funding by securing alternative funding sources.

Hawaii and New Mexico have methods and lessons learned that may be useful to other health departments, at least to other health departments with a similar capacity to conduct this type of work or a similar HIV epidemiologic profile. Both health departments shared commonalities in approaches to overcome some of the historic challenges to successful HIV partner services. By the time their category C projects started, they had state laws that supported partner services, so they then worked to develop policies and protocols for partner services, which included the incorporation of CDC guidelines for the security and confidentiality of HIV surveillance data.[19] Next, they actively engaged providers and AIDS service organizations to help them understand the process and importance of partner services and included them in the ongoing process of HIV prevention community planning. This overcame significant barriers to referrals such as clinician and provider reluctance to assess sexual risk histories or refer their patients to the health departments. Finally, they trained all staff involved with partner services to ensure confidentiality and effective interviewing for partner services.

Hawaii additionally documented that its category C activities resulted in the improved quality and timeliness of its surveillance data, which is particularly important in the context of the CDC's recent emphasis on using HIV surveillance data not only for partner services but also for other HIV prevention program activities such as linkage and reengagement to HIV medical care and monitoring viral load suppression (https://effectiveinterventions.cdc.gov/en/home.aspx).[16] Although Hawaii and New Mexico have had complete and timely HIV surveillance data since 2012 and 2013, respectively,[22,23] many health departments do not,[22–24] so when HIV surveillance data are used for linkage and reengagement, these activities may not be conducted efficiently or effectively.[18,25] By increasingly and continually using HIV surveillance data to initiate and monitor HIV prevention program activities, staff from both of these disciplines are likely to greatly benefit. For example, when program staff work to find and engage out-of-care clients into care, they often find information that is critical for HIV surveillance programs (eg, whether someone is already in care, current locating information, HIV risk factors), which helps make the HIV surveillance data more accurate when data updates are conducted. This in turn means that the improved surveillance data when next used for programmatic purposes should result in more efficient and effective HIV prevention work.

The findings from Hawaii and New Mexico should also influence future research. Partner services are a core function of public health,[1,16] but little has been published in recent years about how best to conduct partner services and their cost-effectiveness.[26] This is particularly important because federal policy makers, funding agencies, and researchers are increasingly emphasizing the HIV continuum of care, which focuses on finding newly diagnosed persons, engaging them in HIV medical care, retaining all HIV-infected persons in care, and ensuring that they are virally suppressed.[27–32] According to a needs assessment in 2008 and a survey in 2010, many health departments do not use HIV surveillance data for partner services, despite their importance.[12,14] With increased emphasis in recent years on using HIV surveillance data for partner services, research on partner services that reflects the current era of HIV prevention is needed so that relevant up-to-date guidance and capacity building support may be provided to health departments and their partners.

Category C work had limitations. First, these demonstration projects did not have a standardized protocol across health departments and a more research-oriented methodology that would have accounted for various confounding influences and more detailed data collection. However, an advantage of the nonresearch category C approach, compared with research, is that these projects were conducted in “real-world” settings so that any promising or successful methods could be rapidly implemented into routine, daily public health practices.[18] Furthermore, more extensive data collection would have likely detracted from the main purpose of category C funding, which was to provide services to clients and find as many new, previously undiagnosed HIV infections as possible. Second, not all persons who were newly diagnosed and reported with HIV were interviewed for partner services by health departments because these persons were in the military, refused to respond to requests for an interview, or were deceased. Third, reporting on 2 health departments that serve jurisdictions with lower HIV prevalence and incidence limits the generalizability of the results to health departments with higher HIV prevalence and incidence; however, we believe that the methods and approaches of Hawaii and New Mexico may still be useful to different types of jurisdictions in part because little has been published in recent years on the use of HIV surveillance data for partner services.

Conclusion

Human immunodeficiency virus partner services provide a very useful strategy to find persons with undiagnosed HIV infection. One main reason is because the work is focused directly on persons living with HIV, in contrast to more broad-based and nontargeted methods such as routine testing in primary care settings. Partners identified through partner services are more likely to have a potential exposure and thus more likely to be infected than the population at large.

The results and methods of these 2 demonstration projects have several public health implications for the daily practice of HIV partner services. The main results showed the success of using HIV surveillance data to find previously undiagnosed persons through HIV partner services. The methods can help other health departments that are interested in starting or improving their partner services understand the importance of training, having program staff help update the HIV surveillance data, and having close working relationships

among program and surveillance staff, providers, and community-based organizations. In addition, the methods show the importance of focusing on outcomes of partner services (eg, confirmed newly diagnosed HIV) and how outcomes can lead to clients receiving other services (eg, referring newly and previously diagnosed out-of-care persons to HIV medical care services and referring HIV-negative persons for HIV pre-exposure prophylaxis). Finally, the CDC's new emphasis on the use of HIV surveillance data to support the HIV continuum of HIV care (https://effectiveinterventions.cdc.gov/en/home.aspx) means that all program staff who use HIV surveillance data need to be trained on data security and confidentiality requirements.[19] By doing so, program staff have the opportunity to actively support HIV surveillance programs so that all health departments have the best policies and practices that allow for complete, timely, and up-to-date HIV surveillance data. The data may then be used for the most efficient and effective HIV prevention activities.

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Implications for Policy & Practice

- The use of HIV surveillance data to initiate HIV partner services is a successful strategy to find persons with undiagnosed HIV infection.
- Critical to the success of such a strategy is having program staff help update the HIV surveillance data and having close working relationships among program and surveillance staff, providers, and community-based organizations.
- All program staff who use HIV surveillance data need to be trained on data security and confidentiality requirements.
- Focusing on outcomes of partner services (eg, confirmed newly diagnosed HIV, previously diagnosed out-of-care persons) may lead to clients receiving other prevention and medical services and is important to determine public health impact.

Table

Newly Diagnosed HIV Positivity From Partner Services, Hawaii and New Mexico, 2012–2015

Health Department	No. of Persons Interviewed	No. of Named Partners	No. of Partners Tested	% of Partners With Newly Diagnosed HIV
Hawaii	145	204	108	16% (17/108)
New Mexico	611	634	319	19% (61/319)
Total	756	838	427	18% (78/427)

Abbreviation: HIV, human immunodeficiency virus.