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Acceptability and Feasibility of Self-Sampling for Sexually Transmitted Infection Screening in Cabana Privacy Shelters

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Abstract

Screening for sexually transmitted infection (STI) outside of traditional health care facilities is limited by privacy needed for sample collection. We explored acceptability of privacy shelters for self-collection of genital swabs and tested the use of privacy shelters during mobile STI screening. Attendees 14 years old at 2 outdoor community events completed a questionnaire assessing participant characteristics, health care access, and rating of acceptability of self-collecting penile or vaginal swabs in a privacy shelter and 4 other private spaces: portable restroom, health van, home, and doctor's office. A privacy shelter was used during mobile STI screening. The majority (65%) of 95 participants reported using a privacy shelter was somewhat or very acceptable. No participant characteristics or health care access factors were associated with the acceptability of privacy shelters. Women rated privacy shelter more acceptable than a portable restroom or health van. Men rated privacy shelter more acceptable than portable restroom. During mobile STI screening, all 13 men and women who requested STI testing used the privacy shelter for self-sampling. Rating of acceptability before and after privacy shelter use was the same. Privacy shelters may enable STI screening without using a building or vehicle for sample collection.

Keywords

Chlamydia; gonorrhea; screening; mobile health units; sexually transmitted infections; men; women; diagnosis; specimen handling; point of care

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Conflicts of Interest

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Introduction

Offering screening for sexually transmitted infections (STIs) in nontraditional mobile health care settings is an established practice to reduce the individual and public health burden of STIs and has been shown to increase patient access to recommended health care.^{1–3} Current diagnostic tests for Chlamydia (CT), gonorrhea (GC), and trichomoniasis (TV) require urine or samples of the genital area. Obtaining these samples, therefore, requires private spaces. Mobile STI screening programs have previously accessed private space for sample collection by using recreational vehicles (RVs) or other vehicles converted to provide medical services (i.e., health vans) or rooms in community centers, schools, churches, brothels, or bars.^{1–5} However, the need for privacy to collect genital samples for laboratory testing for CT/GC/TV has limited the impact of mobile screening programs.^{1–9} In order to develop a mobile screening program that does not require a building, vehicle, or bathroom, we assessed the acceptability of and tested the use of privacy shelters; tall, tent-like structures or cabanas designed for standing and sitting in privacy; as a location for self-collection of genital samples among attendees at community events.

Methods

This cross-sectional study assessed acceptability of privacy shelters to self-collect genital samples among attendees at outdoor community events who were 14 years old and who approached an STI and birth control education booth. It also tested the use of privacy shelters among community event attendees 14 years old who requested STI screening. This study was approved by the Cincinnati Children's Hospital Medical Center Institutional Review Board. Completion of the questionnaires served as consent. Parental consent for minors was waived.

To assess the acceptability of self-collection of genital samples in privacy shelters, completion of a paper-pencil questionnaire was offered by study staff to eligible individuals. The choice of items on the acceptability questionnaire was informed by expert opinion and literature review and were drawn from previous study items modified for use with privacy shelters.^{5, 10} Members of the study and clinical teams reviewed questionnaires for face validity, readability, and understandability. Measures included participant age, gender (option responses were based on terminology being used in the community and included male, female, genderqueer, transgender male-to-female, transgender female-to-male, other), race/ethnicity, type of insurance, and measures of access to and utilization of health care (e.g., having a regular health care provider, frequency of CT testing). Acceptability of self-sampling in a privacy shelter and four other types of private spaces: portable restroom (e.g., Porta Potty®), bathroom in a health van/RV, home, and doctor's office was assessed with the following item: "How acceptable or unacceptable is it for you to collect a vaginal or penile swab sample to test for sexually transmitted infections in the following places?", "Privacy shelter (like the one in the picture)", "Porta Potty®", "bathroom on an RV", "doctor's office", "at home (and send the sample in a package to get tested by a doctor)". Acceptability was rated using a 5-point Likert-like scale ranging from very unacceptable (1) to very acceptable (5).

To test the use of privacy shelters, mobile STI screening with privacy shelters available for sample collection was offered at two community events in 2015: Gay Pride and Black Family Reunion. The Black Family Reunion is a regional, family focused, outdoor event celebrating African American culture with music, arts, and booths representing community organizations. Both events were held at the same venue on different dates.

CT/GC/TV screening was offered free to all attendees, regardless of their participation in this study. STI and birth control information and CT/GC/TV screening were offered from a vendor booth staffed by physician volunteers and study personnel. Privacy shelters were set up next to the vendor booth. Self-sampling instructions were posted inside the shelters. A small table with hand sanitizer was placed inside the privacy shelters. Attendees who chose to receive CT/GC/TV testing were provided verbal and written instructions for self-collection of vaginal or penile samples. They were offered the privacy shelter, a nearby public restroom, or any other location in which to self-collect penile or vaginal swab samples. Returned samples were stored in a cooler, then frozen and shipped to Johns Hopkins University for NAAT CT/GC/TV testing in a laboratory that has validated testing of self-collected sample obtained outside of the clinical setting.

Participants using the privacy shelter were offered to complete pre- and post-use questionnaires in order to assess acceptability of and solicit feedback about using the privacy shelter. Items on the pre-use questionnaire were identical to items on the acceptability questionnaire. The post-test questionnaire included the item to assess the acceptability of self-sampling within a privacy shelter as well as participants' perceived safety, privacy, and comfort using the privacy shelter; cleanliness, climate control and ventilation while collecting samples in the privacy shelter; whether directions were easy to follow; and perceived self-consciousness and ease of use while entering and leaving the privacy shelter. Response options incorporated a 5-point Likert-like scale ranging from strongly disagree (1) to strongly agree (5).

Descriptive statistics were generated for responses to items on each questionnaire. Responses were categorized. The primary outcome measure was the acceptability of STI self-sampling in privacy shelters. Associations between the acceptability of self-sampling in privacy shelters and participant characteristics were explored; differences were tested for significance using the χ^2 test. Comparison between the use of privacy shelters and other locations was tested for significant differences using the nonparametric Friedman statistic. Using responses from the pre-use and post-use questionnaires, differences in the reported acceptability of self-sampling in the privacy shelter before and after use were tested for significance with the McNemar test. Data were analyzed with SPSS, version 19.0 (IBM Analytics).

Results

Ninety-five participants completed the acceptability questionnaire. The majority (61%) were female, 45% were 25 years old, almost one-third (30%) did not have or were not sure if they had medical insurance, and 58% had not received CT screening in the past year (Table 1). A majority of women (n=39, 67%) and men (n=16, 62%) reported self-sampling in a

privacy shelter to be somewhat or very acceptable. Table 1 shows the proportions of participants in each category reporting self-sampling in a privacy shelter as somewhat or very acceptable. No participant characteristics were associated with the acceptability of STI self-sampling in a privacy shelter, including age, gender, race, insurance type, having a regular health care provider, or CT testing in the past year.

Among those completing the acceptability questionnaire, Table 2 shows the distribution of responses regarding the acceptability of obtaining vaginal or penile self-samples in 5 types of private spaces: privacy shelter, portable restroom (e.g., Porta Potty®), bathroom on a health van/RV, home, and doctor's office. Comparison of ratings of acceptability of other types of private spaces to privacy shelters is also shown in Table 2. Among women, self-collection of vaginal samples in a privacy shelter was rated more acceptable than in a portable restroom ($p = 0.001$) or health van/RV bathroom ($p = 0.06$) but less acceptable than in a doctor's office ($p < 0.001$) or at home ($p = 0.001$). Among men, self-collecting penile samples in a privacy shelter was rated more acceptable than in a portable restroom ($p = 0.02$) but less acceptable than in a doctor's office ($p = 0.001$) or at home ($p = 0.01$). Men provided the same rating for self-sampling in a privacy shelter and a health van/RV bathroom ($p = 0.53$).

When mobile STI screening was offered, a total of 13 people chose to get tested. All chose the privacy shelter for self-sampling. One man was positive for CT, and 1 man was positive for TV (15% positive for an STI). Among those who completed the pre-use and post-use questionnaires ($n = 13$), the acceptability of self-sampling in a privacy shelter was rated the same both before and after use of the shelter ($p = > 0.99$). The majority of users reported no self-consciousness when entering or exiting the shelter; that it was easy to use, clean, safe, comfortable, and private; and that it was hot but well ventilated.

Discussion

The results of this study demonstrate that cabana privacy shelters are an acceptable location to self-collect vaginal or penile samples for STI testing in a mobile screening program. We demonstrated the successful use of privacy shelters as part of a mobile STI screening program. Use of the privacy shelters allowed our program to provide CT/GC/TV screening without immediate access to running water, bathroom facilities, a vehicle, or a building.

Age, race, gender, type of insurance, and history of CT testing in the past year were not associated with the acceptability of privacy shelters for self-sampling. Women reported using privacy shelters as more acceptable than portable restrooms and health van/RV bathrooms, and men reported use of privacy shelters as more acceptable than portable restrooms.

Privacy shelters were chosen for sample collection by each community event attendee who requested STI testing. Participant rating of acceptability of privacy shelter did not change after experience using the privacy shelter. Therefore, other mobile STI screening programs may successfully adopt privacy shelters as a location for sample collection.

For groups considering the use of privacy shelter, consideration of the design is important. We attempted to use two privacy shelter designs. The first design was a commercially available cabana privacy shelter (Stansport, Los Angeles, CA). The second was a cabana with a frame constructed from polyvinyl chloride (PVC) pipe that used curtains as siding.¹¹ It was not stable in the windy conditions present when the mobile screening was being offered and, therefore, was not used. The commercially available privacy shelter did withstand unexpected winds. Design features of an optimal genital specimen collecting cabana include being portable, e.g., light-weight, easy to store, easy and quick to set up, tear down; comfortable for people to be partially undressed inside during summer, winter and rainy seasons; easy to enter and exit while holding specimen collection materials; spacious enough to put materials down; offering complete privacy, including having opaque walls; having enough light to see instructions; able to be cleaned.

Mobile STI screening programs considering the use of privacy shelters may continue to be limited by a lack of availability of accurate, Clinical Laboratory Improvement Amendments (CLIA)-waived, point-of-care CT/GC diagnostic tests using self-collected genital samples. Without on-site testing, programs will continue to incur the costs of transporting samples to a laboratory and delays in obtaining results. Additionally, currently available laboratory tests for CT/GC are cleared for self-collected vaginal samples obtained in clinical settings and for male urine samples.¹² However, performance and acceptability of self-collecting genital samples are high.^{9, 13–20} Women report self-collection of vaginal samples to be easy and convenient, both in the clinical setting and at home and women are likely to choose self-collected vaginal swabs over sample collection during a pelvic exam.^{13–15, 20} Reports comparing self-collected penile swabs to first catch urine collected at home or in the clinic have shown self-collected penile swabs performance is equal to or better than first catch urine.^{16, 17} A recent comparison of self-collected glans/meatal dry swabs, clinician-collected urethral swabs, and first catch urine for CT/GC testing showed that self-collected glans/meatal dry specimens had a high agreement with clinician collected specimens and sensitivity and specificity adequate for use in screening programs.⁹ Men who self-collected penile swabs at home or in clinic reported self-collected penile swabs were easy to collect.^{17–19}

A potential limitation of our study includes the small number of privacy shelter users. However, the total number of people tested was similar to previous screening events using a bathroom on an RV for sample collection, that had more staff and offered testing for a longer period of time.⁵ Additionally, although reporting the costs and participation rates associated with mobile screening is critical for program evaluation,^{1, 4} costs and participation rates were not measured in this study due to lack of resources; our aims were to assess a tool, the privacy shelter, to use within a screening program and not the program itself.

Privacy shelter use offers a unique and acceptable method for sample collection that may increase the feasibility of mobile STI screening programs. Their use may expand access to STI screening by increasing the variety of locations where such screening can be offered. Privacy shelters are portable and less expensive to obtain and maintain than health vans, thus have the potential to decrease start-up and maintenance costs associated with mobile screening programs.

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Table 1

Participant Characteristics and Proportions of Participants (N=95) Reporting Self-Sampling in a Privacy Shelter as Somewhat or Very Acceptable

Characteristic	<i>n</i> (%)	Proportion Reporting Privacy Shelter as Acceptable, % ^A	<i>p</i> -value ^B
Age, y			
14–18	12 (13)	75	.47
19–25	30 (32)	73	
26–40	23 (24)	57	
41–66	30 (32)	60	
Gender			
Female	58 (61)	67	.88
Male	29 (31)	62	
Transgender, genderqueer, other	8 (8)	63	
Race			
White	49 (52)	55	.10
Black	31 (33)	77	
Multiracial/other	15 (16)	73	
Insurance type (N=94)			.18
Private	43 (46)	56	
None/not sure	28 (30)	68	
Public	23 (24)	78	
Has a regular health care provider	67 (71)	63	.42
No Chlamydia testing in past year (N=93) ^C	54 (58)	70	.17

^A Proportion of participants reporting that collecting a vaginal or penile swab sample to test for sexually transmitted infections in a privacy shelter was somewhat acceptable or very acceptable.

^B χ^2 test.

^C Also includes Chlamydia testing more than 1 year ago, never been tested, and don't know.

Acceptability of Genital Self-Sampling in Different Private Spaces Among Women and Men and Comparison of Acceptability of Different Private Spaces to Privacy Shelter.

Table 2

	Privacy Shelter, %	Portable Restroom, %	Health van/RV, %	Doctor's office, %	Home, %
Women, n=60 ^A	N=58	N=58	N=55	N=60	N=58
Very acceptable	52	10	35	93	86
Somewhat acceptable	16	2	9	2	7
Neither acceptable nor unacceptable	7	17	13	3	5
Somewhat unacceptable	24	29	33	0	2
Very unacceptable	2	41	11	2	2
p-value ^B		<.001	.06	<.001	.001
Men, n=29 ^A	N=29	N=28	N=28	N=27	N=28
Very acceptable	55	32	61	89	71
Somewhat acceptable	7	0	4	0	4
Neither acceptable nor unacceptable	0	14	7	4	7
Somewhat unacceptable	21	25	14	7	18
Very unacceptable	17	29	14	0	0
p-value ^B		.02	.53	.001	.01

^ASome participants did not respond to all items; N = number of participants providing a response to each item. Only responses from male and female were included in analyses due to small sample sizes in transgender, genderqueer and other categories.

^BFriedman statistic comparing the rank of acceptability of a privacy shelter to other private locations.