Integration of Partner Notification Services at a Sexually Transmitted Infections Clinic

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ABSTRACT

OBJECTIVES: PNS is critical to prevent the spread of STIs. We evaluated the feasibility of integrating PNS into an STI clinic focused on MSM.

DESIGN/METHODS: The RI STI Clinic, in partnership with the RIDOH, implemented a PNS program in 2019. Interviews with patients diagnosed with gonorrhea/syphilis were conducted. RIDOH attempted outreach to partners identified. We utilized interview data among MSM diagnosed with gonorrhea/syphilis in clinic from 1/1/19–12/31/2021. Bivariate analyses/multivariable logistic regression were conducted.

RESULTS: 341 MSM were diagnosed with gonorrhea/syphilis during the three-year period, and 233 (68%) interviews were completed. Partner information was provided in 173 (74%) interviews. At least one workable partner was provided in 110 (47%) interviews. No statistically significant associations between provision of workable partners and index patient age/race/ethnicity were found.

CONCLUSIONS: PNS at an STI clinic was successful, but challenges led to suboptimal information. Research is needed to identify barriers to integrate/optimize PNS in STI clinics.

KEYWORDS: partner notification services; sexually transmitted infections; partner outreach; LGBTQ health

INTRODUCTION

Partner notification services (PNS) is a critical public health intervention to prevent transmission of sexually transmitted infections (STIs). It is widely accepted for syphilis and gonorrhea and is also recommended for chlamydia when resources allow.[1] PNS is similar to contact tracing approaches used for COVID-19 and other non-STIs. When an individual tests positive for an STI, a trained public health professional interviews them to provide education about the diagnosis, links them to care, and identifies partners who may have been exposed. Partners are then contacted to inform them of their possible exposure and provide education and referrals for testing and care.[2,3]

In the United States, PNS is usually conducted by disease intervention specialists (DIS) at health departments. These public health professionals have training and expertise in contact tracing, case investigation, and health education.[4] PNS could also be integrated into STI clinic settings, and patients may be more comfortable providing information to staff with whom they have an existing relationship for clinical care. Individuals may also be more receptive if engaged at the time of care. However, outcomes of this approach are largely unknown. A small number of studies suggest that programs with embedded DIS in STI clinics have greater index patient engagement, including a higher percentage of index patients interviewed in person on the day of diagnosis, and a larger number of partners elicited from the index patient interviews.[5,6]

We aimed to integrate PNS within an STI clinic and describe the associated outcomes, including identifying index patient interviews that provided partner information and describing factors associated with providing enough information to attempt partner outreach. We focused our analysis on individuals testing positive for gonorrhea and/or syphilis who identify as men who have sex with men (MSM). MSM are disproportionately impacted by STIs, including gonorrhea and syphilis.[7] In 2021 in the US, MSM accounted for almost half of all male syphilis cases and were estimated to account for a third of all gonorrhea cases.[7]

METHODS

Design, setting, and population

The Rhode Island STI Clinic at The Miriam Hospital, in partnership with the Rhode Island Department of Health (RIDOH), implemented a PNS program in January 2019 to address increasing rates of STIs among MSM. MSM represented the majority of gonorrhea and syphilis cases at the clinic. Non-clinical staff offered PNS interviews to all MSM diagnosed with gonorrhea and/or syphilis at the STI clinic. Gonorrhea cases included urethral, oropharyngeal, and rectal infections. PNS interviews were conducted using a standard form that asked about demographics, HIV and STI history, sexual behaviors, questions about HIV pre-exposure prophylaxis (PrEP) knowledge and history of use, and partner information. Outreach by RIDOH was attempted to partners identified in these interviews.

Statistical analysis

Our analysis included cases of gonorrhea and syphilis among MSM diagnosed at the clinic from January 1, 2019 to December 31, 2021. We first identified interviews that

provided any of the following partner information: first or last name; phone number; e-mail; address; Facebook, Instagram, or application screen name; date of birth; or age. We also identified interviews that provided workable partners, which were partners for whom we collected enough information to attempt outreach (at least a phone number or all of the following: first name, last name, and date of birth).

Since individuals could be interviewed more than once during this time period, we used only the first interview for each unique individual for all subsequent analyses of demographics and reported sexual behaviors. Demographics included age, race, and ethnicity. Sexual behaviors included: total number of sexual partners in the past 12 months; frequency of condom use (always, sometimes, never); and lifetime history of injection drug use, incarceration, prior STI, sex with an anonymous partner, meeting a partner on an internet or phone application, sex while intoxicated, sex while high on drugs, and exchanging sex for drugs or money. We used bivariate chi-squared tests and Fisher's exact tests to compare the index patient characteristics between patients who did and did not provide a workable partner, using only the first interview for each unique index patient. For each variable that was significant in bivariate analysis, we fit a separate multivariable logistic regression model adjusted for age, race, and ethnicity of the index patient. Review of data was approved by The Miriam Hospital Institutional Review Board.

RESULTS

Overall, 341 MSM tested positive for gonorrhea and/or syphilis at the STI clinic during the three-year period (56% were diagnosed with gonorrhea only, 37% were diagnosed with syphilis only, and 7% were coinfected with gonorrhea and syphilis). STI clinic staff completed 233 PNS interviews (68%). The most common reasons for not completing an interview included the patient refusing the interview (44%), the patient being missed by STI clinic staff (32%), and clinic staff being unable to contact the patient (18%). Any partner information was provided in 173 (74%) interviews. At least one workable partner was provided in 110 (47%) interviews. Among all partners given, the most common pieces of information provided were age (82%), first name (80%), and last name (46%).

During this period, 20 individuals were interviewed twice by STI clinic staff due to a subsequent positive test eligible for PNS. We included only their first PNS interview for subsequent analyses of demographics and sexual behaviors presented in **Table 1**.

Among these 213 PNS interviews, 21% of index patients were age 18–24 years and 42% were age 25–34 years. Most (69%) identified as White, 17% identified as Black or African American, and 33% identified as Hispanic or Latino. When asked about frequency of condom use, 70% of respondents said they sometimes use condoms, while 7% said they always use condoms and 23% responded that they never use condoms. Additionally, 61% reported ever having sex with an anonymous partner, and 79% reported ever meeting a partner on an internet or phone application.

In bivariate analyses, index patient age, race, and ethnicity were not associated with provision of a workable partner. Notably, the percentage of index patients that reported ever having sex with an anonymous partner was smaller among individuals that provided a workable partner compared to individuals that did not provide a workable partner (52% vs. 69%, p=0.02). Frequency of condom use was also associated with provision of a workable partner (p=0.03). However, logistic regression models for these two variables adjusted for age, race, and ethnicity of the index patient found that neither association remained statistically significant.

DISCUSSION

This was among the first studies to evaluate the integration of a PNS program within an STI clinic setting. Overall, 341 MSM tested positive for gonorrhea and/or syphilis during the three-year period, and 68% completed an interview. STI clinic staff were successful in obtaining partner information, as 74% of all index patient interviews by STI clinic staff resulted in at least one piece of information about at least one partner. However, only 47% provided at least one workable partner. This was notably lower than a previous pilot.[3] Conducting the current program during the COVID-19 pandemic may have contributed to this difference in outcomes.[8,9] Due to the pandemic, the clinic switched from a walk-in clinic to an appointment-only model. Additionally, STI clinic staff had to conduct more PNS interviews over the phone rather than in-person in the clinic. These changes may have affected the number of visits eligible for PNS, as well as the response rate and effectiveness of interviews conducted over the phone. Furthermore, conducting PNS interviews was somewhat of an obstacle, due to patient reluctance to provide partner information, as 44% of patients who were approached refused a PNS interview. This reluctance highlights the need for exploration in future studies.

Integration of PNS in the STI clinic was successful in many respects. We were able to train clinic staff to facilitate PNS interviews within the STI clinic setting, obtain actionable partner information, and establish processes for communicating with the health department and streamlining data transfer for timely reporting. This relieved some of the burden on health department staff. The organizations were also able to coordinate for partner notification, most of which was conducted by RIDOH due to the difficulty STI clinic staff encountered when attempting to contact partners. Having staff trained in PNS directly in the clinic enabled us to engage community members in high-risk groups in conversations about sexual health and behaviors during their PNS interviews. Additionally, the program established infrastructure for these services to be able to continue within the STI clinic in the event that the expertise of DIS at the health department are needed to assist with outbreak responses.

Table 1. Characteristics of PNS interviews among MSM and analysis comparing those that did and did not provide workable partners[1]

Characteristic, n (%)	Total patient interviews (N=213)		Provided at least one workable partner (N=100)		Did not provide any workable partners (N=113)		Bivariate analysis	Logistic regression
	n	%2	n	%2	n	%2	p-value[3]	AOR (95% CI)4
Age (years)							0.38	
18–24	45	21.1	19	19.0	26	23.0		
25–34	90	42.3	44	44.0	46	40.7		
35–44	39	18.3	22	22.0	17	15.0		
45+	39	18.3	15	15.0	24	21.2		
Race[5]							0.42	
White	118	69.0	58	73.4	60	65.2		
Black or African American	29	17.0	14	17.7	15	16.3		
Asian	10	5.8	4	5.1	6	6.5		
Other	5	2.9	1	1.3	4	4.3		
More than one race	9	5.3	2	2.5	7	7.6		
Ethnicity[6]							0.30	
Hispanic or Latino	56	33.1	30	37.0	26	29.5		
Not Hispanic or Latino	113	66.9	51	63.0	62	70.5		
Total sexual partners in past 12 months[7]							0.26	
0–4 partners	91	46.4	49	50.5	42	42.4		
5+ partners	105	53.6	48	49.5	57	57.6		
Frequency of condom use[8]							0.03	
Always	13	7.0	9	9.7	4	4.3		Reference
Sometimes	131	70.1	57	61.3	74	78.7		0.17 (0.02, 1.88)
Never	43	23.0	27	29.0	16	17.0		0.38 (0.03, 4.54)
Lifetime behavioral history (ever/never)								
Injection drug use[9]	11	5.7	7	7.2	4	4.2	0.36	
Incarceration10	6	3.2	3	3.2	3	3.3	1.0	
Prior STI11	142	69.3	66	69.5	76	69.1	0.95	
Sex with anonymous partner[9]	117	60.6	49	52.1	68	68.7	0.02	0.68 (0.31, 1.50)
Met partners on internet/phone application[12]	149	78.8	74	77.9	75	79.8	0.75	
Sex while intoxicated[13]	89	46.6	42	43.3	47	50.0	0.35	
Sex while high on drugs[14]	54	28.4	25	25.8	29	31.2	0.41	
Exchanged sex for drugs/money[13]	6	3.1	3	3.1	3	3.2	1.0	

*Data presented in this table represent only the first PNS interview for each unique individual;

[2] % among non-missing responses;

[3] Chi-squared test p-value reported, or Fisher's exact test used for variables with small expected cell counts <5;

[4] Model 1 included frequency of condom use, adjusted for age, race, and ethnicity; N=115 included after removing unknown/declined to respond.
Model 2 included sex with anonymous partner (ever), adjusted for age, race, and ethnicity; N=119 included after removing unknown/declined to respond;

[5,6] Excludes 42 and 44 unknown/declined, respectively;

[7,8] Excludes 17 and 26 unknown/declined, respectively;

[9,10] Excludes 20 and 28 unknown/declined, respectively;

[11,12] Excludes 8 and 24 unknown/declined, respectively;[1]

[3,14] Excludes 22 and 23 unknown/declined, respectively.

SUMMARY

In summary, integrating PNS at an STI clinic allowed clinic staff to engage a high-risk population in conversations about sexual health and obtain actionable partner information. We did not find any demographics or risk behaviors associated with whether index patient interviews resulted in a workable partner. All patients testing positive should be engaged in PNS as an opportunity to discuss sexual health, incorporate other public health interventions (e.g., PrEP), and educate about the importance of partner outreach to prevent the spread of STIs.

Take-away Points

What is already known on this topic: Partner notification services (PNS) is critical to prevent the spread of sexually transmitted infections (STIs). However, outcomes associated with integrating PNS at STI clinics have not been well described.

What this study adds: Integrating PNS at an STI clinic was effective in training clinic staff to facilitate interviews with index patients, obtaining actionable partner information, offering referrals and linkage to care, and coordinating with the health department for partner outreach. In our program, any partner information was provided in 74% of index patient interviews, and at least one workable partner was provided in 47% of interviews.

How this study might affect research, practice, or policy: PNS programs integrated within an STI clinic offer an opportunity to engage high-risk populations in conversations about sexual health, provide referrals to care, and facilitate partner outreach. However, research is needed, as challenges remain in obtaining workable partners for many index patients.

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