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Lessons Learned From a Centers for Disease Control and Prevention Virtual Partner Services Technical Assistance Pilot Project to Respond to a Local Syphilis Outbreak

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Abstract

A virtual partner services technical assistance (TA) project was piloted with the Minnesota Department of Health to address an ongoing syphilis outbreak. The TA reduced the health department's disease intervention specialist workload, achieved partner services outcomes comparable with in-person methods, and identified lessons learned to replicate with other jurisdictions.

Syphilis remains a public health challenge in the United States. Since 2014, primary and secondary syphilis and congenital syphilis cases increased by 71% and 185%, respectively.[1] Timely identification and treatment of patients and their partners (partner services) are critical to controlling syphilis.[2,3] Traditionally, health departments use disease intervention specialist (DIS) to conduct field visits, telephone calls, electronic means (e.g., confidential text messaging, email, and messaging in mobile applications used for social and sexual networking), and postal communication to locate, interview, and notify partners.[4]

However, with the rising rates of syphilis and the impact of COVID-19, health departments have limited availability of DIS to appropriately manage partner services for sexually transmitted diseases. When health departments need help, they request technical assistance (TA) for Federal field staff with disease investigation expertise to deploy, in-person, for a limited number of days; a common tool used to support local communities.[5] While on-site, the staff provide on-the-ground TA to build capacity of the program to achieve desired partner services outcomes.[6] However, limited federal resources impact the Federal government's ability to accommodate the volume of requests, warranting virtual options of TA to be provided.

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Here we present the results of a feasibility and efficacy evaluation of conducting TA for partner services completely virtually for a syphilis outbreak in Minnesota and provide recommendations to replicate with other jurisdictions.

The Minnesota Department of Health (MDH) declared an outbreak in a rural region of the state after identifying a 102% increase in primary, secondary, and early nonprimary/nonsecondary and epi-linked syphilis cases from 2018 to 2019 (63 and 127 cases in 2018 and 2019, respectively) and a 126% increase among females (31 and 70 cases in 2018 and 2019, respectively).[7] During September 2019 when the outbreak was declared, the senior DIS, which services 80 of the 87 counties in the state, was assigned 25 of the 31 cases with 68 partners initiated at that time while continuing to investigate cases and partners from the previous months. The Division of STD Prevention (DSTDP) responded by deploying 2 Federal field staff, in October 2019, for 30 days to conduct in-person partner services to assist MDH's senior DIS. Because of the distance between the location of the outbreak area and district office, some aspects of their partner services work were conducted solely using electronic modes of communication (virtually). After the 30-day deployment, cases steadily increased (45 additional cases from November 2019 to February 2020) and the MDH requested assistance again in February 2020. The success of the virtual aspects of the first deployment served as a deciding factor to pilot a completely virtual TA, defined as conducting partner services from a different state other than Minnesota and using electronic methods of disease intervention and case management, for the second deployment.

One of the Federal field staff, who conducted the in-person deployment, began his virtual assignment on March 16, 2020, coinciding with the unexpected COVID-19 pandemic[8] and an executive order closing all public places in Minnesota.[9] On March 23, the Centers for Disease Control and Prevention also issued work-from-home orders and limited travel to reduce community transmission. Although COVID-19 was not the initial reason a virtual TAwas planned, it made a virtual response necessary and a catalyst for it to be successful.

The process to implement and evaluate the virtual TA for partner services required hours of planning across 3 branches in the DSTDP and MDH. There were 6 key staff, integral to the planning, implementation, and evaluation of the project. These staff included a DSTDP Project Officer for MDH who facilitated the TA request to DSTDP's Field Services Branch and ensured the TA project was executed as intended; a DSTDP evaluator who planned the design, implementation, and analysis of the evaluation; a DSTDP Field Services Regional Manager who supervised the Federal field staff during deployment; a DSTDP Federal field staff who conducted the virtual partner services; a MDH Senior DIS who received the TA; and a MDH DIS Supervisor who served as the point of contact for MDH and conducted quality assurance on closed cases. To initiate the virtual TA, MDH made a formal request through their DSTDP Project Officer who connected with DSTDP's Field Services and the Epidemiology and Surveillance Branches to discuss services to be offered. Information Technology and the Office of General Counsel for both agencies were also contacted at the same time to set up and approve the Federal field staff to have virtual access to MDH's network. This included a request of virtual private network services for non-MDH contractors to grant third-party access to MDH's surveillance systems, a data security and confidentiality form outlining data practices to safeguard government data, CITRIX setup

for virtual private network access and delivering of a MDH mobile phone to the Federal field staff. Simultaneously, the 6 staff began planning the evaluation of the project and identified 3 key outcomes to be achieved by the virtual TA: improved manageability of the Senior MDH DIS workload, partner services outcomes comparable with the in-person deployment, and favorable customer service and satisfaction achieved from the virtual TA.

A mixed-methods evaluation was then implemented to assess the feasibility and efficacy of the TA to achieve those outcomes. Semistructured interviews with the 6 staff occurred during March and April 2020 to identify successes, challenges, lessons learned, and recommendations for replicating in other jurisdictions. Surveys identified how well the TA was planned, the most important outcomes to be achieved, and satisfaction with implementation. Partner services outcome metrics, defined as the number of assigned cases that were interviewed and treated, the proportion of cases closed, and the number of partners initiated and treated, were also analyzed and compared with the in-person deployment from November 2019.

Data were collected through Survey Monkey and analyzed in SPSS, version 21. Interviews were transcribed, validated, and analyzed using MAXQDA, a qualitative data analysis software (www.maxqda.com). Themes were identified through constant comparison, an approach to developing grounded theory, combining inductive coding with simultaneous comparison.[10]

The evaluation found that MDH Senior DIS's perception of his caseload changed from feeling overwhelmed to feeling relief, enabling him to catch up on a backlog of partners at the end of the virtual TA. From December 1, 2019, to January 2020, after the in-person deployment, MDH's Senior DIS had a workload of 30 infectious syphilis cases with 9 partners initiated and partners from previous months still being investigated. During the virtual TA, the Federal field staff was assigned all new cases that helped the MDH DIS complete the investigation of partners from the previous months. Key staff ranked this as the most important outcome to be achieved for the TA to be deemed feasible and effective.

In addition, partner services outcomes were comparable with those achieved during the in-person deployment (Table 1). The single Federal field staff achieved a partner index of 2.1 during the virtual deployment compared with 1.7 and 1.3 during the in-person deployment for each Federal field staff. Key staff ranked conducting interviews with index patients to elicit partners as the second most important outcome to be achieved. In addition, the virtual deployment resulted in a treatment and disease intervention index of 90% and 0.75, respectively, compared with 95% and 0.61 during the in-person deployment. Lastly, all key staff reported being satisfied with the TA provided, noting exemplary support contributed by both the MDH and the DSTDP, and would recommend virtual TA to other jurisdictions and participate in other virtual TA assignments.

Besides key outcomes being achieved, the evaluation identified several facilitators that helped the TA be feasible and effective. First, more than 60 planning hours were spent across both agencies led by a coordinator deemed critical to ensuring tasks were completed, and the project stayed on timeline. Key staff also identified planning the evaluation at

the beginning of the project provided utility and usefulness of the results. Second, the approval for remote access to MDH's surveillance system and full-time telework for the Federal field staff to divert normal work duties to other personnel during the TA allowed for case investigation to begin almost immediately. Third, having a previous in-person deployment allowed familiarity with MDH's systems and rapport with staff and clinical contacts to be established. Regular communication and collaboration among the agencies also allowed the team to address challenges quickly. Lastly, the Federal field staff's expertise in disease investigation with vulnerable populations and the ability to use electronic modes of communication facilitated new cases and partners being interviewed and treated.

Several challenges impacted the TA. During COVID-19 mitigation efforts, clinics adjusted protocols, access, and priorities, making clinical staff less accessible. As a result, the Federal field staff called more frequently to verify patient visits and care. The Federal field staff also was unable to receive an MDH- or Centers for Disease Control and Prevention–assigned laptop and had to use a personal computer. Initially, the computer blocked the CITRIX software needed to access MDH's system, leading to a brief lag and delayed start to the investigations. Another challenge was lack of access to MDH's email or MDH's case management system. This problem was resolved by adapting their manual process of case management into an electronic process for this deployment while maintaining PII security.

Overall, the virtual TA was deemed feasible and effective because it helped decrease MDH's Senior DIS's caseload and yielded partner services outcomes comparable with the in-person deployment. Virtual TA mechanisms can serve as an alternative to in-person deployments for federal assistance for partner services.

Based on the evaluation results, this model of TA could be replicated if the following recommendations are implemented.

Extensive planning of how the TA will be structured, implemented, and evaluated should be a standard framework. Determining what is important to all stakeholders, as well as TA goals and measures to assess success, will allow the TA providers to determine the structure and match the TA to jurisdictions' needs, leading to high satisfaction of the TA provided.[11] Identify a project coordinator to ensure important tasks are completed in a timely manner.

Establish a process to access systems virtually in advance. The MDH had an established process to enable secure, virtual access for third parties to their surveillance systems, which was a key facilitator. Other jurisdictions requesting virtual TA will need to have or establish a process to allow third-party access to their surveillance and case management systems to maximize electronic platforms to meet ever-changing public health needs.[12]

Ensure manual processes can be adapted electronically. The MDH's process for conducting quality assurance on open cases needed to be modified into an electronic format. Although the process was remedied by the implementation of a folder system for completed cases to be uploaded to a share drive for review, the process created an extra step that could have been automated or completely electronic to reduce data issues.[13]

Conduct a virtual predeployment orientation to establish rapport and collaboration. The in-person deployment provided the Federal field staff an opportunity to learn from and build rapport with MDH staff and the state's partners. This strong working partnership was crucial to the successful implementation and outcomes of the TA.[14] Because it may be more difficult to build this level of rapport for a completely virtual TA deployment, new TA requests may benefit from a 2-to-3-day orientation for the Federal field staff to meet the jurisdictional staff, understand the jurisdiction's contextual environment, and receive resources (e.g., provider information, equipment, etc.) needed. Collaboration and relationship building will need to continue throughout the duration of the virtual deployment.

Ensure the Federal field staff has prior experience/training with the jurisdiction's surveillance systems and affected populations. The Federal field staff's familiarity with MDH's surveillance system and his extensive skillset on how to access and identify new cases in hard-to-reach populations saved time.[15,16] The Federal field staff also had the persistence and motivation to continue finding partners through electronic modes, navigating obstacles surfaced by the COVID-19 pandemic, until all cases and partners were tested and treated. The skillset of the Federal field staff aided the efficiency during a short deployment facilitating the TA's success.

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TABLE 1.

Selected Partner Services Outcomes of In-Person and Virtual TA

	In-Person TA	Virtual TA
No. Federal field staff assigned	2	1
No. new cases assigned	Federal DIS A: 11 Federal DIS B: 10	Federal DIS B: 10
No. cases interviewed	Federal DIS A: 9 Federal DIS B: 9	Federal DIS B: 8
No. partners elicited	Federal DIS A: 12 Federal DIS B: 16	Federal DIS B: 17
Partner index	Federal DIS A: 1.7 Federal DIS B: 1.3	Federal DIS B: 2.1
Treatment index *	95%	90%
Disease intervention index †	0.61	0.75

* Treatment index is defined as the total number of persons with disposition C (infected, brought to treat) and total number of persons with disposition E (previously treated for infection) divided by total number of cases assigned.

† Disease intervention index is defined as the number of cases where at least one partner was disposition A (preventative treatment) and disposition C (infected, brought to treat) and disposition E (previously treated for infection) divided by cases interviewed.