Improving care for sexually transmitted infections

Cornelis A Rietmeijer

Abstract

Introduction: Rising rates of reported sexually transmitted infections (STIs) in the US and Europe are a public health priority and require a public health response. The diagnosis and treatment of STIs have been the cornerstone of STI control and prevention for many decades and, historically, publicly funded STI clinics have played a central role in the provision of STI care. Innovations in non-invasive diagnostic techniques, especially nucleic acid amplification tests in the mid-1990s, have facilitated the expansion of STI testing and treatment outside traditional STI clinics, including primary care, family planning, school-based health, outreach, corrections, emergency departments and HIV prevention and care settings. As a result, the continued need for categorical STI clinics has been debated. In this Commentary, we discuss how practice can be improved at each level of STI care.

Discussion: STI practice improvement plans should be tailored to the strengths of each care setting. Thus, in primary care, the focus should be on improving STI screening rates, the provision of hepatitis B and human papillomavirus vaccines and, in jurisdictions where this is legal, expedited partner therapy for gonorrhoea and chlamydia. Extragénital (pharyngeal and rectal) testing for gonorrhoea and chlamydia should be available in settings serving populations more vulnerable to STI acquisition at these anatomical sites, including men who have sex with men. In family planning settings with a mostly female patient population, there are opportunities to serve male partners with both contraceptive and STI services. STI screening rates can also be improved in other settings serving populations at increased risk for STIs, including school-based clinics, emergency departments, correctional health facilities and providers of HIV care and prevention. These improvements are predominantly logistical in nature and not dependent on extensive STI clinical expertise. While some providers in these settings may have the clinical knowledge and skills to evaluate symptomatic patients, many do not, and STI speciality clinics must be available for consultation and referral and evolve from “safety net” providers of last resort to STI centres of excellence.

Conclusions: A tailored practice improvement plan can be envisioned to achieve an optimally functioning STI care continuum.

Keywords: STI; medical care; prevention; differentiated care; HIV prevention; health systems

1 | INTRODUCTION

The consistent rise in the number of reported sexually transmitted infections (STIs) in the US [1] and Europe [2] presents a public health priority requiring an urgent public health response.

The reasons for rising STI rates are not fully understood. Men who have sex with men (MSM) are most vulnerable to STI acquisition and have experienced disproportional increases in gonorrhoea and syphilis rates [1]. Evidence suggests that changing perspectives on HIV transmission risks brought about by effective HIV treatment and pre-exposure prophylaxis (PrEP) have led to changes in attitudes towards condom use and other prevention strategies with the unfortunate result that HIV risk reduction may be accompanied by increasing the risks for other STIs [3-5]. However, rising STI rates are not limited to MSM. The resurgence of syphilis in the US now also involves heterosexual men and women, and the increasing congenital syphilis rates are alarming [1]. Other reasons may contribute to rising STI rates. Substance use (“chemsex”) is associated with increased sexual risk behaviours [6,7] and the recruitment of sex partners is facilitated by online dating sites and apps [8]. Increased case finding also plays a role, for example, the implementation and adherence to annual chlamydia screening for sexually active women [9]. In addition, it has been appreciated for some 15 years that asymptomatic extragenital (pharyngeal and rectal) gonorrhoea and chlamydia infections are very common among MSM and that failure to screen these anatomical sites may lead to underestimating the infection burden by more than 50% [10]. Current STI screening guidelines stress the importance of extragenital testing among MSM [9], and thus lead to enhanced case finding. Finally, a fraying public health infrastructure is blamed for the syphilis resurgence among heterosexual populations and the associated rise in congenital syphilis [1].

While the underlying causes of the rising STI trends will continue to be elucidated, this should not delay an urgently needed public health response.

Historically, the diagnosis and treatment of STIs have played a key role in public health STI control efforts. However, while...
the concept of “treatment as prevention” has only recently entered the lexicon of HIV prevention [11], it has been the guiding principle for STI control and prevention for many decades, enabled by the introduction of penicillin and other antibiotics after the second world war when syphilis and gonorrhoea were at epidemic highs. Given the public health importance of STI treatment and the stigma associated with these diseases, publicly funded “categorical” STI clinics became a critical component in the fight against STIs. Frequent by patients with symptomatic STIs who did not have other sources of medical care or who chose these clinics for confidentiality reasons even if they had access to other care providers, these clinics became a “safety net” for stigmatized populations at high risk for STIs, including MSM, sex workers and people who inject drugs.

An important limitation of relying on the care of symptomatic patients to control STI was the increasing recognition of the asymptomatic nature of many STIs and a growing awareness that STI control could not be accomplished by just focusing on patients with symptomatic infections: the proverbial tip of the iceberg. However, the alternative – the establishment of screening programmes for asymptomatic (high-risk) persons – was stymied by insensitive and cumbersome tests requiring invasive (urethral, cervical) sampling techniques that were not widely available and not particularly attractive to the public.

The development of highly sensitive nucleic acid amplification tests (NAATs) using non-invasive, self-sampled specimens (urine, vaginal or anal swabs) have dramatically changed the STI prevention landscape since the mid-1990s [12]. Such tests, including combined chlamydia/gonorrhoea NAATs, could now be done easily in a variety of non-STI clinic settings, including primary care, family planning, HIV prevention and care and even outreach [13] as well as home-based testing programmes facilitated by the growing popularity of the Internet [14]. Public health screening recommendations, for example, routine annual chlamydia screening for young sexually active women [9], became feasible. As a result, increasing numbers of STIs, especially chlamydia infections, are now reported from non-STI clinic settings, including primary care (both private and public) and family planning clinics [1].

With the widening array of STI care providers and with increasing access to these providers, for example, through the implementation of the Affordable Care Act in the US, the role of publicly funded STI clinics as safety net providers has become increasingly scrutinized and a number of clinics have closed their doors or have curtailed their services [15]. Unfortunately, at the same time, STI rates have been increasing in the US and elsewhere, and it is tempting to speculate that the dismantling of the public health STI care infrastructure may be causally related to these trends [15].

2 | DISCUSSION: IMPROVING STI SERVICES

The increasing importance of multiple sources in the overall provision of STI care should be recognized. Rather than fearing a fragmented system, a practice improvement plan should be designed that builds on this diversity and tailors recommendations to the STI services that are provided at each level.

2.1 | Primary care

Screening for chlamydia and gonorrhoea using non-invasive NAATs has become a standard of practice in many primary care settings, including private providers and publicly funded health centres. Indeed, a large number of infections are reported from these providers already [1]. But there is room for improvement. It is estimated that only 40% to 50% of sexually active women under the age of 25 are screened for chlamydia annually in primary care settings in the US [16]. With advances in electronic medical records, allowing for automated prompts, as well as test reimbursement schemes, there is no reason why screening rates should not be higher.

Likewise, coverage for HBV and HPV vaccinations can be improved by including it in standard immunization schemes recommended for primary care settings [17]. Also, in jurisdictions where this is legal, primary care providers should be encouraged to implement expedited partner treatment (EPT) for patients diagnosed with gonorrhoea or chlamydia [9].

However, while some primary care physicians serve populations at high risk for STIs and are quite comfortable with the differential diagnosis and treatment of STI, most encounter asymptomatic STIs infrequently, and their expertise may vary when evaluating and treating patients presenting with relatively rare STI, including primary and secondary syphilis and lymphogranuloma venereum. Developing such skills would not be practical in settings with an already overburdened medical staff. It is important, however, that they should have easy access to consultation with STI experts in their region or through online resources [18].

2.2 | Family planning

Priorities in family planning facilities are focused on the provision of contraception, but with growing expertise, these clinics have become important providers of STI care, especially for women. Screening for chlamydia and other STIs has become common practice in this setting, especially since the widespread adoption of chlamydia/gonorrhoea NAAT assays. Family planning clinics are also increasingly encouraged to expand their services to men. However, even though average male attendance is growing, it is still low in many clinics, for example, less than 10% in publicly funded family planning clinics in the US [19]. As a more holistic sexual health paradigm is gaining ground [20], further STI service and skills development in family planning clinics and appeal to other populations would be a welcomed expansion of the STI care infrastructure.

2.3 | HIV prevention and care settings

The resurgence of STIs among MSM [3] has profoundly affected traditional HIV prevention and care settings. HIV testing sites, whether clinic- or outreach-based, are increasingly providing chlamydia/gonorrhoea NAATs and syphilis serologic testing. Many sites now offer chlamydia/gonorrhoea testing for all exposed anatomical sites (including urine, anal and pharyngeal sampling) and, with most
STI clinics include client perceptions of clinic expertise, portions of MSM visiting STI clinics has been observed elsewhere the past two decades [28]. Similar shifts towards higher proportions of MSM visiting STI clinics has been observed elsewhere, including the US [29,30]. Reasons for continued use of STI clinics include client perceptions of clinic expertise, confidentiality, easy access, same-day services and low or no cost [31]. Even patients with newly acquired health insurance will continue to use the STI clinic as they may be reluctant to use their insurance due to confidentiality [31].

In this emerging landscape of STI care, what should the future role of publicly funded STI clinics be? Foremost, it should be recognized that categorical STI clinics, unlike other STI service providers, have STI treatment and prevention as their primary public health mission. They should thus function as a central hub in their local and/or regional STI provider network and be an essential partner in the overall STI public health response in the region. Rather than "safety net clinics" that are doomed to become obsolete once access to (primary) health services is assured, these clinics should be centres of excellence that provide the delivery of expert STI clinical care, state-of-the-art diagnostic capabilities and on-site treatment and follow up, (including EPT). They should be available for low-threshold referral and consultation. They should also be a resource for sentinel surveillance research, including gonococcal resistance [29,32], and for research in the development of new STI diagnostics and treatment, as well as for clinical training and workforce development [33,34].

From a morbidity/mortality and cost perspective, HIV is still the most important STI. STI clinics disproportionately serve populations at high risk for HIV, diagnose persons with HIV and link them to care, and are becoming an increasingly important gateway for PrEP care [35]. HIV prevention services are thus a central component of the STI clinic mission. In fact, some clinics, where patients find it difficult to follow through on HIV care or PrEP referral, have started to provide HIV and PrEP care on site, essentially making the concept of "safety net provider" come full circle [36].

With typically constrained resources, STI clinics must provide their services in the most cost-efficient manner. Non-invasive NAATs for the diagnosis of gonorrhoea and chlamydia allow the triage of patients into those that need full examination versus those who need only screening: so-called “express visits,” which has significantly increased efficiency and lowered costs for STI clinics [37-39]. The “express visit” model has now been widely adopted and has even led to the emergence of stand-alone express clinics, for example, Dean Street Express in London [40]. While such stand-alone clinics are promising for asymptomatic populations that require frequent STI testing (such as persons receiving HIV PrEP), they may not be staffed to serve patients with symptomatic STI and should thus have a mechanism to refer those patients to STI speciality care [41].

Finally, in an era of dwindling public spending, publicly funded STI clinics should be proactive in finding ways to diversify their funding. Given overlaps between STI and pregnancy risk among (young) women, the provision of family planning services in STI clinics makes sense from a sexual health perspective, and many clinics have integrated these services and broadened their funding base [42].

Billing patients for services may seem to be anathema to the public health mission of STI clinics as it could raise barriers to access. However, carefully designed schemes that encourage patients to use their insurance, while readily allowing them access if they choose not to use insurance and have no other means of paying, could still result in a
sizeable source of revenue [43]. In the US, nurse practitioners, but not regular nurses, can independently bill for services. This has been an additional impetus for certain clinics to provide a billable service that can be provided by these practitioners, including PrEP and the placement of intrauterine birth control devices and other long-acting, reversible contraceptives.

Given their patient/client base, STI clinics are also in a good position to apply for (sentinel) surveillance and research projects, including studies on gonococcal antimicrobial resistance and rapid, point-of-care diagnostics. Currently, few STI clinics are positioned to profit from these opportunities. However, there are many more clinics that, with additional effort, could rise to a level that would benefit not only their patients but also their bottom line.

3 | CONCLUSIONS

The future of STI control and prevention is daunting, but it is also promising. There is now a large and potentially growing array of STI service providers, both in public and private sectors, that can have significant impact on STI control when forged together in a single vision. The diversity of STI care providers has in large part been made possible by the advent of non-invasive testing technologies. Further advancement in technology, specifically the development of rapid, sensitive and specific point-of-care testing, which is already on the horizon, will provide additional tools for STI diagnosis and control. What is needed above all is a continued passion and advocacy for STI and HIV prevention.

AUTHOR’S AFFILIATIONS

Rietmeijer CA, Journal of the International AIDS Society 2019; 22(5):e25349

http://onlinelibrary.wiley.com/doi/10.1002/jia2.25349/full | https://doi.org/10.1002/jia2.25349

COMPETING INTERESTS

Dr Rietmeijer is an independent STI consultant. He declares no commercial or other conflicts of interest with the contents of this Commentary and did not receive funding for its writing.

AUTHORS’ CONTRIBUTIONS

CAR wrote this manuscript.

ACKNOWLEDGEMENTS

None declared.

FUNDING

None declared.

REFERENCES

1. Centers for Disease Control and Prevention. Sexually transmitted disease surveillance 2017. Atlanta: U.S. Department of Health and Human Services; 2018.
2. European Centre for Disease Prevention and Control. Gonorrhoea Annual Report for 2017. 2019 [cited 2019 May 29] Available from: https://ecdc.europa.eu/sites/portal/files/documents/gonorrhoea-annual-epidemiological-report-2017.pdf
3. Stenger MR, Baral S, Stahlman M, Wohlfeiler D, Barton JE, Peterman T. As through a glass, darkly: the future of sexually transmissible infections among gay, bisexual and other men who have sex with men. Sex Health. 2017;14(1):18–27.
4. Bromer MR, DeVost MA, Weiss RE, Dierst-Davies R, Shover CL, Landovitz RJ, et al. Does HIV pre-exposure prophylaxis use lead to a higher incidence of sexually transmitted infections? A case-crossover study of men who have sex with men in Los Angeles, California. Sex Transm Infect. 2018;94(6):457–62.
5. Prestage G, Maher L, Grulich A, Bourne A, Hammond M, Vacher S, et al. Brief report: changes in behavior after PrEP initiation among Australian gay and bisexual men. J Acquir Immune Defic Syndr; 2019;81(1):52–6.
6. Daskalopoulou M, Rodger AJ, Phillips AN, Sherr L, Elford J, McDowell J, et al. Condomless sex in HIV-diagnosed men who have sex with men in the UK: prevalence, correlates, and implications for HIV transmission. Sex Transm Infect. 2017;93(8):590–8.
7. Evers YJ, Van Liere QAF, Hoebbe CJPA. Dukers-Muijters NHTM. Chemsex among men who have sex with men living outside major cities and associations with sexually transmitted infections: a cross-sectional study in the Netherlands. PLoS ONE. 2019;14(5):e0216732.
8. Cabeçinha M, Mercer CH, Gravningen K, Aicken C, Jones KG, Tanton C, et al. Finding sexual partners online: prevalence and associations with sexual behaviour, STI diagnoses and other sexual health outcomes in the British population. Sex Transm Infect. 2017;93(8):572–82.
9. Workowski KA, Bolan GA. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines. MMWR Recomm Rep. 2015;64(3):1–137.
10. Kent CK, Chau JK, Wong W, Liu K, Gibbon S, Hubbard G, et al. Prevalence of rectal, urethral, and pharyngeal chlamydia and gonorrhea detected in 2 clinical settings among men who have sex with men: San Francisco, California, 2003. Clin Infect Dis. 2005;41(1):67–74.
11. Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, et al. Prevention of HIV-1 infection with early antiretroviral therapy. N Engl J Med. 2011;365(6):493–505.
12. Jaschek G, Gaydos CA, Welsh LE, Quinn TC. Direct detection of Chlamydia trachomatis in urine specimens from symptomatic and asymptomatic men by using a rapid polymerase chain reaction assay. J Clin Microbiol. 1993;31(5):1209–12.
13. Rietmeijer CA, Yamaguchi KJ, Ortiz CG, Montsream SA, LeRoux T, Ehret JM, et al. Feasibility and yield of screening urine for Chlamydia trachomatis by polymerase chain reaction among high-risk male youth in field-based and other nonclinic settings. A new strategy for sexually transmitted disease control. Sex Transm Dis. 1997;24(7):429–35.
14. Gaydos CA, Dwyer K, Barnes M, Rizzo-Price PA, Wood BJ, Flemming T, et al. Internet-based screening for Chlamydia trachomatis to reach non-clinic populations with mailed self-administered vaginal swabs. Sex Transm Dis. 2006;33(7):451–7.
15. Golden MR, Merndt PR. Improving clinical operations: can we and should we save our STD clinics? Sex Transm Dis. 2010;37(4):264–5.
16. National Committee for Quality Assurance. Chlamydia screening in women. 2018 [cited 2019 Jan 2]. Available from: https://www.ncqa.org/hedis/measures/chlamydia-screening-in-women/
17. Physicians AAF, Human papillomavirus vaccine. 2014 [cited 2019 Jan 20] Available from: https://www.aafp.org/patient-care/public-health/immunizations/disease-population/hpv.html
18. Caragol LA, Wendel KA, Anderson TS, Burnside HC, Finkenbinder A, Fitch JD, et al. A new resource for STD clinical providers: the sexually transmitted diseases clinical consultation network. Sex Transm Dis. 2017;44(8):510–2.
19. Besera G, Moskosy S, Pazol K, Fowler C, Warner L, Johnson DM, et al. Internet-based screening for Chlamydia trachomatis to reach non-clinic populations with mailed self-administered vaginal swabs. Sex Transm Dis. 2006;33(7):451–7.
20. Douglas JM, Fenton KA. Understanding sexual health and its role in more effective prevention programs. Public Health Rep. 2013;128 Suppl 1:1–4.
21. Obafemi O, Wendel K, Anderson T, et al. Rapid point-of-care test decreases prevalence, correlates, and implications for HIV transmission. Sex Transm Infect. 2017;93(8):590–8.
22. Marcus JL, Hurley LB, Hare CB, Nguyen DP, Phengrasamy T, Silverberg MJ, et al. Preexposure prophylaxis for HIV prevention in a large integrated health care system: adherence, renal safety, and discontinuation. J Acquir Immune Defic Syndr; 2016;73(5):540–6.
23. US Public Health Service. Preexposure prophylaxis for the prevention of HIV infection in the United States - 2017 update. 2017 [cited 2019 Jan 20]. Available from: https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf
24. Moore MJ, Barr E, Wilson K, Griner S. Support for offering sexual health services through school-based health clinics. J Sch Health. 2016;86(9):660–8.
25. Flanigan TP, Zaller N, Beckwith CG, Bazerman LB, Rana A, Gardner A, et al. Testing for HIV, sexually transmitted infections, and viral hepatitis in jails: still a missed opportunity for public health and HIV prevention. J Acquir Immune Defic Syndr. 2010;55 Suppl 2:S78–83.
26. Shaikh RA, Simonsen KA, O’Keefe A, Earley M, Foxall M, Islam KM, et al. Comparison of Opt-In Versus Opt-Out testing for sexually transmitted infections among inmates in a county jail. J Correct Health Care. 2015;21(4):408–16.
27. Batteiger TA, Dixon BE, Wang J, Zhang Z, Tao G, Tong Y, et al. Where do people go for gonorrhea and chlamydia tests: a cross-sectional view of the central Indiana population, 2003-2014. Sex Transm Dis. 2019;46(2):132–6.
28. Hogewoning A. The future of STI clinics - the view from Amsterdam. 2018 IUSTI World Congress 2018 - Dublin, Ireland. [cited 2019 Jan 20]. Available from: https://dv4.mediasite.com/mediasite/Play/0d3df92f6b2e4a1c8238efe3b05772d1f?catalog=d89afabad6b142908b8f63766cd595d721
29. Pathela P, Klingler EJ, Guerry SL, Bernstein KT, Kerani RP, lista L, et al. Sexually transmitted infection clinics as safety net providers: exploring the role of categorical sexually transmitted infection clinics in an era of health care reform. Sex Transm Dis. 2015;42(5):286–93.
30. Golden MR, Kerndt PR. What is the role of sexually transmitted disease clinics? Sex Transm Dis. 2015;42(5):294–6.
31. Mettenbrink C, Al-Tayyib A, Eggert J, Thrun M. Assessing the changing landscape of sexual health clinical service after the implementation of the affordable care act. Sex Transm Dis. 2015;42(12):725–30.
32. Rietmeijer CA, Donnelly J, Bernstein KT, Bissette JM, Martins S, Pathela P, et al. Here comes the SSuN: early experiences with the STD surveillance network. Public Health Rep. 2009;124 Suppl 2:72–7.
33. Dreisbach S, Devine S, Fitch J, Anderson T, Lee T, Rietmeijer C, et al. Can experiential didactic training improve clinical STD practices? Sex Transm Dis. 2011;38(6):516–21.
34. Rietmeijer CA. From safety net providers to centers of excellence: the future of publicly funded sexually transmitted infection clinics in the United States. Sex Transm Dis. 2019;46(2):137–8.
35. Marx GE, Bhatia R, Rietmeijer CA. An opportunity too good to miss: implementing human immunodeficiency virus preexposure prophylaxis in sexually transmitted diseases clinics. Sex Transm Dis. 2016;43(4):266–7.
36. Dombrowski JC, Ramchandani M, Dhanireddy S, Harrington RD, Moore A, Golden MR. The Max Clinic: medical care designed to engage the hardest-to-reach persons living with HIV in Seattle and King County, Washington. AIDS Patient Care STDs. 2018;32(4):149–56.
37. Shamos SJ, Mettenbrink CJ, Subiatur JA, Mitchell BL, Rietmeijer CA. Evaluation of a testing-only “express” visit option to enhance efficiency in a busy STI clinic. Sex Transm Dis. 2008;35(4):336–40.
38. Chambers LC, Manhart LE, Katz DA, Golden MR, Barbee LA, Dombrowski JC. Evaluation of an automated express care triage model to identify clinically relevant cases in a sexually transmitted disease clinic. Sex Transm Dis. 2017;44(9):571–6.
39. Chambers LC, Manhart LE, Katz DA, Golden MR, Barbee LA, Dombrowski JC. Comparison of algorithms to triage patients to express care in a sexually transmitted disease clinic. Sex Transm Dis. 2018;45(10):696–702.
40. Whitlock GG, Gibbons DC, Longford N, Harvey MJ, McOwan A, Adams EJ. Rapid testing and treatment for sexually transmitted infections improve patient care and yield public health benefits. Int J STD AIDS. 2018;29(5):474–82.
41. Rietmeijer CA. The road beyond Dean Street. 2018 [cited 2019 Jan 20]. Available from: http://www.stdpreventiononline.org/index.php/resources/download/2135
42. Shlay JC, McEwen D, Bell D, Maravi M, Rinehart D, Fang H, et al. Integration of family planning services into a sexually transmitted disease clinic setting. Sex Transm Dis. 2013;40(8):669–74.
43. Rietmeijer CA. Models of Care and Cost of Services. STI2018; Amsterdam, July 22 2018 [cited 2019 Jan 20]. Available from: https://programme.aids2018.org/PAGMaterial/PPT/S865_7852/Models%20of%20Care%20of%20STI%202018%20Amsterdam.pptx