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Extent and sufficiency of STD/HIV disease intervention specialists in the United States of America, 2016

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Abstract

Disease intervention specialists (DIS) conduct partner notification for STD and HIV to interrupt the transmission of STD/HIV. In 2016, we collected information from health departments in the United States of America to determine the number of DIS and whether this number was sufficient for STD/HIV prevention. We identified 1610 STD/HIV DIS positions in the USA and 379 DIS supervisory positions. Of DIS positions, 85% were filled indicating potential issues with turnover. Using nationally reportable data from 2016, we found that states with more primary and secondary syphilis cases had more DIS. DIS participated in public health emergencies in 57% of states. Most USA states indicated that the DIS workforce was not sufficient for STD/HIV prevention. Knowledge of information about DIS workload (e.g. number of STD/HIV cases assigned per DIS) would be helpful.

Keywords

partner services; public health emergency; primary and secondary syphilis; disease intervention specialists; disease intervention efficiency; sexually transmitted disease prevention; STD; HIV

Introduction

One component of sexually transmitted disease (STD) prevention efforts to halt the transmission of STDs, including HIV, is partner services including identifying, testing and treating sex partners of those who have a STD. Partner services can stop further transmission of STDs and result in receipt of appropriate health services by partners.^{1,2} Most health departments in the United States of America (USA) conduct STD/HIV partner services, often employing disease intervention specialists (DIS) for this purpose.³ DIS conduct activities including field-delivered testing and treatment, expedited partner therapy and internet partner services.³ In 2013–2014, 30–37% of state and local health departments had DIS deployed for non-STD public health emergencies.⁴ Despite the important role DIS play

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Conflicts of interest

The authors declare that they have no conflicts of interest.

in STD/HIV prevention and other public health efforts, we do not know how many exist in the USA. Given high levels of reported STDs in the USA,⁵ it is important to obtain an estimate of the number of DIS in the USA, as well as the relationship between the number of DIS and the number of STD cases, and to determine whether the number DIS staff are sufficient. Additionally, recent infectious disease outbreaks demonstrate the significance of knowing if local and state health departments use DIS for public health emergencies.

Methods

From June to August 2016, we used a two-staged sampling process to collect data on the number of DIS working on STD/HIV in all 50 states of the USA and the District of Columbia (DC). We included HIV as well as STD because most health departments have STD programs that are integrated to some extent with HIV. Therefore, it would have been difficult for many health departments to separate STD and HIV activities conducted by DIS. Phase 1 of sampling included STD/HIV program managers in all 50 states and DC. To account for the potential inability of a state health department (SHD) to provide the information requested, we asked the following question: 'Is your health department able to provide, with relative certainty, the total number of STD/HIV DIS positions within your health department?' If the answer was 'No,' a message appeared, letting the respondent know that a sample of local health departments (LHDs) in that state will be contacted. Phase 2 included sampling LHDs for states that could not provide the number of DIS with relative certainty. LHD sampling varied by the number of LHDs in a state: (1) 100% LHDs surveyed if there were 1–19 LHDs in state; (2) 55% of LHDs surveyed if there were 20–44 LHDs in state; and (3) 38% of LHDs surveyed if there were 45 or more LHDs in state.

In an effort to ensure a very high response rate, our survey was limited to only a few key topics. We asked about the number of STD/HIV DIS positions (as full-time equivalents), the number of DIS positions that were currently filled (as an estimate of turnover) and the number of DIS supervisor positions. We also asked whether the number of DIS and DIS supervisor positions was sufficient ('Yes', 'No', 'Don't know'). Finally, we asked if DIS were used for public health emergencies ('Yes', 'No', 'Don't know'). When we used a sample of LHDs as a state estimate, we also included 'varies' or 'some' if some LHDs thought DIS and supervisors were sufficient while others did not. Finally, we obtained state-level data for reported cases of primary and secondary (P&S) syphilis cases in 2016.⁶

For estimates obtained via a sample of LHDs, we calculated state level estimates by extrapolating reported data to other local areas based on jurisdiction size. Data were analysed in Excel and SAS 9.4 (Cary, NC, USA). All descriptive analyses were conducted by USA Census region and consisted of sums and medians. A linear regression model was also used to examine the relationship between the number of DIS positions and the number of P&S syphilis cases. P&S syphilis was used because it is the disease for which DIS are most commonly used in the USA⁴.

Results

We received data from 49 states and Washington, DC (response rate = 98%). Four state health departments could not provide data on the number of DIS with relative certainty; therefore, we conducted surveys of local health departments to obtain estimates of STD/HIV DIS. As of mid-2016, we identified a total of 1610 STD/HIV DIS in the USA with 1361 (85%) of those positions filled. The south had the highest number of STD/HIV DIS positions (752) followed by the west (299), north-east (219) and mid-west (268) (Table 1). The south also had the highest percentage of positions that were currently filled (89%); however, the mid-west had the second highest percentage of filled positions (88%) followed by the north-east (78%) and the west (75%). Not surprisingly, the south also had the highest median number of DIS positions by state with 36 (33 filled). However, in contrast to the number of positions, the mid-west had the second highest median number by state with 20 (16 filled), followed by the west with 11 (9 filled) and north-east with 7 (4 filled). Regarding DIS supervisory positions, we identified a total of 379 with 182 in the south, 95 in the mid-west, 55 in the north-east and 47 in the west. The median number of STI/HIV DIS supervisory positions by state was highest in the south (7) followed by the mid-west (4.5), west (2.5) and north-east (2).

In addition to determining the number of STD/HIV DIS, we also obtained information on whether the number of DIS were sufficient and if DIS were used for public health emergencies. In three USA Census Regions, the majority of states (63.6–66.7%) reported that the number of DIS staff was not sufficient (Table 1). In the mid-west, half of states said the number of DIS staff was not sufficient. However, fewer states reported that the number of DIS supervisors was not sufficient. All health departments in the mid-west thought the number of DIS supervisory staff was sufficient followed by 72.7% of western states, 52.9% of southern states and 33.3% of north-eastern states. Finally, over half (57.2%) of health departments reported that STD/HIV DIS participated in public health emergencies in all or some parts of the state. The majority of states in the west (63.6%) used DIS for public health emergencies and those in the mid-west (66.6%) and north-east (66.7%) used public health emergencies in all or some parts of the state. Only 41.2% of states used DIS for public health emergencies in the south.

Finally, we examined the relationship between the number of DIS positions and the number of P&S syphilis cases. We found that states with more P&S syphilis disease burden had more DIS. The correlation between P&S syphilis cases and the number of DIS was 0.82.

Discussion

We believe that our study is the first to collect and report data on the number of STD/HIV DIS across the USA and by USA Census region. We identified nearly 2000 DIS and DIS supervisors in the USA that conduct important STD/HIV prevention activities; however, a majority of health departments have found that their numbers are not sufficient to meet STD/HIV prevention goals and 10–25% of the positions were unfilled. Additionally, over half of states use DIS for public health emergencies. This is a benefit for disease outbreaks

and other emergencies as existing where knowledgeable staff can be quickly deployed. However, it may negatively impact STD/HIV activities.

Our study has some limitations. We had to use estimates based on local health department responses for four states; however, they were derived and calculated based on a stratified random sample. Although health departments reported whether the number of STD/HIV DIS was sufficient, it would be helpful to have estimates of DIS by STD morbidity by local areas. As our study was conducted at the state-level, we do not have estimates of DIS at the local level. We have attempted to obtain such data in previous surveys; however, the data were inconsistent. Additionally, given decreasing response rates for surveys, we opted to limit survey items so we could rely more on actual data and less on estimates. Finally, P&S syphilis cases are based on cases reported to Centers for Disease Control and Prevention (CDC) and are subject to the limitations of reported data.

Conclusion

The USA has over 1600 DIS and nearly 400 DIS supervisors who aid in vital STD/HIV prevention activities focussed on reducing STD/HIV transmission and assisting with public health emergencies. Although states with higher levels of P&S syphilis have higher numbers of DIS, more DIS are needed to fulfill the goals of STD/HIV prevention. It would be useful to determine if other countries have similar challenges in the number and sufficiency of STD/HIV disease intervention staff. Additionally, information about DIS workload would allow us to better understand DIS how many DIS are needed for STD/HIV prevention.

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Table 1.

Disease intervention staff by USA Region, 2016 (*n*, 50)

	Geographical area (USA Census Region)					Total USA
	North-east	Mid-west	South	West		
Number of DIS positions	291	268	752	299		1610
Number of DIS positions filled	228	236	673	224		1361
DIS positions (median by state)	7	20	36	11		-
DIS positions filled (median by state)	4	16	33	9		-
Number of DIS supervisor positions	55	95	182	47		379
Supervisor positions (median by state)	2	4.5	7	2.5		-
Number of DIS is sufficient (%)						
No	66.7%	50.0%	64.7%	63.6%		61.2%
Yes	11.1%	50.0%	29.4%	9.1%		26.5%
Varies	11.1%	0.0%	5.9%	27.3%		10.2%
Not sure	11.1%	0.0%	0.0%	0.0%		2.0%
Number of DIS supervisors is sufficient (%)						
No	66.7%	0.0%	47.1%	27.3%		34.7%
Yes	33.3%	100.0%	52.9%	72.7%		65.3%
DIS are used for public health emergencies (%)						
No	33.3%	33.3%	52.9%	27.3%		38.8%
Yes	55.6%	58.3%	41.2%	63.6%		53.1%
Some	11.1%	8.3%	0.0%	0.0%		4.1%
Not sure	0.0%	0.0%	5.9%	9.1%		4.1%

DIS, disease intervention specialists (staff who conduct partner services). Responses 'varies' and 'some' represent differences in procedures among local health department in a state