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Field Services–Facilitated Treatment and Prevention: Challenges and Opportunities

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Abstract: Assisted partner services (APS) is a longstanding public health strategy to reduce transmission of sexually transmitted infection (STI) and human immunodeficiency virus in the United States. However, with rapidly increasing rates of STI, innovations to APS are needed to allow health departments to conserve limited public health resources while improving the effectiveness of APS. Disease Intervention Specialists (DIS), public health staff who conduct APS, have a wealth of experience in identifying, locating, and interviewing index patients and their sexual partners, but are currently limited in the services that they are able to provide in the field. Although several state and local health departments are working to expand the role of DIS to incorporate less traditional APS activities, such programs are uncommon. We discuss several services that DIS could conceivably provide in the field, such as STI testing, treatment, and vaccination, and identify critical issues to be addressed to implement these changes in DIS activities on a larger scale. Broadening the scope of DIS activities may result in multiple benefits to health departments, including more effectively delivering STI testing and treatment to hard-to-reach populations, imparting more responsibility to DIS, thereby potentially increasing job satisfaction, and building a workforce that is better prepared for public health crises. Effective approaches to address variable state level regulations governing DIS scope of practice are needed.

Assisted partner services (APS), a method through which a specially trained individual (most widely known as a Disease Intervention Specialist [DIS]) works with a patient identified with a communicable disease to facilitate contact notification, is a method with applicability to many infectious diseases. In place since the

1940s, APS is a longstanding component of sexually transmitted infection (STI) and human immunodeficiency virus (HIV) control efforts in the United States, although concerns about the yield of such methods have grown in recent years due to changes in the epidemiology of STIs, societal norms and technology-driven sexual partner seeking methods. Renewed interest in APS has occurred with the onset of the COVID-19 pandemic. Reinvigorated thinking around APS and the role of DIS resulting from rapid diagnostic and technological advancements driven by the COVID-19 pandemic, as well as the growing acknowledgment that a highly trained and flexible public health workforce functioning at the top of license is a key component of optimizing public health readiness for present and future pandemic response,^{1,2} portends that the time is ripe to take stock of current DIS functions and for potential expansion of the DIS role.³ This article will explore approaches to expand the role of DIS to maximize impact on the STI/HIV field and public health at large.

LINKAGE TO CARE

Due to resource constraints, STI-related APS activities often focus on partners of individuals with syphilis or HIV, with fewer programs offering these services to partners in contact with gonorrhea (GC) and chlamydia (CT).⁴ A spectrum of scenarios exists for linkage to care activities that a DIS may engage in. Historically, DIS serving clients identified with STIs, including HIV, have focused on contacting partners through field investigations, notifying them of potential exposure to an STI and referring (and sometimes transporting) partners to clinic for evaluation and treatment. Over the years, the DIS role in linkage to care has grown significantly. Much of this growth occurred due to advances in HIV science, during the current era of HIV Treatment as Prevention and with the availability of HIV preexposure prophylaxis (PrEP) as a highly effective HIV prevention method. Linkage to care is now an outcome for which DIS providing HIV partner services are responsible, and PrEP referral has been increasingly incorporated into routine partner services activities, particularly for men who have sex with men with bacterial STIs. Now, in addition to linking patients to clinic for STI treatment, linkage to HIV PrEP or HIV antiretroviral rapid start initiation is feasible. A recent analysis demonstrated that 88% of surveyed high HIV morbidity state and local jurisdictions endorsed that their HIV APS programs routinely integrated APS with routine linkage to HIV care and HIV PrEP referrals.⁵ However, geographic heterogeneity in the role of DIS in linkage to care activities is highly likely, and although it is certain that variation exists, the extent of variation and the predictors of successful integration of HIV prevention activities into the DIS role are not clear and should be the focus of future research.

THE DIS ROLE IN FIELD-BASED SPECIMEN COLLECTION AND TESTING

Disease Intervention Specialists are often trained to perform phlebotomy and frequently bring specimens collected in the field back to the laboratory to facilitate testing.⁶ This process also applies to self-collected STI tests (ie, oral, rectal, and genital GC/CT nucleic acid amplification (NAAT)-based tests) obtained

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in non-clinical settings where the DIS can give instructions to the patient on specimen self-collection and transport the specimens to the laboratory. In terms of test performance in the field, over-the-counter tests, such as pregnancy tests, can be performed in the field by DIS. In some jurisdictions, DIS are allowed to perform CLIA-waived point-of-care testing in the field. For example, the Public Health Institute at Denver Health has trained outreach workers to perform rapid hepatitis C antibody and point-of-care syphilis testing in the field (Karen Wendel, MD, personal communication). Field collection of self-collected extragenital samples for STI testing has also been found to be acceptable and feasible; however, in some cases, participants expressed a desire for a connection with a clinician to increase the legitimacy of the testing experience.^{7,8} One of the most significant benefits of allowing DIS to test and treat in the field is that fewer individuals, especially unstably housed individuals, are lost to follow-up.^{6,9}

PRESCRIPTION AND MEDICATION DELIVERY

The role of DIS in facilitation of prescription or medication delivery is similarly diverse. Since it is not uncommon for medical practices to have difficulty keeping medications such as Penicillin G benzathine (Bicillin L-A) on site,¹⁰ several states have bridged this gap by having DIS deliver the needed drug directly to the clinic. One example of a successful approach to address this issue is a Louisiana Department of Health program that allows DIS to deliver Penicillin G benzathine to community physician offices (<https://louisianahealthhub.org/shpdirect-rx>). From October 2019 to June 2022, 575 practices took advantage of this service with significant growth of the program noted during the lockdown period of the COVID-19 pandemic (Chaquetta Johnson, NP, personal communication). Not only does this method facilitate seamless treatment of syphilis patients but also additional advantages include strengthening partnerships between the medical practice and public health and allowing DIS to immediately interview the patient on-site.

Taking it a step further, some STD programs have had DIS directly deliver medications to the patient or the patient's partner in the field. This practice has been utilized for delivery of oral medication for treatment, including expedited partner therapy (EPT).⁶ Examples include local STD programs in California that provide field-delivered therapy by DIS for GC or CT infection under medical director orders (Jessica Frasure-Williams, personal communication). San Antonio, Texas has a similar program where DIS deliver "Partner packs" in the field for both GC and CT (Junda Woo, MD, personal communication). Examples of DIS-delivered parenteral medication are less common. Several scenarios have been described including Louisiana's Syphilis Home Observed Treatment Program where a public health nurse accompanies the DIS with the former administering the medication to the patient (Chaquetta Johnson, NP personal communication). Another public health program in San Antonio, Texas has trained the DIS to administer intramuscular (IM) penicillin (Junda Woo, MD, personal communication). In Seattle/King County STD Clinic, the DIS run the day-to-day activities of the HIV PrEP clinic, including coordinating the prescription of PrEP medications under standing orders.¹¹

The use of telehealth exploded with the onset of the COVID-19 pandemic. The use of this technology lends itself to DIS role expansion by allowing DIS in the field to connect directly with licensed clinical providers remotely to facilitate HIV and STI testing in the field and to take immediate action based on results of the HIV test, specifically initiation of rapid HIV antiretroviral therapy starts or same day HIV PrEP initiation, as indicated. This approach takes the DIS role yet further through field-based initiation of what will ultimately become long-term therapy. Although this

process has yet to be fully evaluated, it is anticipated that this expansion of rapid ART and PrEP initiation in the field has the potential to make immediate and concrete contributions to the goals of the Ending the HIV Epidemic strategy.

Although specific details vary by jurisdiction, a common thread for programs implementing DIS-facilitated field-based testing and treatment practices is to ensure that protocols and standing orders are in place. Protocols outline the standard of care by specifying the education level and training required by DIS to perform specific tasks, define the parameters within which the DIS should function, including the various settings in which care may take place (ie, mobile van, clinic, private residence, etc), define patient eligibility for field treatment, specify safety procedures and may include scripts, assessment templates, supply lists, treatment logs, and documents to facilitate routine audits.

IMPACT OF LICENSING REQUIREMENTS

Although the activities described above have the potential to enhance impact on the STI/HIV field, the scope of activities that DIS may engage in are dependent on regulations in local jurisdictions, including licensing requirements, and these restrictions may pose the most significant barrier to expanding the role of DIS. Again, the importance of understanding the limitations conferred by various medical licenses, as well as the need to critically evaluate the need and opportunities to expand roles of individuals operating under a specific license was brought into sharp focus with the COVID-19 pandemic when states found themselves with an urgent need to rapidly identify individuals capable of administering COVID vaccines in their jurisdictions. Delegation of authority to perform testing and administer medications varies widely throughout states, territories, and local jurisdictions. Defining the heterogeneity of licensing regulations and identifying the appropriate authorities to approach to address these issues will be a critical aspect to broadening the scope of DIS.

Beyond potential challenges related to licensure and scope of practice, enabling and training DIS to provide parenteral therapy in the field may meet opposition from providers who traditionally have provided such care, as was the case when some state laws were changed to allow medical assistants to provide COVID-19 vaccinations.^{12,13} Therefore, efforts to expand the role of DIS to provide treatment in the field, particularly IM injections, may benefit from early engagement with nursing organizations. However, it is ultimately the role of health department or program leadership to determine how to best protect the public's health, including the most effective methods of treating patients and their partners. Telemedicine may have a role in assuaging concerns of both clinicians and patients about nonclinical staff conducting testing and administering parenteral therapies; having a clinical provider available through a video link would both provide supervision of the field staff and provide the patient with a clinical connection in the event further care is needed.

ENGAGING HARD TO REACH POPULATIONS IN TESTING AND TREATMENT

The United States is currently experiencing an explosive increase in congenital syphilis and syphilis among women more generally. In many jurisdictions, a significant proportion of women with syphilis have been reported to be impacted by mental illness, housing instability, and substance use, and marginalized populations such as these may be especially difficult to reach with STI testing and treatment.¹⁴⁻¹⁶ DIS-delivered testing and treatment may provide health departments with an important tool to increase testing and treatment of index patients and partners from these hard to reach populations.

MAXIMIZING EFFICIENCIES IN DIS-DELIVERED TESTING AND TREATMENT

Although DIS-delivered testing and treatment holds promise for increasing patient and partner testing and treatment, it is important to consider in what situations or for which STIs (or other health conditions) these expanded DIS responsibilities will be most impactful and cost-effective. Delivery of testing and treatment in the field is resource intensive; it requires additional training for DIS, clinician oversight, and in most cases will require additional staff time and costs related to transportation and telehealth services. As a result, routinely delivering oral medications such as azithromycin or doxycycline, which could instead be called into a pharmacy or mailed, will likely not be cost-effective. Disease Intervention Specialists delivering parenteral treatment for syphilis in the field may be a better use of limited public health resources. Given these resource limitations, health departments may also need to consider prioritization of populations among patients with gonorrhea or syphilis for DIS-delivered treatment. For example, patients experiencing housing instability or pregnant people might be high priority for DIS-delivery of treatment in the field.

TRAINING DIS HOLISTICALLY

The COVID-19 pandemic has highlighted the importance of having a public health workforce that is prepared to rapidly respond to public health emergencies. Although it may not be efficient to train all field staff to successfully work across multiple areas (ie, communicable diseases, tuberculosis, STIs), consideration should be given to which skills are easily transferable across disease “areas”, and which might be important for potential future emergencies. For example, many DIS use a variety of databases in their day-to-day work to find patients and contacts, whether the patients have shigella, TB, or syphilis. These skills were also important in locating COVID-19 patients and contacts. Drawing blood and administering medication may be other skills that DIS should be universally trained to carry out. Many DIS working in TB programs already administer medications in the field as a part of directly observed therapy. The current monkeypox outbreak demonstrated the challenges encountered when a known pathogen, typically managed outside of STI/HIV programs, developed a new transmission pattern, highlighting the need for a cross-trained workforce comfortable with discussing sensitive topics such as sexual and drug use behaviors. Identifying and training on these essential skills

TABLE 1. Research Questions and Recommendations Related to STI Testing and Treatment in the Field

Questions	
Domain	Question
Implementation: safety	What are the safety mechanisms that must be in place for field delivery of medication? Would the use of scripts that define clear boundaries be sufficient to ameliorate concerns when DIS administer testing and treatment in the field? Will a chaperone be needed even if the DIS is able to deliver meds by standing order? Do DIS who administer parenteral therapy in the field need to have advanced degrees?
Implementation: operationalization	Will pairing treatment with a telehealth provider visit facilitate field-based testing and treatment? What training will be required for DIS in order to deliver field-based testing and treatment? What additional training will be required for DIS to administer parenteral treatment? Which STIs should be targeted for this DIS-facilitated testing and treatment interventions? CT and GC only? Syphilis? HIV? What are the risk management considerations? Are there specific populations or groups for which DIS-delivered treatment and/or testing be utilized or prioritized? (ie, pregnant women with syphilis) Will expanding the responsibilities of DIS result in greater job satisfaction?
Programmatic considerations	What are the implications of DIS role expansion for the field? Will greater use of DIS-delivered testing result in more partners tested? Will greater use of DIS-delivered treatment result in more patients treated? More partners treated? Decrease time to treatment? Will field-delivered testing and/or treatment increase patient engagement with PS for subsequent diagnoses? Will DIS-delivered treatment be more effective at reaching and treating marginalized populations, for example, people who use/inject drugs, or people living homeless?
Sociobehavioral	Will DIS-delivered testing and treatment be acceptable to patients? To providers? Will field-delivered testing and treatment result in greater satisfaction among patients? Providers?
Health economics	Will these interventions be cost-effective? Are the costing parameters needed to measure cost-effectiveness of the intervention being measured, or are additional data needed to determine cost-effectiveness?
Recommendations	
Domain	Recommendations
Safety	Develop and implement protocols that outline the standard of care by specifying training requirements for DIS and boundaries within which the DIS should function, including the settings in which care may take place, patient eligibility for field treatment, and safety procedures to be followed Develop a registry of adverse events related to DIS-administered testing and treatment
Implementation: operationalization	Develop a training curriculum for DIS who will administer testing and/or treatment in the field Develop a compendium of laws, administrative codes, and policies created by state and local jurisdictions to authorize DIS to provide testing and/or treatment in the field

may result in a more nimble DIS workforce that can provide surge capacity for future outbreaks.

IMPLEMENTATION OF EXPANDED FIELD-BASED ACTIVITIES

Although the expanded role for DIS that we envision may accomplish several goals, we are not suggesting that these activities replace the important work of case finding and APS. The skills that DIS develop in conducting case investigations, eliciting partners, and ensuring partner testing and treatment are both the cornerstone of APS programs and can be invaluable in other public health emergencies, as demonstrated during the COVID-19 pandemic. Further, DIS are skilled at working with people from marginalized populations. Given marked heterogeneity across health departments, HIV/STI programs, and laws and policies, the expanded scope of activities described here might well be implemented in different ways across jurisdictions. For example, a small team could be trained to provide testing and treatment in the field, as opposed to all DIS. Alternately, these activities could be “tiered” in such a way that as DIS gain more experience, they add additional activities or responsibilities to their repertoire. All of these new activities will take DIS away from their traditional scope of work, and as a result programs will have to prioritize these strategies based on their potential impact and the resources available.

Likewise, it is unlikely that many health departments would be able to implement all these activities simultaneously. Expanding the responsibilities of the DIS workforce may require a stepwise approach, whereby health departments choose those activities that are most straightforward to implement, and do not require policy or regulation changes, for example, DIS delivering medication to treat syphilis to providers or doing gonorrhea and chlamydia testing in the field. At the same time, program or health department leadership could begin work on the regulatory or policy changes necessary for other activities that are more complex to implement, such as empowering DIS to provide IM injections in the field. In addition, expanding DIS roles in this way may require innovation on the part of leadership within each program to address any required policy changes and integrate these expanded responsibilities for staff that may already feel overburdened.

CONCLUSIONS

Epidemiologic, technologic and societal changes over the past 8 decades have resulted in the decline of metrics traditionally used to define the effectiveness of APS.^{17–19} This fact, combined with urgent needs in the STI/HIV and public health field wrought by the pandemic, indicates that the time is now to expand the role and scope of practice for DIS. As outlined above, DIS work is multi-faceted. However, many questions remain. Significant heterogeneity exists between jurisdictions as relates to allowable activities for DIS. Some of the programs described above are nascent, whereas others have been around for several years. Peer-reviewed literature describing the impact of DIS role expansion is scarce. It is critical that data are obtained and disseminated to inform the field on optimal strategies. Programs implementing innovative practices should be encouraged to publish their findings and could consider academic partnerships to accomplish this if necessary. National organizations in partnership with CDC have supported the exchange of information about innovative APS practices across health departments, as well as training opportunities for DIS^{20,21}. These organizations play an important role in sharing best practices around field-based testing and treatment by DIS. Significant scope of practice considerations must be contended with and approaches to break down regulatory barriers are needed. The CDC has previously educated about the benefit of policies that allow

for the expanded use of expedited partner therapy; perhaps there is a similar role for the CDC in assessing and educating about the policy barriers that may impede expansion of the scope of DIS responsibilities.^{22,23} The recent release of two FDA-cleared STI POC tests opens up the possibility of field-testing for GC, CT, and trichomoniasis.^{24,25} There may be significant antimicrobial stewardship benefits if a DIS can test a patient in the field prior to giving them antibiotics allowing targeted versus empiric therapy and decreasing the impact of antimicrobials on commensal organisms and the microbiome. Field-based testing for other infections and conditions, such as HIV, hepatitis C, COVID-19, and pregnancy, is also possible and may have advantages in promoting a syndemic and less stigmatized approach to patient management. Better data are needed to inform the optimal types of training needed for DIS to function as oral and parenteral medication administrators. Given most DIS are trained in phlebotomy, it is reasonable to consider that DIS should be able to administer IM injections with proper training. If DIS can give IM injections, this has implications for vaccine administration for STIs and other infections as well.

The advantages of the task shifting that would be facilitated by the expansion of the DIS role would have significant implications for public health readiness, better enabling the public health workforce to quickly pivot to other tasks as needed. It is possible that expanding the scope of practice for DIS may lead to greater job satisfaction and more career opportunities — both challenges for the current DIS workforce.^{1,3} In addition, adapting a value-added approach through expansion of services to clients might positively impact the public image of DIS staff, and their role in protecting the public's health. The question of how to accomplish the expansion of the DIS role safely, effectively and efficiently raises numerous other questions, listed in Table 1. Beyond these questions about implementation, it must also be acknowledged that DIS are not compensated well in many jurisdictions, and to add more responsibilities without additional funding to raise DIS salaries may represent a barrier to operationalizing this expanded scope of practice.

In summary, case finding is not the penultimate task of DIS. It is time to reenvision their role. As the scope of DIS expands, and they are enabled to perform more tasks independently, it will be critical to evaluate the effectiveness of new strategies, including cost-effectiveness.

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