

Rhode Island Disease Intervention Specialist (DIS) Community Assessment Project

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CONTENTS

PROJECT TEAM	1
ACKNOWLEDGEMENTS	2
Funding	2
Disclaimer	2
CONTENTS	3
EXECUTIVE SUMMARY	5
Key findings	5
Recommendations	7
SUMMARY OF RECOMMENDATIONS	8
INTRODUCTION	10
<i>The Rhode Island context</i>	10
<i>Project objectives</i>	11
METHODS	12
<i>Project design</i>	12
<i>Assessment oversight</i>	12
<i>Phase 1: Evidence map</i>	12
Article identification	12
Article eligibility and screening process	13
Data extraction	13
<i>Phases 2-3: Qualitative data collection and analysis</i>	13
Stakeholder interviews	13
Semi-structured participant interviews	14
Qualitative data analysis	14
RESULTS	16
Evidence Map	16
Article identification	16
Article screening, full-text review, and data extraction	16
Article characteristics	16



Table 1. Characteristics of included articles summarizing DIS approaches for HIV and other STIs in the US (N=42)	17
Potential points of innovation	18
Table 2. Potential innovation points in the DIS process discussed in the reviewed articles	23
Key recommendations for DIS innovations and evaluations	24
Key informant interviews	26
Stakeholder demographics	26
Participant interviews	31
Project limitations	40
NEXT STEPS	42
APPENDICES	45
Appendix A: Electronic Database Search	45
Appendix B: Qualtrics Systematic Data Extraction Dimensions	46
Appendix C: Engaging in Partner Notification Services: Capital Assessment Tool	48
Appendix D: Existing RIDOH resources	51
REFERENCES	53





EXECUTIVE SUMMARY

Rhode Island has experienced an ongoing and increasing burden of HIV and other sexually transmitted infections (STIs), with young gay, bisexual, and other men who have sex with men (GBMSM) accounting for 83% of new HIV diagnoses in 2021. During this period, GBMSM were also disproportionately affected by syphilis, particularly young GBMSM of color ages 20 to 29 years. While the Rhode Island Department of Health (RIDOH) offers DIS services, ongoing increases in STI rates among young GBMSM underscore a need to understand the effectiveness, gaps, and needs of current DIS services in the state to better meet populations' diverse needs.

The purpose of this evaluation was to provide a comprehensive overview of DIS approaches utilized across the United States; improve health and ancillary systems to maximize linkages to sexual health services for GBMSM in Rhode Island; and to describe community-specific needs to inform DIS approaches for GBMSM in the state.

Key findings



Evidence map

A total of 42 articles summarizing studies of existing or promising DIS approaches, services, or policies for HIV and/or other STIs in the US and published in the past five years were reviewed to identify potential points of innovation. The vast majority of articles focused on HIV specifically, and the greatest number of articles focused on either GBMSM or the general population of people newly diagnosed with HIV or an STI. Potential points of innovation were noted throughout the DIS process, including who you reach out to (e.g., broader sexual networks, peers), who reaches out (e.g., clinic staff, continuity of staff), how you reach out (e.g., new technology), what you discuss and offer (e.g., referral to same-day and/or telehealth PrEP, social services), and partner organizations involved (e.g., clinics, community-based organizations).

Three overarching recommendations were identified to help improve health outcomes, prevent ongoing disease transmission, and best meet the needs of patients and their partners. First, there is a need to identify patient and partner preferences for DIS services. Qualitative interviews to identify the preferences of people receiving DIS services, especially among priority populations (e.g., young GBMSM, GBMSM of color), may allow health departments and partner organizations to tailor services and meet people's needs more effectively. Second, optimizing referrals to partner organizations may improve access to services. For example, clinic-embedded DIS, patient navigators partnered with DIS, and warm handoffs may help streamline the referral process and improve continuity of care. Third, modernization of the technology used in DIS work (e.g., automated data pipelines, novel data types, evolving communication methods) provides key opportunities to optimize the allocation of limited DIS resources and improve communication with patients and their partners.





Key stakeholder interviews

A total of 10 stakeholder interviews were conducted across four state health departments and one federal agency. Stakeholder interviews underscored how DIS programs are underfunded and underresourced, impacting their programming. As a result, most stakeholders did not engage in partner notification services for GBMSM, with the exception of HIV, despite increasing STI rates for these populations. Additionally, almost all stakeholders described structural barriers impacting GBMSM and STI testing engagement (e.g., insurance, transportation gaps) that needed to be addressed to better address STI rates among these populations.

Innovations for DIS programming included being embedded within clinics and/or co-located in community settings to improve contact with individuals and connect them with care. Increased DIS visibility also improved rapport between DIS and communities. Limited interventions were mentioned specific to young GBMSM. However, some stakeholders underscored the need to empower young GBMSM and offer flexible options (e.g., texting vs. phone calls, templates for reaching out to partners). Others described tailored outreach in the community to try to reach populations experiencing elevated STI incidence, but funding constraints also impacted this at times.

Interviews with GBMSM

A total of 20 in-depth interviews were conducted with GBMSM in Rhode Island. Participants described significant social and structural barriers to STI testing that impacted regular engagement, including: insurance barriers, transportation, uncertainty around testing locations, lack of flexible testing options, and fear of stigma. However, facilitators to regular testing included: testing being offered in non-judgemental services (especially LGBTQ-focused services), rapid and incentivized testing, and having existing relationships with testing programs.

Almost all participants preferred receiving their test results in person, which would allow them to also get any medication required simultaneously. This was also important for participants with irregular phone access. Few participants had any prior knowledge of DIS or RIDOH involvement with positive test results, with providers largely recommending participants inform partners themselves. Many participants had self-notified partners before, typically via phone call. However, some were open to DIS involvement and support in partner notification. Anonymous partner notification was seen as more complex. Instead of prioritizing anonymous partner notification, participants underscored the need to encourage regular testing and normalizing conversations about recent test results with anonymous partners to reduce potential STI risk. A few participants had notified anonymous partners via apps of positive results, and others were open to this should they have a positive test result.

A key gap identified by participants was significant limitations to existing sexual health information. Streamlined resources on sexual health education (e.g., STI symptoms, prevention approaches, STI transmission), testing (e.g., frequency, location, insurance coverage), and





broader health care information that could easily be found was identified as a critical need that would improve engagement in testing and prevention services.

Recommendations

Based on findings from this evaluation, we recommend that RIDOH develop a strategic plan to improve access to flexible and free STI testing that is tailored for a range of GBMSM populations. We also recommend that a centralized resource hub of sexual health information be developed and maintained with up-to-date information about STI prevention and treatment, testing, and sexual health resources that are easy to find and understand. We recommend that existing websites for booking STI testing online (e.g., testing123ri.org) be expanded to include more comprehensive information on costs related to testing and testing frequency recommendations and accessible through a centralized hub that includes other information related to STI testing and sexual health services. Lastly, we recommend that RIDOH strengthen and extend its community partnerships to better integrate DIS within community and clinic settings and improve knowledge of DIS resources across populations who may have a greater need for additional support.





SUMMARY OF RECOMMENDATIONS

- 1. Modify testing service approaches to increase flexibility and regular engagement.** This should include expanding testing locations (e.g., at-home testing, non-clinic settings), increased rapid STI testing to include a range of STIs, flexible testing hours, incentivized testing, and walk-in/same-day testing. Modifying existing online scheduling platforms (testing123ri.com) to include detailed information on testing locations and costs (including estimated costs, insurances accepted, hours of operation) and co-locating online scheduling with broader sexual health resources online is important. Disseminating this information widely is critical to maximizing reach and engagement. Expanding access and supporting individuals in developing and maintaining regular proactive testing engagement may also reduce STI rates.
- 2. Utilize multiple approaches to normalize STI testing and increase testing uptake.** To reach a variety of populations, sexual health and testing information needs to be delivered across a range of modalities, including technology and app-based services, peer networks, and community-based in-person services. Avoid framing testing in relation to ‘risk’ and use a prevention framework (e.g., “To keep you and your partners healthy, we recommend testing every three months”) instead to normalize testing across populations. Incentivized testing and incentivized treatment engagement following a positive result are also important for supporting marginalized populations.
- 3. Work with peers to support access to STI testing and sexual health information.** Utilization of peer networks, including word-of-mouth and peer navigators, across diverse settings (e.g., harm reduction, drag events, university settings) can facilitate engagement in testing and STI prevention. This is particularly important for populations with varying levels of trust in existing services, and individuals who have faced barriers to navigating healthcare resources.
- 4. Strengthen community partner relationships to reach target populations.** Working with diverse community organizations that support target populations is important to expand STI testing and engagement in care and sexual health information across populations. This should include a diverse set of community organizations and partners, including partners outside of traditional health and ancillary services (e.g., drag community, harm reduction organizations, sex worker organizations, bars and clubs) to increase reach and engagement across populations.
- 5. Increase transparency and communication regarding DIS services across sectors.** Publicizing services provided by DIS (e.g., connections to health and ancillary services, rides to appointments) is critical and should be paired with a ‘rebranding’ of DIS away from STI surveillance to focus more on DIS as a support system available for people in the state. Tailoring communication (e.g., online, print, word-of-mouth) to target audiences will be





critical to expanding access to information for diverse populations. Dedicated outreach on DIS services and supports to clinicians and other service providers who provide STI testing, as well as disseminating information through community partners, may reach individuals who could benefit most.

6. **Expand provider engagement and education on best practices for supporting GBMSM following STI testing.** Targeted training of providers across clinic settings (e.g., via academic detailing) is important for addressing gaps in STI testing and follow-up. This includes training providers on how to have conversations with patients about sexual health, testing recommendations, and prevention approaches. Ensuring individuals who test positive know of DIS resources, including partner notification supports, is important. Educating providers on how to share these resources with patients may improve partner notification and supports for patients.
7. **Streamline sexual health information in a central location to improve access.** Including online and print materials will be important to reach multiple populations. Information should also include prevention and testing information, cost of services (including insurance coverage), and available supports following positive test(s). Transparent and comprehensive information, including infographics and other visuals, are important for addressing gaps in sexual health information.
8. **Redefine metrics of success to include provider and DIS activities, as well as engagement with resources.** Metrics of 'success' should include activities at the provider-level, including connections to care and connection to DIS, in addition to health outcomes.
9. **GBMSM from across priority groups should be meaningfully included in sexual health and DIS modification processes.** Feedback from the Community Advisory Board underscored the importance of including GBMSM in STI and sexual health information planning and dissemination to ensure it reaches a wide range of audiences.





INTRODUCTION

HIV and other sexually transmitted infections (STIs) (e.g., gonorrhea, syphilis) continue to pose a significant public health burden in the United States (US), with gay, bisexual, and other men who have sex with men (GBMSM) disproportionately impacted by growing STI rates (1). Although GBMSM represent approximately 5% of the total US population, they accounted for 67% of new HIV diagnoses and 47% of new primary and secondary syphilis cases in 2021 (2,3). Further, STI rates have magnified racial disparities in health outcomes, with Black and Hispanic populations experiencing 69% of new STIs in 2021 (1,2). Given the increased rates, prevention, diagnosis, and treatment of HIV and other STIs, especially syphilis, remains a high priority for state and local health departments (1).

Partner notification services are recommended by the Centers for Disease Control and Prevention as one of the most effective public health interventions to address the transmission of HIV and other STIs (4,5). Disease intervention specialists (DIS)—public health specialists often employed by health departments—serve as key personnel within partner notification services. DIS personnel connect with index patients to identify prior sexual partners and subsequently notify these individuals of potential exposure to STIs, with the overarching goals of preventing disease transmission through social and sexual networks and connecting people to health services. Despite the utility of partner notification services, significant barriers remain to effectively reaching index cases and contacting sexual partners. Identifying areas for improving these services is critical for reducing the transmission of HIV and other STIs among GBMSM.

The Rhode Island context

Mirroring national trends, Rhode Island has experienced an ongoing and increasing burden of HIV and other STIs, with young GBMSM accounting for 83% of new HIV diagnoses in 2021 (6). During this period, GBMSM were also disproportionately affected by syphilis, particularly young GBMSM of color ages 20 to 29 years (6). The Rhode Island Department of Health (RIDOH) offers DIS services in alignment with CDC recommendations (7). Although 80% of people diagnosed with syphilis are reached by DIS nationally, only 63% of those interviewed named a sexual partner (8). It was estimated that about 80% of sexual partners are unreported or unnamed by index patients, and, out of the named partners, approximately 78% to 85% are not reached by DIS (8). Common challenges include being unable to reach index patients, receiving no or limited information on their sexual partners, and limited uptake of testing and other prevention services among sexual partners (9).

In Rhode Island, rates of HIV and other STIs, including syphilis, have continued to impact Black and Hispanic/Latino populations at disparate rates compared to white populations (10). These





inequities disproportionately impact young GBMSM of color in our state. Due to the growing rates of STIs and HIV risk among young GBMSM of color in Rhode Island, there is a need to understand the effectiveness, gaps, and needs of current DIS services in Rhode Island.

Nationally and in Rhode Island, innovative DIS approaches are thus urgently needed to improve health outcomes, prevent ongoing disease transmission, and best meet the needs of patients and their partners. In this context, an evidence map, key stakeholder interviews with members of state health departments, and in-depth interviews with GBMSM were conducted to identify existing and emerging DIS approaches for HIV and other STIs in the US.

The overarching goal of this assessment is to improve DIS outcomes and linkages to care among groups at high risk for HIV and syphilis in Rhode Island, given the ongoing and increasing burden of these infections in the state. In particular, we aim to focus on young GBMSM of color, given their disproportionate representation in HIV and syphilis rates across Rhode Island.

Project objectives

The objectives of this community assessment project were to understand the effectiveness, gaps, and needs of current DIS services in Rhode Island. The three main objectives were to:

1. Provide a comprehensive overview of traditional and novel DIS approaches being utilized across the US;
2. Improve health and ancillary service systems to maximize linkages to sexual health services and care for GBMSM in Rhode Island; and
3. Describe community-specific needs to inform DIS approaches and improve DIS-related outcomes for GBMSM in Rhode Island.





METHODS

Project design

This community-engaged assessment project sought to document the perspectives of GBMSM and health department personnel on DIS services, gaps, and recommendations to improve connections to care in Rhode Island. The overall project was conducted from May 2023 until February 2024. All project activities involving human subjects were approved by the Brown University Institutional Review Board.

The assessment was multi-phased. Phase one included a review of the existing literature on DIS services and partner notification services to develop an evidence map of best practices, innovations, and ongoing gaps. In phase two, key stakeholders from across US health departments were interviewed to understand current programming and recent innovations, and to identify gaps in their local DIS programs and programs more broadly. The third phase of the project included semi-structured interviews with young GBMSM on their prior experiences with—or perceptions of—DIS services so as to improve tailored programming and effectiveness.

Assessment oversight

Oversight was provided by a project community advisory board (CAB) formed in 2023. The CAB was composed of seven representatives from health and ancillary service organizations, community organizations, as well as people with living experiences similar to the project population. Members of the project team developed a list of potential organizations in RI to reach out to for CAB representation. Emails were then sent by project team members to members of the organization's leadership to discuss the evaluation and offer a CAB position. Additional outreach efforts included reaching out to professional networks of project team members for an introduction to community partner organizations. Once established, the CAB met bi-monthly and provided feedback on project materials, recruitment approaches, gaps and recommendations, and on preliminary analyses. All CAB members were compensated for their expertise and time.

Phase 1: Evidence map

Article identification

Articles related to DIS approaches for HIV and other STIs in the US were identified through a systematic search of the peer-reviewed literature. A list of search terms was assembled based on prior investigator knowledge, familiarity with existing literature, and PubMed Medical Subject





Headings. On April 6, 2023, database searches of PubMed, CINAHL, APA PsychInfo, and SocINDEX were conducted using search terms related to DIS, partner notification services, contact tracing, field services, HIV, and each notifiable STI. Where possible, filters were applied to limit the search results to articles published since April 1, 2018 (i.e., within the past five years), written in English, focused on humans, and conducted within the US. The full search syntax used is available in **Appendix A**. Of note, EMBASE was not included in the search due to resource constraints and the project's focus on partner notification services in the US.

Article eligibility and screening process

Search results were screened through a review of the article title and abstract. Eligible articles were required to meet the following inclusion criteria: (1) studied or evaluated an existing or promising DIS approach, service, or policy; (2) focused on HIV, syphilis, gonorrhea, chlamydia, or chancroid in humans; (3) was conducted in the US; (4) was written in English; and (5) was published on or after April 1, 2018. For each article screened, the following information was recorded in a spreadsheet: name of the first author; publication date; title; whether it was a duplicate result; final eligibility determination; and, if not eligible, the inclusion criteria that were not met.

Data extraction

The full text was reviewed for all articles meeting the eligibility criteria during screening. During the full-text review, select information was systematically extracted using a structured data entry form in Qualtrics. Information extracted included the first author, publication date, title, publication type, jurisdiction, applicable infections, focal populations, organization types directly involved in providing DIS services, DIS models discussed, services provided to index patients, services provided to partners, staffing of the DIS model, primary relevant results of the evaluation, and noted strengths and limitations of the DIS model. The complete data entry form is available in **Appendix B**. Articles that were determined to be ineligible during the full-text review were excluded. Additional citations from reviewed articles that were expected to meet the inclusion criteria but that did not appear in the systematic database searches were noted for further review, if necessary.

Phases 2-3: Qualitative data collection and analysis

Stakeholder interviews

A total of 10 key stakeholder interviews were conducted with members of four state health departments across the US (n=8) and one federal agency (n=2). Two additional departments of health were emailed for participation with no response. However, data collection was ended after 10 interviews due to thematic saturation.





Stakeholder interviews were facilitated by mPI Collins using a stakeholder interview guide developed and refined by the project team with input from collaborative project partners. Topics included: implementation of DIS and partner notification services; variations in DIS processes across STIs; barriers and facilitators to DIS engagement; and innovations in programming. Participants were recruited using an email script and were able to reach out to the project team for more information about the project prior to scheduling their interview. Stakeholder interviews were conducted virtually using Zoom, where they were audio recorded and transcribed verbatim by a professional transcription company. Interviews lasted 30-45 minutes. Stakeholders were not compensated for their time as individuals employed by state health departments are not typically allowed to accept compensation for work-related meetings.

Semi-structured participant interviews

Semi-structured interviews were also conducted with 20 GBMSM in Rhode Island from September 2023 to February 2024. All interviews were conducted by two project team members trained in qualitative research methods (CM, KD), with oversight provided by mPI Collins. Potential participants were recruited through community outreach efforts (e.g., canvassing at local LGBTQ-centered bars and retail stores, word-of-mouth), digital recruitment approaches (e.g., listservs, social app advertisements), and referrals by the CAB. Interested individuals were invited to call or text the project phone to be screened for eligibility and book an interview appointment. Participants were eligible if they were 18-34 years of age; self-identified as gay, bisexual, or other men who have sex with men; self-reported having at least two sexual partners in the prior 30 days; and were able to conduct an interview in English.

Interviews took place in community settings (e.g., private room in drop-in centers) or in a private office at the Brown University School of Public Health or the People, Place & Health Collective field office. Interviews were facilitated using a topic guide developed by project team members with input provided by community partners and the CAB.

Interviews averaged 45 minutes in length, were audio-recorded, and were transcribed by a professional transcription company. Each transcript was reviewed for accuracy by mPI Collins and project team members (CM, KD). All participants received a \$40 honorarium as compensation for their time. An online pseudonym generator was used to assign each participant a pseudonym.

Qualitative data analysis

Participant and key stakeholder interview transcripts were uploaded into NVivo, a qualitative data analysis and management software, where they were coded and analyzed in separate files. An initial coding framework was developed by members of the project team for each set of interviews based on *a priori* codes from the interview guide and the broader literature base. The





coding framework was refined as new themes emerged through line-by-line coding (11). The final framework was then used to code all interviews by three project team members. Data were analyzed thematically. Preliminary findings were discussed with the broader evaluation team and at project CAB meetings for input.





RESULTS



Evidence Map

Article identification

The search of PubMed, CINAHL, Psych Info, and SocINDEX databases yielded a total of 541 articles. Of those, 88 duplicate articles (16%) were excluded, leaving 453 unique articles for inclusion in the screening process.

Article screening, full-text review, and data extraction

Title and abstract screening for these 453 articles determined that 55 articles (12%) met the pre-specified inclusion criteria. Of the 398 articles classified as ineligible, 257 (65%) did not study or evaluate an existing or promising DIS approach, service or policy; 148 (37%) did not focus on HIV, syphilis, gonorrhea, chlamydia, or chancroid in humans; 288 (72%) did not include results from the US; one (<1%) was not written in English; and eight (2%) were published before April 1, 2018.

During the full-text review for the 55 articles meeting the inclusion criteria during screening, 13 additional articles (24%) were classified as ineligible, as they did not study or evaluate an existing or promising DIS approach, leaving 42 articles for final inclusion in the evidence map. One article was an unpublished dissertation (2%). Of note, two of the included articles (5%) were systematic or structured reviews, and out of the combined 39 articles systematically reviewed, five were already included in this evidence map. The two systematic reviews were not used to identify additional articles for inclusion in the evidence map. Citations for the 42 articles included in the evidence map are listed in **Appendix C**.

Article characteristics

Characteristics of the 42 articles included in the evidence map are summarized in detail in **Table 1**. All geographic regions of the contiguous US were represented across articles, with most articles conducted in the southern US (33%, n=14). The focal population of the article was most often GBMSM (29%, n=12) or the general population of people newly diagnosed with HIV or an STI (29%, n=12). Other common focal populations included people of color (14%, n=6), people who inject drugs (14%, n=6), people living with HIV (12%, n=5), and transgender women (12%, n=5). Most articles were focused on HIV (81%, n=34) and/or syphilis (33%, n=14).

Though state (62%, n=26) and local (52%, n=22) health departments most often provided DIS services, some articles also discussed other organizations directly involved in the provision of DIS services, including health clinics and universities. Articles most often discussed DIS





personnel contacting patients and/or partners by phone (52%, n=22), in-person (45%, n=19), and web-based approaches (14%, n=6) (e.g., email, chat rooms). Other models mentioned included reaching out via letters and text messages. For index patients being contacted by DIS, articles most often discussed the provision of partner notification services (67%, n=28), and referral to: HIV/STI testing (40%, n=17), antiretroviral therapy (ART) (24%, n=10), HIV pre-exposure prophylaxis (PrEP) (14%, n=6), and other medical services (17%, n=7). Other services for index patients mentioned less frequently included referral to social services (e.g., housing, health insurance, HIV case management, behavioral health services), provision of condoms, transportation to appointments, referral to syringe services programs (SSPs), patient education, and care navigation. For named partners, articles most often discussed providing referral to HIV/STI testing (48%, n=20), referral to ART (21%, n=9), and referral to PrEP (21%, n=9). Other services for partners mentioned less frequently included referral to other medical services, social services, and SSPs; care navigation; and other disease screening.

Table 1. Characteristics of included articles summarizing DIS approaches for HIV and other STIs in the US (N=42)

Characteristic	n (%)
Geographic setting	
Midwest	9 (21)
Northeast	8 (19)
South	14 (33)
West	3 (7)
Multiple	7 (17)
Hypothetical ^a	1 (2)
Focal populations*	
General population with a new HIV/STI diagnosis	12 (29)
Heterosexual men	1 (2)
GBMSM	12 (29)
People living with HIV	5 (12)
People of color	6 (14)
People who exchange sex ^b	3 (7)
People who inject drugs	6 (14)
Transgender women	5 (12)
Young people ^c	2 (5)
Applicable infections*	
Chancroid ^d	1 (2)
Chlamydia	7 (17)
Gonorrhea	9 (21)
HIV	34 (81)
Syphilis	14 (33)



Characteristic	n (%)
Organization types directly involved*	
Health clinic	10 (24)
Local health department	22 (52)
State health department	26 (62)
University	3 (7)
Other (e.g., Carceral, SSP)	2 (5)
Not Applicable	3 (7)
DIS models discussed*	
App-based	1 (2)
In-person	19 (45)
Phone	22 (52)
Web-based (e.g., email, chat room)	6 (14)
Services discussed for index patient*	
Partner notification	28 (67)
Referral to HIV/STI testing	17 (40)
Referral to PrEP	6 (14)
Referral to ART	10 (24)
Referral to SSP	1 (2)
Referral to other medical services	7 (17)
Referral to social services	3 (7)
Transportation to appointments	1 (2)
Condom distribution	2 (5)
Services discussed for partners*	
Referral to HIV/STI testing	20 (48)
Referral to PrEP	9 (21)
Referral to ART	9 (21)
Referral to SSP	1 (2)
Referral to other medical services	2 (5)
Referral to social services	2 (5)
Transportation to appointments	0 (0)
Condom distribution	0 (0)

* Categories are not mutually exclusive.

^aModeling study of a hypothetical geographic location using pre-existing data.

^bPeople who exchange sex for money, goods, services, or housing; not limited to cash exchange.

^cYoung people was defined as ages 15-29 years.

^dCausative agent of Chancroid is *Haemophilus ducreyi*.

Potential points of innovation

The 42 articles highlighted multiple potential points of innovation, which are summarized according to the major steps in the DIS process (**Table 2**).





Who you reach out to

Multiple articles highlighted potential innovations to whom DIS reaches out, particularly in the context of time constraints and limited resources. DIS may focus their efforts on reaching out to index patients most recently diagnosed (and ideally, most recently infected) with HIV or other STIs and their sexual partners. For example, one study reported that the prevalence of HIV and active syphilis among sexual partners of index patients diagnosed with HIV in the past nine months were 34% and 16%, respectively, compared to 19% and 10% among partners of those diagnosed more than nine months ago (12). Rapid DIS referral of patients newly diagnosed with HIV to clinics that can facilitate rapid initiation of ART may also improve the time to viral suppression (13).

Other studies highlighted key populations who may be at greatest risk of complications of infection or ongoing transmission of HIV and other STIs and, therefore, greatly benefit from DIS services. For example, multiple studies evaluated varied approaches to re-engaging people who are considered out of HIV care to support people living with HIV in achieving and maintaining viral suppression to prevent health complications and transmission to sexual partners (14,15). Additionally, several articles studied the inclusion of a broader network of contacts in DIS services (e.g., beyond immediate sex partners), which may reach additional people at high risk of infection. For example, one study considered chain referral of peers, most often friends and family members of index patients, and found that peers accessed PrEP (46%) and other medical and non-medical services through DIS referral (16). Another study utilized a two-step network approach where peers of index patients diagnosed with gonorrhea were also asked to name peers for contact by DIS, and found that the inclusion of a broader social network identified additional cases, but not in a cost-effective manner (17).

Additionally, an evaluation of network structure impact on the cost and effectiveness of partner management strategies (e.g., partner notification, contact tracing, expedited partner therapy) found that people with varying sociodemographic characteristics may operate in different social structures, so understanding the composition of sexual networks may help inform the allocation of limited DIS resources (18). Multiple articles examined the use of phylogenetic data to map or simulate sexual network structures and HIV/STI transmission, which could inform prioritization of outreach to index patients and partners at key points in a social network (19–23). For example, one article that used phylogenetic data found an association between newly contracted HIV and syphilis largely among GBMSM, including a cluster of neurosyphilis cases (22). Another study found that index patients named a greater number of sexual partners when they were informed that they had an antibiotic-resistant gonorrhea infection, highlighting the potential utility of incorporating other novel pieces of information to be provided in the DIS process beyond one's diagnosis (24). Further, another study showed that respondent-driven sampling among women sex workers was successful in identifying new HIV cases when respondents fit certain criteria (25).





Who reaches out

Patient navigators

Multiple articles reported an increased uptake of treatment and prevention services when DIS were able to collaborate with health clinics, especially when leveraging data-sharing agreements and specialized staff. Four articles suggested that continuity of care and patient acceptance of services offered can be increased by having DIS or trained navigator staff embedded within sexual health clinics (15,26–28). For example, in a study working to reach people living with HIV who were considered to be out of care, health department DIS partnered with an HIV clinic-embedded patient navigator using integrated health department and HIV clinic data to identify and re-engage patients into ART (15). Contrary to traditional DIS approaches, the patient navigator was the first point of contact and was able to make appointments directly instead of offering referrals, resulting in less time between contact and the first clinic visit (15). Further, one study found that continuity of staff throughout testing, notification, and treatment increased index and partner treatment completion (29).

Patient navigators may also play a role in providing supportive patient interactions that lead to the uptake of preventive services. Three articles suggested that clinic-embedded PrEP navigators could assist patients in obtaining insurance benefits and other resources following a DIS referral to PrEP via telehealth or at local sexual health clinics (27,30,31). In a telePrEP program in Iowa, PrEP navigators were the first point of contact independent of how the referral was received (i.e., directly through a sexual health clinic or through self-referral). In a reversal of traditional DIS practice in which DIS would be the first point of contact and then provide referrals to testing and care, clinic-embedded PrEP navigators acted as the first point of contact before handing off to DIS to provide further resources (27). Patient navigators with specialized training to provide patient-centered PrEP education and assistance with other social and structural barriers, including direct provision of PrEP, may help to increase PrEP uptake.

Clinicians and clinic staff

Additionally, health care providers can play an important role in reaching index patients that may be ‘hidden’ or deemed ‘hard-to-reach’, thereby increasing the uptake of partner services. For example, one study reported that most people offered partner notification by a clinician had never been offered partner services before and were just as likely to utilize the service as when contacted by traditional DIS methods (32). In another study at an urban sexual health clinic, young GBMSM were more likely to share contacts if offered partner services by both clinical staff and embedded health department DIS staff (28). These studies suggest that it can be useful for clinical staff to offer partner services to patients at routine clinic visits in collaboration with the health department DIS.





Other studies utilized a counselor or social worker to provide index patients and their partners with additional education and assistance with accessing care (33,34). One of those studies delegated the task of re-engaging out-of-care patients living with HIV to a state “bridge counselor.” In this study, the authors identified an increase in care engagement while saving DIS time and resources for other activities such as partner notification (34). The second study designed a partner services and PrEP intervention utilizing a social work interventionist and found that the intervention increased linkage to PrEP care and initiation of PrEP within three months among African American/Black GBMSM and transgender women who have sex with men (33). These studies suggest that having a dedicated staff member to help address stigma, health insurance barriers, perception of risk, and other challenges can help increase care engagement and uptake of treatment and prevention services.

How you reach out

DIS have traditionally reached out to index patients in person or by phone. However, as people—especially young people—have adapted to technological innovations like texting, apps, and social media, alternative contact methods may help expand DIS reach. For example, one review found that integrating email, text messaging, and app-based communication into DIS partner notification services was cost-saving and increased the number of partners notified and screened and the number of new infections diagnosed (35). Using current technology, including text messages, email, and apps, could help DIS reach more young people and lead to a greater uptake of services.

What you discuss or offer

DIS's traditional role and placement in state and local health departments has led to the development of external referral systems to connect index patients and their partners with services. However, referral does not ensure access to or uptake of services. For index patients, 12 articles reviewed discussed referral to treatment (13,15,19,22,29,33,34,36–40), while only one article discussed direct provision of treatment by DIS or similar staff. In this example, specially trained “check-it” staff initiated contact with patients and provided free testing services and necessary treatment (via pharmacy pick-up or mail order) in collaboration with a dedicated pharmacist. They found that this approach improved rates of treatment completion compared to the traditional referral-based approach (29). Another article found that it is possible to accelerate the initiation of ART when the health department DIS partnered with a sexual health clinic to provide direct referrals, speeding up the time to initial appointment and thus the initiation of ART (13). Additionally, it was shown that it was effective for DIS embedded in health departments and community organizations to provide referrals to telehealth PrEP navigators, leading to increased efficiency and uptake of PrEP.

Partner notification services are a widely accepted HIV/STI prevention and treatment strategy, though nuanced approaches are still being developed to yield better outcomes. Among the





articles reviewed, 28 (67%) discussed the use of partner notification for index patients, indicating that this is a common DIS service throughout the US. A total of 16 articles discussed services provided to partners, which included referral to HIV/STI testing, PrEP, ART, and social services (12,14,17,19,24,29,32,33,35,36,41–46). Of four articles that discussed the integration of HIV testing and PrEP referral into syphilis partner services (36,41–43), one notably reported that this approach was successful by multiple measures, including greater retention in care and HIV viral suppression (36). Uptake of PrEP as an offering during the provision of partner services by DIS and other state-employed health educators was shown to be successful in one article, though the authors noted a need for robust employee education due to continued misperceptions among staff (47).

Partner organizations

Partnerships with community organizations can facilitate effective DIS referral to services and create a care continuum that addresses needs adjacent to HIV/STI treatment and prevention. One study exploring low treatment uptake among people living with HIV who were out of care found that the primary barriers were not receiving timely test results (44%), not believing their diagnosis (30%), and lacking health insurance (18%) (15). Multiple articles discussed referral to supportive services, including counseling and care navigation, which may support people's broader needs and address social/structural barriers to care engagement (13,15,16,32,34,46). One study importantly noted an urban/rural divide in the diversity and concentration of STI services, highlighting the need for diversified outreach and treatment services in rural areas (48). Partner organizations can assist in the diversification and delivery of these services when well-funded.

As highlighted above, health clinics can play an important role in DIS work (15,26–28). Importantly, data sharing agreements between state and local health departments and health clinics can facilitate enhanced DIS case-finding and increase the re-engagement of people living with HIV in care. For example, bidirectional surveillance and clinical data-sharing can allow for more accurate identification of people living with HIV who are out of care, which is often overestimated by surveillance data alone due to variations in the frequency and timing of viral load testing among people living with HIV (15,39). The data-to-care approach requires additional trained staff but presents opportunities for more efficient allocation of DIS resources (15). One cost evaluation study in Rhode Island showed greater cost-effectiveness when rapid HIV testing was carried out by community-based organizations and cost-saving when regularly carried out by clinics (49).

Collaborations between health departments and academic institutions can also accelerate the development of automated data pipelines and novel analytics to inform DIS work, particularly to reach special populations. For example, the Rhode Island Department of Health and Brown University partnered to create a combined dataset with contact tracing, clinical, laboratory, and





phylogenetic data that is used to inform real-time case management for all stakeholders (20). Additionally, partnerships embedding DIS into the criminal justice system (i.e., via county jails and state prisons) may help reach people who inject drugs, given the disproportionate rate of criminalization among these populations (45), and others at high risk of HIV and STI who may have limited access to the health care system. Additionally, to further address the HIV epidemic among people who inject drugs, partnerships between DIS and SSPs may help reach more people with an indicated risk for HIV. One study used early programmatic data from an SSP to identify and treat people living with undiagnosed HIV, referring anyone with a confirmed seroconversion to a DIS embedded at the agency. They concluded that coordination between the SSP and health department resulted in greater linkage to care, and staff were able to help manage participant medications, thereby improving treatment adherence (46).

Table 2. Potential innovation points in the DIS process discussed in the reviewed articles

DIS step	Potential innovations
Who you reach out to	<ul style="list-style-type: none">- Focus on people recently diagnosed (ideally recently infected) and their partners (HIV and early syphilis)- Inclusion of a broader network of sex partners and peers identified via chain-referral- Informed by phylogenetic analyses (HIV, hepatitis C virus)- Informed by resistance testing (gonorrhea)- Informed by sexual contact and infection network analyses
Who reaches out	<ul style="list-style-type: none">- Clinic staff- Clinic staff and DIS- Continuity of testing, notification, and treatment by same staff- State Bridge Counselor (engagement in HIV care)- Social worker or patient navigator- PrEP navigator
How you reach out	<ul style="list-style-type: none">- New technology (email, text, social media, data/hook-up sites, web-based, chat/message), in addition to standard methods
What you discuss/offer	<ul style="list-style-type: none">- Behavioral/prevention counseling- Referral to rapid traditional and telehealth PrEP (e.g., same-day)- Referral to rapid ART (e.g., same-day)- Referral to social services- Intensive linkage and patient navigation
Partner organizations	<ul style="list-style-type: none">- Health clinics and medical systems- Carceral system- Community-based organizations (e.g., SSP)





Key recommendations for DIS innovations and evaluations

Based on existing and promising DIS approaches for HIV and other STIs in the US published since 2018, the following overarching recommendations may help improve health outcomes, prevent ongoing disease transmission, and best meet the needs of patients and their partners.

1. Identify index patient and partner preferences for DIS services.

Few of the articles included in this evidence map sought to describe patient or partner preferences for DIS approaches. Some articles cited perceived barriers to care as a rationale for their work, including stigma, misinformation, transparency regarding diagnoses, and social and structural barriers, but only one article attempted to characterize the wants and needs of people living with HIV to improve DIS engagement. Qualitative interviews to identify the preferences of people receiving DIS services, especially among priority populations such as young GBMSM, GBMSM of color, and transgender women, may allow health departments and partner organizations to tailor services and more effectively meet people's needs, particularly those who have been deemed 'hidden' or 'hard-to-reach' to DIS. This was the focus of phase II of our work (see below).

2. Optimize referrals to partner organizations to improve access to services.

DIS are often on one side of the care continuum, providing referrals to necessary care and services. While referrals may not translate to engagement in care, partnerships within the community may help streamline the referral process or reduce reliance on traditional referrals. These may include clinic-embedded DIS and patient navigators who partner with health department-embedded DIS, as well as support staff or clinician involvement in partner services. Warm handoffs to patient navigators, case managers, and organizations providing health and social services may also improve access to services and continuity of care. Additionally, the development of a tool for evaluating an index case's current capital for engaging in partner notification may be useful for determining how to best meet their needs, including through tailoring of the DIS interview, education, and referral processes. Capital refers to internal and external resources (e.g., personal, social, and community factors), with a focus on personal strengths and social capacities. **Appendix C** provides a draft capital evaluation tool that could serve as a foundation to iterate on. Finally, it will be essential to evaluate any novel referral processes or tools implemented with appropriate comparison groups to measure the effectiveness of such innovations in achieving their goals.

3. Modernize technology utilized in DIS work.

Novel technology provides key opportunities to optimize the allocation of DIS resources and improve communication with patients and their partners. In particular, real-time, automated data pipelines that incorporate novel data types, such as sexual network, phylogenetic, resistance testing, clinical, and programmatic data, may improve targeting of limited time and





resources. Additionally, an ongoing exploration of alternative methods of communication as technology evolves, such as the use of texting, apps, and social media, may allow DIS to reach more people in need of services, especially among young people. Evaluation of evolving DIS communication methods will be critical to monitor effectiveness for achieving their goals and improving health outcomes.





Key informant interviews

Stakeholder demographics

A total of 10 key stakeholders were interviewed. Stakeholders were representatives from four state departments of health located across three US regions (Northeast, Midwest, South), and one federal agency. Stakeholders included leadership (e.g., Director, Manager) and DIS personnel.

Current approaches and innovations

Stakeholders shared a range of approaches being utilized across regions to improve DIS reach and partner notification. Main approaches included: (1) tailoring outreach and DIS services to diverse client populations; (2) co-locating DIS services within community and healthcare settings; (3) redefining metrics of success; and (4) utilizing technology to better meet population needs.

Tailoring outreach and services

Stakeholders described utilizing a range of approaches to tailor sexual health outreach and information (e.g., PSAs, testing services) to reach target populations. Targeted outreach included tailored media campaigns to different populations (e.g., younger populations, GBMSM), as well as outreach to locales frequented by GBMSM (e.g., popular bars, gay beaches). For younger populations, several health departments described the need to have flexible options for reaching young people, including text-based services for testing results and partner service communication, and leveraging social media platforms. Stakeholders also stressed the need for improved sexual health education for younger people related to STI prevention, treatment, and testing, which was underscored as a key gap.

Other health departments described expanding their services and counseling approaches to better meet the needs of structurally vulnerable populations (e.g., people who are unstably housed). This included targeted street outreach at encampments to expand STI testing and treatment initiation, as well as supporting individuals with referrals and connections to other ancillary services (e.g., housing support, food). In these regions, stakeholders stressed the need for DIS to support people in meeting their most pressing needs, which often served as a barrier to people being able to start STI treatment and engage in follow-up care.

Co-locating services

Most stakeholders described how co-locating DIS services within community and healthcare settings was critical to expanding engagement with clients and connecting people to follow-up care. Several regions explained how DIS were embedded into community clinics, university-affiliated clinics, and LGBTQ health organizations. In these instances, DIS worked from clinics





and were able to test and treat patients on-site, allowing them to provide immediate support to patients who had positive test results.

Additionally, some stakeholders explained how having DIS co-located with community organizations was critical to expanding the reach and uptake of services. Stakeholders underscored how collaborating with services already supporting target populations was an important approach as clients had rapport with organizations and were more readily engaged with DIS services.

Redefining metrics of success

While many stakeholders drew on success metrics that were related to reductions in the overall number of new cases or connecting people to treatments, several stakeholders described recent shifts in how their department defined 'success'. Some stakeholders situated these shifts in relation to the COVID-19 pandemic in which their DIS-related resources were stretched thin, thereby impacting their outreach. As a result, some stakeholders shifted their success metrics to be focused on individual clients, including successful referrals to and uptake of ancillary supports. Other stakeholders described working to redefine treatment metrics to a 30-day treatment window by collaborating with a community clinic to reach out to clients, initiate treatment, and keep them retained for 30 days.

Utilizing technology for outreach and partner services

Although many stakeholders described budget constraints that reduced their capacity to implement innovative DIS approaches and expand programming, several stakeholders described utilizing different technologies to better meet population needs. At a population level, one stakeholder described a more recent use of artificial intelligence (AI) technology to analyze what issues certain populations are concerned about. In this instance, AI is being used to examine what health topics and information (e.g., symptomatology) specific populations are searching for online to inform targeted outreach and program efforts.

Text-based messaging platforms for partner notification were also shared as an important approach for improving partner notification, especially for people who reported anonymous partners. Several stakeholders described these platforms (e.g., Tell Your Partner app, SXT) as having formulated templates and scripts clients could use to reach out to their partners. Offering clients the use of text platforms was seen as an important way to expand partner notification services given barriers DIS often have when reaching anonymous partners via social apps (e.g., Grindr).

Other regions that had limited financial resources described how they offered text and phone scripts to index clients to help them reach out to partners, including anonymous partners via social apps. In some of these locations, stakeholders described engaging in internet-based outreach, including online partner services, in which DIS enters chat rooms and conducts partner outreach or outreach for sexual health services more broadly (e.g., testing options). However,



these were not generally described as successful due to a lack of positive response from app users and reaching ‘deadends’ with partner follow-up. Further, some stakeholders described not having success working directly with social apps (e.g., Grindr) for partner notification and outreach.

Notably, stakeholders described how any technology-based intervention (e.g., partner notification apps, scripts) must be paired with traditional DIS approaches to be effective. This included having a strong rapport with index cases to support them in reaching out to partners and/or providing contact information of partners.

Challenges and areas for improvement

Stakeholders shared several challenges that they perceived to impact the effectiveness of DIS, including: (1) structural barriers to STI testing utilization; (2) community perception of DIS services and rapport; (3) resource constraints; and (4) gaps in STI prevention and treatment knowledge.

Addressing structural barriers to STI testing

Numerous structural barriers that impact engagement in STI testing and treatment were identified by stakeholders, and were underscored as areas needing to be addressed to reduce new STI rates. This included transportation and insurance barriers which were described as impacting testing access, as well as individuals not knowing that STI testing is often available in retail health clinics. Other barriers identified included policies that can increase adverse health outcomes (e.g., one-for-one needle exchange) and policies prohibiting the use of social media by DIS for direct outreach. Some stakeholders further underscored how DIS training in some locales is limited in identifying broader social and structural barriers that may impact testing and treatment engagement and should be revised to reframe challenges some individuals may face at engaging in care.

To increase access to testing, several stakeholders described the need to expand access to at-home testing options (e.g., rapid testing, finger pricks), using similar strategies implemented during the COVID-19 pandemic. Some stakeholders described how many people did not want to sit in clinics—especially public clinics—while waiting to get tested and receive results. One health department described current at-home testing efforts in which they mail kits to individuals and support them with follow-up appointments at sexual health clinics. At-home testing options were therefore seen as a critical approach to expanding the reach and engagement of STI testing.

Perceptions of DIS

Negative perceptions of DIS were identified as a gap in engagement. Here, stakeholders underscored how in many locations, DIS is not seen as a resource for utilization, with the span of DIS services that can be leveraged not readily recognized. Some stakeholders shared the need





to make DIS service more visible to providers, as well as the broader public for these to be more successful. One stakeholder shared how DIS should be rebranded as “*sexual health community specialists*,” with their practices and services being described outside of positive testing experiences. To better reach communities, some stakeholders also described needing to make DIS work more publicly accessible and visible (e.g., information featured on websites). Doing so was seen as supporting knowledge dissemination of DIS services, which could inform rapport building and trust between DIS and clients.

Resource constraints

All stakeholders described ongoing resource constraints that impacted DIS activities, including funding cuts and staff turnover. Stakeholders stated that resource constraints were increasingly challenging as many regions were simultaneously seeing increases in STI rates but faced barriers to effectively responding to them. As a result, many stakeholders described needing to prioritize certain populations and cases—typically female syphilis cases—due to limited resources despite GBMSM being most impacted across these settings. In these instances, stakeholders described not having the capacity to follow up on syphilis cases among GBMSM due to what they characterized as barriers to receiving partner contact information and resource constraints. However, health departments aimed to follow all HIV cases.

STI prevention and treatment knowledge

Several stakeholders expressed concerns about limited STI prevention and treatment knowledge across certain populations (e.g., younger populations, which they felt were driving increases in STI rates). Expanding access to sexual health knowledge, including through school-based curriculums, was described as potentially important for engaging younger populations in HIV and STI prevention. In addition to STIs, several stakeholders described ongoing knowledge gaps about HIV prevention, including information about PrEP and PEP, which needed to be prioritized.

Further, stakeholders underscored what they perceived to be variations in STI concerns among GBMSM, with concerns being STI-specific. Specifically, most stakeholders shared that GBMSM were not concerned with testing positive for syphilis as it was easily treatable, which was seen as a driver for limited testing and partner service engagement. However, in discussions with stakeholders, most characterized partner notification among GBMSM as challenging due to anonymous partners. As a result, several health departments had reduced their partner follow-up for many STI cases among GBMSM.

Stakeholder recommendations for improving DIS services

Overall, stakeholders identified several areas for improving DIS services. First, stakeholders stressed the need for increased DIS budgets to facilitate innovative programming and increase case management and follow-up capabilities. For most stakeholders, resource constraints





resulted in reduced services and limited approaches to follow-up, which was further problematic given increased HIV and syphilis rates across regions.

Second, stakeholders described how improving rapport between DIS and clients was imperative for increasing engagement in treatment and expanding partner notification. Stakeholders recommended an increased scope of DIS trainings (e.g., cultural competency training, inclusive language utilization) and having DIS personnel be reflective of target populations as important for building rapport with clients. Stakeholders explained how improving rapport between DIS and clients could help clients feel more supported in reaching out to partners themselves, including through the use of scripts, and could facilitate clients opening up more about their partners.

Additionally, stakeholders underscored how co-locating DIS services within community-based organizations serving target populations is an important approach to supporting clients. Many stakeholders described current and prior programs that were situated within community organizations and clinics, which they felt had been impactful due to existing trust and rapport between clients and organizations. Situating DIS within clinical and non-clinical community-facing spaces was also positioned as important for expanding knowledge about DIS and the services they offer beyond providers.

Moreover, several stakeholders underscored the success of their health departments at undertaking MPox partner notification, which should be used as a model for improving DIS more broadly. For many stakeholders, this was linked with improving STI prevention and treatment knowledge and encouraging regular engagement in testing.

Finally, several stakeholders described the need to distribute at-home testing kits to expand access to testing services across populations. Only one stakeholder described currently using these in their jurisdictions, whereas others felt this would be a key step to reducing structural barriers faced by certain populations at regularly engaging in STI testing.





Participant interviews

Participant demographics

A total of 20 participants were interviewed (**see Table 3**). The average age of participants was 27 years old (range: 21-34 years). Most participants (60%) were white (n=12) and 25% of participants were Latino or Hispanic (n=5). Most participants identified as gay (35%) or bisexual (30%). Insurance coverage at the time of interview included government-provided insurance (e.g., Medicaid, Medicare) (80%) and private insurance (20%). Only one participant had no prior HIV or STI testing experience. Almost all participants (85%) used online platforms to meet sexual partners, including social apps (e.g., Grindr, MeetMe, Jackd) and social media platforms (e.g., Facebook, Instagram).

Table 3. Participant demographics (n=20)

Participant characteristic	n (%)
Age	
Mean	27 (range: 21-34)
Race	
Black	<5
White	12 (60%)
More than one race	<5
Indigenous	<5
Asian	<5
Ethnicity	
Hispanic or Latino	5 (25%)
Non-Hispanic or Latino	15 (75%)
Sexuality	
Gay	7 (35%)
Bisexual	6 (30%)
Straight	<5
Queer	<5
Something else (e.g., pansexual)	<5
Housing status	
Unhoused ¹	9 (45%)
Own apartment, house, dorm	6 (30%)
Recovery housing or residential treatment	5 (25%)

**Insurance type**

Government-provided (e.g., Medicaid)	15 (80%)
Private	<5
Other (e.g., student insurance)	<5

HIV and STI testing locations²

Health clinic	15 (75%)
Drop-in center	6 (30%)
Somewhere else (e.g., hospital)	<5

Positive HIV or STI test ever

Yes	14 (70%)
Gonorrhea ²	10 (71%)
Chlamydia ²	8 (57%)
Other (e.g., syphilis, HIV) ²	9 (65%)
No	6 (30%)

Ever used partner notification services

Yes	7 (35%)
No	13 (65%)

Apps used to meet sexual partners²

Social media (e.g., Facebook, Instagram)	8 (40%)
Grindr	12 (60%)
Tinder	5 (25%)
Scruff	<5
Adam4Adam	<5
Jackd	<5
Sniffies	<5
Other app (e.g., Growlr, Hinge)	13 (65%)
N/A	<5

Sex work last 30 days

Yes	9 (45%)
No	11 (55%)

Note: To adhere to small numbers policy, all categories under n=5 have been suppressed

¹Included staying in hotels, tents, shelters, outside, cars, abandoned buildings, and couch-surfing.

²Responses are not mutually exclusive.

The primary themes from interviews were related to (1) social and structural factors that impact engagement with testing; (2) perceptions on notification approaches; and (3) social drivers impacting sexual health education access.





STI testing: patterns, barriers, and facilitators

Participants had diverse testing practices that ranged from routinized engagement (e.g., every 3-6 months), testing on an as-needed basis (e.g., experiencing symptoms), and testing only in emergency department settings. One participant had never accessed STI testing. For participants, testing patterns were impacted by social and structural factors (e.g., socio-economic marginalization, transportation barriers, appointment setting practices) that hindered regular engagement.

Testing-related barriers

Many participants described facing significant barriers to STI testing, with processes for finding a testing location and making an appointment challenging. Because of this, many participants were unable to regularly access testing services. Key barriers included: (1) challenges navigating healthcare systems (e.g., service locations, hours of operation); (2) financial barriers; and (3) fear of discrimination and stigma.

Navigating healthcare systems

Participants described having accessed STI testing in a range of settings, including clinical (e.g., LGBTQ-specific clinics, primary healthcare services, emergency department) and non-clinic (e.g., jail, bathhouse, drop-in centers) settings. However, navigating the healthcare system was a key challenge for many participants. Many participants described barriers to finding where they could get STI tests, including a lack of clear information available online. For some, the type of setting (e.g., clinic, hospital, non-profit organization) also raised confusion about what type of insurance or payment was needed, adding additional barriers to uptake. This included participants who had insurance reporting difficulties assessing which testing sites accepted their insurance for STI testing, noting barriers to health insurance policy questions on testing service websites (e.g., clinics). As a result, some participants had little to no prior testing experiences, and one participant only got tested when at the emergency department.

While participants who were engaged in testing at more regular intervals described engaging in testing services located in proximity to other services they readily accessed (e.g., drop-in centers, primary care), others without consistent engagement noted how testing service location was a central issue. Transportation constraints (e.g., clinic not on bus route) and clinic hours of operation also made it difficult to balance testing access with other routines (e.g., work, appointments). Expanding access to be more inclusive of varying schedules was important.

Financial barriers

Numerous participants pointed to structural barriers related to privatized healthcare systems that impacted their ability to regularly utilize testing resources. Many participants described being unsure what testing their insurance would cover and how often, expressing concerns that potential associated costs (e.g., treatment, co-pays) would be unaffordable over time. A few





participants described how being a student on parents' insurance was also a barrier to testing as they were unsure what type of information may be included on a billing statement that could jeopardize their privacy. Overall, insurance barriers (e.g., lapses in insurance, on parents' insurance policies), prohibitive co-pays, and treatment costs often impacted participants' uptake of testing services.

Fear: discrimination, stigma, and positive results

Participants raised two concerns related to fear of testing: fear of discrimination and fear of having positive results.

Some participants had previous negative clinical encounters while getting tested for STIs, including assumptions about their sexual practices (e.g., engaging in unsafe encounters) and negative comments about STIs among GBMSM (e.g., lack of care) that made them cautious to engage in future testing. In many instances, participants explained how they were afraid of being judged by providers for asking to have an STI test or being open about their sexual activity levels. Participants underscored how testing is often framed as being about 'risk' rather than prevention, which they felt reinforced the stigma GBMSM faced when getting tested.

Other participants described being fearful of what their results may show, which served as a barrier to getting tested. Specifically, some participants described how GBMSM are constantly faced with information related to the risk of HIV or what was seen as the inevitability of acquiring HIV. Others were concerned about the loss of privacy if they tested positive (e.g., being tracked, placed on a surveillance list, losing US documentation). Some participants explained that such fears of having a positive result often led them to avoid getting tested.

Improving STI testing access

To address barriers to testing access, participants underscored the need for flexible testing options, including expanded testing locations, at-home testing kits, and same-day and walk-in appointments. Several participants described the successes of COVID-19 testing and having similar testing approaches implemented for STI testing to have testing offered "*at as many places as possible,*" as well as testing options outside of a clinic (e.g. at home), was critical to reduce barriers to access.

Testing-related facilitators

Non-judgemental services

Organizations and clinics that provided non-judgemental and inclusive services were critical to facilitating testing engagement among participants. Many participants reported regularly accessing Open Door Health—an LGBTQ-specific clinic in Providence—for sexual health care, underscoring the comfort they felt in spaces with LGBTQ representation. For many participants, having access to LGBTQ-specific resources was critical for building rapport and served as a





catalyst for participants to feel comfortable opening up with providers because they are “*from your walk of life*.” Participants reiterated similar sentiments in relation to inclusive community-based organizations (e.g., Project Weber/RENEW) that created a “*comfortable*” setting that facilitated engagement in rapid testing and other resources.

Established relationships between participants and clinical and non-clinical workers (e.g., peer navigators, outreach workers) were fundamental to increasing testing engagement as participants felt confident they would not be judged for their sexual encounters. Participants described how having clinical and non-clinical staff that were “*nice*,” “*asking questions*,” maintaining “*confidentiality*,” and “*having conversations*” about testing and result processes that were normalized was fundamental to allowing participants to feel safe and comfortable during the testing process.

Flexible & incentivized testing options

Testing locations that offered same-day appointments were key facilitators of testing engagement; this included rapid testing as well as clinic-based testing. However, some participants suggested that rapid testing be expanded to include other STIs, as only HIV and hepatitis C rapid testing were available. Some participants reported accessing testing if they were symptomatic, and others described challenges in remembering appointments. As a result, being able to access testing in a more walk-in capacity or through same-day appointments allowed participants to integrate testing into their routines more easily.

For structurally vulnerable participants (e.g., people who were unstably housed), testing access was impacted by the location of testing sites and their proximity to other services being utilized. Being able to access testing while balancing multiple appointments and service needs (e.g., meal programs, harm reduction supply access) was important for more regular engagement. Importantly, incentivized testing engagement was also described as important for engaging with testing services, particularly for participants who faced socio-economic marginalization.

Receiving testing results

Participants described receiving their test results in-person from a provider, over the telephone, and through patient portals. Most participants described preferring to get their results in-person so they could also connect to other resources they may need (e.g., medication). However, two participants preferred receiving their results via the patient portal as it was the quickest form of result delivery aside from rapid testing results. Overall, participants underscored the need for testing services to be transparent about how they will receive their results and the timeline for receipt.

Notably, there were differences across the participant group regarding preference to receive testing results that often intersected with participants’ level of structural vulnerability. For example, several participants who were experiencing housing instability described wanting their test results to be delivered in person so they could confirm who was providing them information





and have a visual confirmation of the results. This was also important for participants who had unstable access to telephones. Additionally, some participants reported how email or text-based results undermined their privacy, and they preferred results being shared in-person or via phone call as an alternative.

Overall, some participants noted the need to get results back as quickly as possible, with same day results the most preferred option. However, participant narratives documented the need for testing services to offer a range of test result notification approaches to patients and clients to increase accessibility and meet the diverse needs of populations.

Partner notification

Self-notification of partners

Most participants who received a positive test result reported being told by providers to notify their partners. In some instances, providers asked for partner names, but did not offer any resources (e.g., partner notification supports) to participants. One participant described receiving a notification in the patient portal to leverage TellYourPartner.org, and one participant reported being asked if they needed partner notification services.

Many participants who had received a positive test result reported telling their partners themselves, often via phone call. Doing so was described as an important part of engaging sexual partners and more personal than engaging an external person (e.g., provider) in partner notification. However, for some participants, partner notification was complicated by their engagement in sex work or engagement with anonymous partners, in which names, handles, and/or contact information was not known.

At times, participants who had experienced a positive STI test described how they did not notify their partners about their results. In these instances, partners had already tested positive for an STI, which was the driver of participant testing, and thus, confirmation of a positive result was not deemed necessary to share. Several participants described being told by partners of positive results, which served as an impetus for testing. In these instances, participants had been told by their partners rather than through partner notification services.

Notably, some participants also reported telling partners of negative test results. Drivers for sharing this information included: (1) informing partners of their most recent results prior to sexual encounters and (2) following up with a prior partner who had tested positive for an STI.

Partner notification involving DIS

Interviews underscored significant gaps in participant awareness of DIS and the services they offer. Few participants were aware that the RI Department of Health may be involved in steps following testing, reporting that providers did not provide them with this information. Only one participant reported having previously engaged with RIDOH around partner notification while





incarcerated. In addition, a few participants reported having some contact tracing engagement with RIDOH, often in relation to COVID-19 or Mpox. However, several participants reported being open to being contacted by DIS if they had a partner who had tested positive.

Despite this lack of information, participants were open to having the DIS as an option in partner notification. Participants largely described wanting partner notification services to offer a combined approach that simultaneously included self-notification and DOH notification support (e.g., three-way calls with partner, index, and DIS; having a DIS present for in-person conversations). For many participants, utilizing DIS support in specific circumstances was beneficial, including notifying anonymous partners and people that may involve difficult conversations (e.g., ex-partners). Additionally, having DIS provide scripts of how to reach out to partners, as well as stories of how people have notified partners previously (e.g., in an app), were also underscored as particularly helpful for supporting people in partner notification practices. A few participants thought that having access to scripts, either from DIS or in a centralized location (e.g., an app), would be helpful to draw on for partner notification.

Anonymous sexual partners

Overall, participants acknowledged the STI risks inherent in anonymous sexual encounters and felt that these types of encounters require each person to know the potential risks involved. As a result, notifying “*super anonymous*” partners of a positive STI result was not prioritized by most participants as it was seen as nearly impossible. Rather, participants felt there needed to be increased focus on expanding STI testing and condom use to address challenges with anonymous partner notification. For some participants, encouraging regular testing engagement (e.g., monthly) would minimize the need for anonymous partner notification as people would have more up-to-date information about their STI status. Given the anonymity sought out through anonymous partners, several participants reported how sharing a partner’s name or social app username was also inappropriate as it would undermine their right to anonymity.

Notably, many participants described utilizing STI testing and engaging in their own risk assessment practices (e.g., asking sexual partners about their testing history) when engaging in anonymous sex to reduce the risk of STIs. In these instances, participants described how assessing potential STI risk was an individual’s responsibility and could include asking partners for their testing history and keeping social app profiles up-to-date with one’s own test results.

However, a few participants described being willing to reach out to anonymous partners via social apps to tell them of a positive result should it occur, and one participant had experience doing so. To support reaching out to anonymous partners, one participant suggested the need for an app that allowed individuals to exchange basic information before their first hook-up as a mechanism to receive a positive test result should it occur. This was seen as a positive alternative to reaching out to anonymous partners, as social app accounts are sometimes deleted, challenging people’s ability to reconnect with individuals.





Sexual health information: prevention and treatment

Sources of information

Participants' engagement with sexual health information was varied. Many reported receiving information from their peers, community-based organizations, and clinicians after testing. While a few described searching for information online, many described the information as difficult to find or outdated, impacting their engagement. Notably, perspectives on the utility of sexual health ads on social media varied among participants. Several participants described seeing ads about sexual health online, but did not like this information being shared on social app platforms. In these instances, participants did not feel like app users interacted with this information as apps were used to find sexual partners; as such, utilizing these platforms for sexual health information sharing was seen as ineffective due to limited engagement. However, a few participants described ads on social apps as being a "reminder" to make testing appointments while using the apps.

Several participants shared how they had received limited sexual health information due to variations in sexual health education provided in schools and participants leaving school at a young age. As a result, participants noted how having more information provided by providers on sexual health would be helpful in answering questions related to topics such as testing frequency, sources of STIs, and prevention practices. Further, several participants recommended having sexual health education that focuses on regular STI testing be expanded in schools (e.g., including middle and high school curriculums) to normalize testing from a younger age.

Gaps and opportunities

Participants highlighted numerous gaps in access to sexual health information and issues with information they felt was available, describing how sexual health felt like a "figure it out sort of thing" due to gaps in educational resources. To improve sexual health, several participants described the need for information to be "streamlined," "transparent," "easier to use," and "efficient" to increase accessibility and readability. Having it be designed "to look 'gay'" was not seen as important to appeal to GBMSM. Rather, participants stressed how having resources that were accessible, comprehensive, and located in one place was more important, including visuals (e.g., infographics) about testing and STIs. A few participants described having access to an app or website that could serve as a 'one-stop-shop' for information on testing (e.g., locations, price, insurance coverage) and sexual health information (e.g., prevention) would be helpful to improve the accessibility of information, as well as how to navigate the healthcare system more broadly.

Ongoing gaps at the provider- and clinic-levels were also described by participants as undermining the effectiveness of sexual health services and prevention resources. Several participants highlighted the need for better communication between providers and patients in clinics to improve education and awareness of options. Having face-to-face conversations was





discussed as more important than public service announcements, social media ads (e.g., ads on Facebook or Instagram), or ads in social apps (e.g., Grindr), which are rarely engaged with. In particular, participants stressed gaps in conversations between patients and providers about STIs more broadly, prevention medications (e.g., PrEP, doxyPEP) and how they work, and frequency of testing based on level of sexual activity.





Project limitations

This project has several limitations that should be considered. First, we had difficulties organizing a CAB that was representative of GBMSM of the project's target population. Numerous efforts were made to invite a range of representatives from numerous organizations in RI that support GBMSM, including youth-oriented services (e.g., YouthPride, Haus of Codec). However, limited responses delayed the development of our CAB and CAB involvement. Future efforts to improve DIS services in the state should work to ensure a diverse group of CAB members are included to inform programmatic decisions and intervention development.

There are also several limitations to our evidence map to note. First, we limited our search to US contexts. This included not searching in EMBASE or other internationally-focused research databases due to the scope of the work. While significant DIS-related innovations may exist in areas outside the US, variations in healthcare approaches (e.g., universal vs. privatized) may limit applicability in the US. However, future projects should consider alternative approaches undertaken in other settings as they may be adaptable to the US. Second, commentaries were excluded from our evidence map. Additionally, we only included papers published between April 1, 2018 and April 6, 2023. As a result, there may be papers of importance that were missed, given our selected timeframe.

In addition, there are limitations to primary data collection methods that we have highlighted below.

Key stakeholder interviews

Key stakeholders were recruited through professional networks of project team members, including personnel at RIDOH, and were purposively sampled to focus on geographical regions with more progressive STI programming. Due to project constraints and overall focus, we did not elicit perspectives of other health departments that may not have progressive approaches to DIS services. This may have resulted in a bias of innovative DIS approaches being used. Additionally, most key stakeholder interviews were conducted as group interviews to reduce time commitments on health department staff. At times, this included DIS personnel and management in the same interview, which may have impacted insights shared related to challenges faced by DIS and areas for improvement.

Participant interviews with GBMSM

Most participants were recruited through targeted canvassing in settings supporting GBMSM, including health and ancillary services. Thus, the perspectives of participants may not fully capture individuals who are less engaged in services. Findings may also overrepresent individuals who are structurally vulnerable, including people who are unstably housed. However,





experiences among these populations are also critical to informing tailored approaches to testing and partner services.

Additionally, participants averaged 27 years of age, with younger participants underrepresented in this evaluation. As such, their unique experiences may not be fully captured in the report presented. Participants from the greater Providence area comprised most of our project sample, which has more resources for GBMSM than other parts of the state. White participants are also overrepresented in the project despite purposive sampling strategies to recruit a diverse participation population. Recruitment was limited to cisgender GBMSM, which may obfuscate specific experiences of transgender GBMSM and needs relating to STI testing and sexual health. Future studies should include additional populations to continue expanding the reach of programs and services.

Moreover, we aimed for half of our sample to have prior DIS experience. However, we faced significant challenges in finding participants with prior DIS engagement, limiting data on specific DIS experiences. This included limited knowledge of DIS and the services DIS provide among younger participants. Despite this, data from participant interviews underscored complexities of DIS engagement that may have impacted the utilization of DIS services which is important for the project aims.





NEXT STEPS

Develop an advisory committee. We recommend that RIDOH convene a community advisory committee to oversee and contribute to subsequent DIS program updates and modifications phases. The community advisory committee should be composed of diverse stakeholders, including young GBMSM, outreach workers supporting GBMSM, GBMSM from a range of backgrounds and experiences (e.g., sex work experience, unstably housed), and health and social service providers. This committee should be regularly engaged to inform iterations of DIS and sexual health services for GBMSM in the state, and be key contributors to modifications to ensure diverse reach and improved uptake.

Identify community partners. To expand testing and engagement with DIS services, we recommend RIDOH identify community partners that support GBMSM populations experiencing increased STI rates and build collaborations to increase testing and connections to care. These partnerships could include dissemination of resources available in the state, targeted outreach and supports, and incentivized efforts to expand STI testing and treatment engagement. We recommend these partnerships should include harm reduction organizations, ancillary support services (e.g., meal programs, shelters), youth-focused organizations, universities and colleges, and other community services and locations (e.g., theaters, bars, clubs). Given the importance of existing relationships in facilitating STI testing, partnering with community organizations may improve testing uptake and connections to care for GBMSM.

Develop a sexual health peer navigator program for GBMSM. To expand testing access and treatment engagement and support GBMSM navigating healthcare settings, we recommend that RIDOH consider developing a sexual health peer navigator program. Many participants leveraged their networks for sexual health information and testing-related questions and stressed the importance of word-of-mouth knowledge exchange. Leveraging these pathways through a peer navigator program that operates in collaboration with DIS may reach more diverse GBMSM populations, including those who do not readily access other community services. We recommend that RIDOH work with diverse community partners to create a peer navigator program that includes diverse representation across GBMSM populations to facilitate uptake.

Establish partnerships with clinics and providers. Engaging with providers across medical environments that provide testing, including emergency departments, primary care clinics, and minute clinics, is critical to increasing DIS engagement in STI testing follow-up. We recommend that partnerships include supporting providers in talking with patients about STIs and prevention, streamlining referrals and connections to care, and encouraging providers to connect patients with DIS supports after test results. We recommend that RIDOH consider embedding or co-locating DIS within clinics to support DIS engagement in STI services. Doing





so may improve follow-up with individuals who test positive and the rate of connecting them to health and ancillary services.

Community education and dissemination strategy. Normalizing STI testing and prevention efforts across populations is needed to support individuals in developing a more regular STI testing routine. We recommend that RIDOH shift strategies and frameworks so the focus is on prevention and sexual health routines rather than risk-focused framings. Importantly, this should include normalization of testing among all populations, not just GBMSM, to address the stigma attached to STI testing. We also recommend that language used to encourage regular testing and areas for dissemination be developed in collaboration with the advisory committee. Increasing the reach of messaging is important and should be rolled out online and through print materials. We recommend sharing this information on social media platforms, community-distributed flyers and materials, and through peer navigators. While promoting public health messaging on social apps was not identified as effective, we recommend this avenue be discussed further with a community advisory committee.

Develop a strategic plan to expand testing approaches. A strategic plan to expand testing approaches and access should be developed by RIDOH in consultation with a community advisory committee and community partners to ensure effectiveness, feasibility, and reach. This should include flexible, low-threshold testing services (e.g., rapid STI testing, walk-in appointments, at-home testing) that are implemented in clinic and non-clinic spaces to increase reach. Additionally, a range of testing information and logistics, including hours of operation, cost and insurance coverage, wait times, location, inclusiveness of setting for GBMSM, and testing frequency recommendation, will be critical for successful implementation. We recommend that this strategy draw from the state's highly successful COVID-19 and MPox testing and contact tracing strategies that were developed and implemented to guide expanded STI testing services. We also recommend that the strategy includes a communication and dissemination component to ensure a range of audiences learn about expanded resources.

Create a one-stop shop for sexual health and STI testing resources. While several STI-related resources (e.g., online STI test scheduling portal, health department STD information page) have been developed by the state (50–52) (**see Appendix D**), a revised, streamlined approach to sexual health education and STI testing should be designed and implemented to fill critical gaps in sexual health knowledge among diverse populations. This should include a wide range of resources from sexual health, STI information (e.g., transmission routes, prevention, treatment), location of sexual health resources (e.g., PrEP, doxyPEP), recommendation for testing engagement, STI testing locations and types of testing offered (e.g., rapid, full panel), and insurance coverage of testing. To ensure information is accessible, resources should be developed across mediums, including digital formats, printed materials, infographics, and visuals, and distributed across community partner locations in a range of languages. Efforts should also engage middle and high schools to improve sexual health education at younger ages.





These efforts will be critical to increasing broader awareness of sexual health and STI information and may improve engagement in testing services.





APPENDICES

Appendix A: Electronic Database Search

PubMed Syntax

((“disease intervention specialist” OR “partner notification service*” OR “contact trac*” OR “field service*” OR “contact tracing”[Mesh]) AND ((HIV OR “human immunodeficiency virus”) OR (syphilis OR “treponema pallidum”) OR (gonorrhea OR “neisseria gonorrhoeae”) OR (chlamydia OR “chlamydia trachomatis”) OR (chancroid OR “haemophilus ducreyi”) OR (STD OR “sexually transmitted disease*” OR “sexually transmitted diseases”[Mesh]) OR (STI OR “sexually transmitted infection*”)))*

With filters: published since 04/01/2018, English, and Humans

CINAHL, Psych Info, and SocINDEX

((“disease intervention specialist” OR “partner notification service*” OR “contact trac*” OR “field service*”) AND ((HIV OR “human immunodeficiency virus”) OR (syphilis OR “treponema pallidum”) OR (gonorrhea OR “neisseria gonorrhoeae”) OR (chlamydia OR “chlamydia trachomatis”) OR (chancroid OR “haemophilus ducreyi”) OR (STD OR “sexually transmitted disease*”) OR (STI or “sexually transmitted infection*”)))*

With filters: published since 04/01/2018, English, Humans, and United States (where possible)





Appendix B: Qualtrics Systematic Data Extraction Dimensions

Dimension	Input
First author	Text entry
Publication date	Text entry
Title	Text Entry
Link to full text	Text entry
Publication type	Peer-reviewed manuscript Pre-print manuscript Government report
Geographic setting	Text entry
Population	Text entry
Applicable infections	HIV Syphilis Gonorrhea Chlamydia Chancroid Other - specify - text entry
Organization types directly involved in providing the DIS services	State DOH Local DOH University Health center Other - specify - text entry No direct services were provided
DIS model(s) discussed	In-person Phone Video chat Web-based App-based Partnership with other organization - specify - text entry Telehealth Other - specify - text entry
Services provided to index patients	Partner notification Referral to HIV/STI testing Referral to PrEP (HIV prevention) Referral to ART (HIV treatment)



	Referral to syringe services program Referral to other medical services - specify - text entry Referral to social services - specify - text entry Transportation to appointments Condoms Other - specify - text entry None discussed
Services provided to partners	Referral to HIV/STI testing Referral to PrEP (HIV prevention) Referral to ART (HIV treatment) Referral to syringe services program Referral to other medical services - specify - text entry Referral to social services - specify - text entry Transportation to appointments Condoms Other - specify - text entry None discussed
Staffing of the models	Text entry
Includes results of an evaluation	Yes No
If applicable, summarize main overall evaluation findings	Text entry
Noted strengths of the model	Text entry
Noted limitations of the model	Text entry
Other promising DIS models discussed	In-person Phone Video chat Web-based App-based Partnership with other organization - specify - text entry Other - specify - text entry None discussed
Notes on promising DIS models	Text entry
Links to citations	Text entry
Additional Notes	Text entry





Appendix C: Engaging in Partner Notification Services: Capital Assessment Tool

When first reaching index cases, assessing their current capital for engaging in partner notification may be helpful. Capital refers to internal and external resources (e.g., personal, social, and community factors), with a focus on personal strengths and social capacities. This type of capital assessment may help DIS determine how to best meet the patient's needs, including through tailoring the interview, education, and referral processes. What follows is an abbreviated draft capital evaluation tool that could serve as a foundation to iterate on, as well as a longer form assessment tool that includes additional domains and questions that could be utilized based on preferred domain focus, time, and resources available.

This survey asks how strongly you agree or disagree with each of the following statements based on your current situation or how you are feeling right now.

Score each of the following based on the following scale:

1. Strongly disagree | 2. Disagree | 3. Neutral | 4. Agree | 5. Strongly Agree

Social factors	
	I have at least one person in my life who I can tell if I have an STI.
	I feel comfortable having hard conversations when I have to.
Community factors	
	I have a doctor or clinic where I usually go when I'm not feeling well.
	I know where to find care and other resources if I think I have an STI.
Personal factors	
	I make enough money to buy what I need on a weekly basis.
	I am not stressed a lot of the time.
Prior STI knowledge	
	I know what STI symptoms to look out for in myself and my sexual partners.
Total client score	

Possible score: 35





Scoring directions for assessors: Clients rate their agreement with each statement from “Strongly Disagree” (with a value of 1) to “Strongly Agree” (with a value of 5). The score for each question is added together to create the client’s total score. Total scores can range from 7 to 35. Lower scores indicate that the client is likely to need additional support throughout the DIS interview, education, and referral processes for successful partner notification and linkage to health and social services.

Full assessment tool - draft

Score each of the following based on the following scale:

1. Strongly disagree | 2. Disagree | 3. Neutral | 4. Agree | 5. Strongly Agree

Score	Social Capital
	I have many people in my social circle.
	I have at least one person in my life who I can tell if I have an STI.
	I know who I can ask for support in my social circle when I really need it.
	I care a lot about what my friends, family, and coworkers think of me.
	I have someone who I go to when I'm feeling stressed.
	I feel comfortable having hard conversations when I have to.
	I can persuade my partners, friends, and other social connections to do the "right" thing.
	I feel confident talking with my prior sexual partners if I have an STI.
	I feel safe and comfortable notifying my sexual partners if they may have been exposed to an STI.
	Total section score
Community Capital	
	I have a doctor or clinic where I usually go when I'm not feeling well.
	I can call the Rhode Island Department of Health to get access to resources if I think I have an STI.
	I know where to find care and other resources if I think I have an STI
	Total section score
Prior STI Knowledge Capital	
	I know how STIs are passed from person to person.





	I know what STI symptoms to look out for in myself and my sexual partners.
	I know where I could go to get tested if I think I have an STI.
	If I have an STI, my recent sexual partners should also get tested.
	Treatment is needed for most STIs to go away.
	Total section score
	Financial Capital
	I make enough money to buy what I need on a weekly basis.
	I have access to transportation to get to work and appointments.
	I have reliable access to a phone and the internet.
	I have a smartphone and know how to use different apps.
	I have health insurance.
	Total section score
	Psychological Capital
	I have things I do to take care of myself when things are tough.
	I do not feel nervous to tell others when I've made a mistake.
	I am not stressed a lot of the time.
	I do not isolate myself when I feel sad or stressed.
	Total section score

Possible score: 130

Total client score:

Scoring directions for assessors: Clients rate their agreement with each statement from “Strongly Disagree” (with a value of 1) to “Strongly Agree” (with a value of 5). The score for each question is added together to create the client’s total score. Total scores can range from 26 to 130. Lower scores indicate that the client is likely to need additional support throughout the DIS interview, education, and referral processes for successful partner notification and linkage to health and social services.





Appendix D: Existing RIDOH resources

Based on participants' experiences, centralizing and streamlining online resources is critical for filling an important gap. Below, we have sought to identify opportunities to modify existing resources to better meet the needs identified by participants:

TESTING 1-2-3

In line with participants' requests for online scheduling options and walk-in availability, this platform allows you to schedule a test at a preferred walk-in location. However, there are many instances where the platform redirects you to other websites (e.g., if symptomatic, interested in extragenital testing, seeking tests for additional STIs). These other websites can be difficult to navigate as they all have different layouts and steps for making appointments. Additionally, many of these websites do not provide concrete cost or insurance information, instead instructing individuals to call to confirm coverage.

In line with stakeholder and participant recommendations, it may be helpful for RIDOH to offer and advertise a navigator-like service to help people explore these other options. Similarly, the platform currently provides ambiguous information about the cost of testing and insurance coverage, redirecting people to the websites of clinics that offer free or low-cost testing and/or to call their insurance company. Given that participants identified both cost and ambiguity around insurance as significant barriers to testing, offering a navigator-like service on the platform could again be beneficial. Finally, it may be helpful to specify whether the listed contact number can receive texts, as this was raised as a preferred communication method for participants.

RIDOH's "STD Testing" Page & "Sexually Transmitted Diseases" Page

These sites provide contact information for many different testing options throughout Rhode Island. Currently, each page redirects you to the website and/or phone number for each testing location. To streamline the information presented directly on RIDOH's website, it may be helpful to include information about the characteristics that participants identified as important (e.g., hours, walk-in availability, insurance coverage) for each of these testing locations, clarifying the distinctions between each option so that people can make an informed choice about which might be most appropriate for them. It may also be beneficial to offer and advertise a navigator-like service that could help people navigate these options.

Summary

Overall, there are some existing online platforms that could be modified and adapted to address gaps underscored by project participants. We do recommend expanding community advertisements to increase awareness of these resources to better promote them across populations of GBMSM as they were not well-known among participants. Further, finding





existing resources and supports for partner notification services that are not geared toward providers was challenging. Creating more streamlined and tailored resources on partner services could be another opportunity to increase transparency around DIS services and promote DIS as a support system available for people throughout Rhode Island.





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