




OPEN ACCESS

ORIGINAL ARTICLE

Uptake of peer-led venue-based HIV testing sites in Sweden aimed at men who have sex with men (MSM) and trans persons: a cross-sectional survey

Susanne Strömdahl,^{1,2} Jonas Hoijer,^{3,4} Jaran Eriksen ^{1,5}

¹Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden

²Department of Medical Sciences, Uppsala University, Uppsala, Sweden

³Department of Surgical Sciences, Uppsala Universitet, Uppsala, Sweden

⁴Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden

⁵Department of Laboratory Medicine, Karolinska Institutet, Stockholm, Sweden

Correspondence to

Dr Jaran Eriksen, Karolinska Institutet Department of Public Health Sciences, 171 77 Solna, Sweden; jaran.eriksen@ki.se

Received 12 February 2019

Revised 1 May 2019

Accepted 5 May 2019

Published Online First

21 May 2019

ABSTRACT

Objectives HIV testing among high-risk groups is a key intervention to diagnose persons living unknowingly with HIV to enable linkage to care and effective antiretroviral treatment. This study aimed to evaluate the uptake of Testpoint, the first large-scale HIV testing programme in Sweden where peer, non-healthcare personnel offered venue-based testing. Testing was performed by staff from the Swedish Foundation for Lesbian, Gay, Bisexual and Transgender Rights (RFSL Sweden) and testing was performed at the RFSL offices, gay clubs and gay cruising areas, as well as at various gay festivals. The test was a rapid test using capillary blood from a finger prick.

Methods A cross-sectional survey of all persons aged ≥ 18 years who came for HIV testing at one of Testpoint's locations in Sweden between 1 February and 31 December 2016.

Results 595 respondents (96% response rate) were included. Five persons were diagnosed with HIV and referred for treatment and care. A fifth of participants had never tested for HIV before. More than half of the participants were foreign born and the median age was 31 years. About one-fifth of participants stated they would not have tested through the healthcare system if Testpoint was not available.

Conclusions Testpoint reached their target population of young, foreign-born men who have sex with men (MSM) as well as first time testers and persons who stated that they would not have tested within the healthcare system. Such peer HIV testing outside the healthcare setting is a possible way of increasing uptake of testing in high-risk groups.

INTRODUCTION

HIV testing among high-risk groups is a key intervention to diagnose persons living unknowingly with HIV and enable linkage to care and effective antiretroviral treatment (ART), leading to decreased morbidity, reduced viral load and thereby decreased transmission.^{1,2} The United Nations (UN) 90-90-90 by 2020 target was reported to have been reached by Sweden.³ According to the report, 90% of people living with HIV are estimated to be aware of their diagnosis, 97.1% of known HIV cases are followed within healthcare and of those who have been on ART for at least 6 months, 94.7% have undetectable viral load.³ The Public Health Agency of Sweden estimates that 10% (around 700 individuals) of those living with HIV are unaware of their status

Key messages

- ▶ Reaching people unknowingly living with HIV with testing, treatment and care is a key priority in the fight against HIV.
- ▶ Testpoint is the first large-scale peer-led non-healthcare based HIV testing programme in Sweden.
- ▶ Testpoint reached its target population of foreign born, young MSM and trans persons, first-time testers and those who would not have tested at a healthcare facility.
- ▶ Peer HIV testing outside the healthcare setting is a possible way of increasing uptake of testing in high-risk groups.

due to not having been tested, which—in addition to increased morbidity and mortality in this group—may contribute to onwards transmission.⁴ Furthermore, a study including three-quarters of all newly diagnosed HIV cases in Sweden between 2009 and 2012 (n=575) found that a large proportion (58%) of persons diagnosed with HIV are late presenters.⁵ Reaching people unknowingly living with HIV with testing, treatment and care is a key priority in the fight against the HIV epidemic in Sweden.⁶

The burden of HIV in Sweden is relatively low with around 7000 persons living with diagnosed HIV, a prevalence of 0.07%.⁷ In 2015, 450 new HIV cases were reported, of which the majority are thought to have been infected abroad. In total, 117 cases of HIV were reported among men who have sex with men (MSM) during 2015, of which two-thirds reported having been infected abroad while travelling or before arriving in Sweden. An increase in foreign-born MSM has been noted among those reporting transmission while in Sweden, indicating an increased risk scenario within this group.⁸ High HIV prevalence has been reported among transgender women worldwide; however, no prevalence estimates are available within this group in Sweden.⁹

Ensuring access to HIV testing among high-risk groups to enable frequent HIV testing is a priority. HIV testing outside the healthcare setting by non-healthcare personnel has been shown to increase access and remove barriers to HIV testing in other countries.^{10,11} Therefore a large-scale venue-based HIV-testing programme, Testpoint, was implemented in March 2015 in Stockholm and Örebro



© Author(s) (or their employer(s)) 2019. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Strömdahl S, Hoijer J, Eriksen J. *Sex Transm Infect* 2019;**95**:575–579.

by the Swedish Foundation for Lesbian, Gay, Bisexual and Transgender Rights (RFSL Sweden) with financial support from the Public Health Agency of Sweden.¹² The Testpoint programme offers free anonymous HIV-testing with rapid diagnostic HIV tests and was the first HIV testing programme in Sweden staffed by non-healthcare personnel.¹² Staff were employed by RFSL Stockholm and represented the lesbian, gay, bisexual, transgender and queer community, providing a peer component to this programme. This study evaluates whether Testpoint achieved its aim of reaching MSM and trans persons, with a special focus on young and foreign born MSM, potentially leading to more people unknowingly living with HIV being diagnosed and linked to care.

METHODS

Study design and population

A cross-sectional survey was performed. All persons who came for HIV-testing at one of Testpoint's locations between 1 February and 31 December 2016, who were at least 18 years old and gave informed consent were included in the study.

Setting and data collection

The Testpoint testing sites were open approximately eight times per month. HIV testing and counselling was anonymous and free of charge. The testing (2.5 hours per session) was performed at the RFSL office in central Stockholm approximately one evening per week. In addition, testing was offered at gay clubs, cruising areas and video sex clubs that are frequented by the target groups MSM and transgender, as well as at temporary locations such as Pride festivals. The testing site was set up in a private space of the venues to enable counselling and HIV testing. The HIV test used is a rapid test where capillary blood is taken from a finger prick. The test results are available after 15 min. All persons who tested positive for HIV were referred to a gay-friendly HIV clinic for confirmatory tests, treatment and care. In case of an indeterminate result, a new test was performed. Information about Testpoint's services and opening hours were communicated via online modalities; advertisement at the web-community Qruiser, pop-up advertisement on the smartphone application Grindr and Testpoint's own website.

Survey

All participants were interviewed while waiting for their test results, using a structured questionnaire (available on request from the authors). The questionnaire was filled in by trained staff. The questionnaire was given in Swedish, English, Spanish, Arabic or Farsi. Questions included sociodemographics, previous STI, previous HIV/STI testing, reasons for testing, sexual behaviour, drug use and transactional sex.

Data analysis

The survey data was entered into a Webropol¹³ database and exported for analysis using Stata V.13.¹⁴ Descriptive analyses were performed. Pearson's χ^2 test was used to determine potential association between variables. Multivariable logistic regression analyses were used to control for preselected background variables (age, sexual identity, trans experience, born in Sweden or not, education, reason for testing), using complete case analyses.

Ethical considerations

Oral and written anonymous informed consent was obtained from all individual participants included in the study. Written

Table 1 Sociodemographics of the 595 respondents

Factor	Number of persons* (%)
Country of origin	
Sweden	266 (44.7)
Europe except Sweden	124 (20.8)
Middle East	59 (10.0)
Asia and Oceania	50 (8.4)
South America	36 (6.1)
Africa	31 (5.2)
North America	16 (2.7)
Not stated	13 (2.2)
County of residence (Sweden)	
Stockholm	452 (76)
Uppsala	37 (6.2)
Örebro	24 (4.0)
Other	44 (7.4)
Not resident of Sweden	23 (3.9)
Not stated	15 (2.5)
Occupation	
Employed	394 (69.7)
Student	136 (24.1)
Unemployed	28 (5)
Sick leave	5 (0.9)
Retired	13 (2.3)
Other	19 (3.4)
Do not want to say	7 (1.2)
Highest level of education	
Research education	31 (5.5)
Tertiary level	351 (62.7)
Secondary education	141 (25.2)
Primary school (year 7-9)	21 (3.8)
Primary school (year 1-6)	1 (0.2)
No education	3 (0.5)
Other	12 (2.1)
Sexual identity	
Man	526 (90.2)
Woman	40 (6.9)
Other	17 (2.9)
Is/has experience of trans	
Yes	24 (4.2)

*Responses not available for all indicators for all respondents.

consent was provided by actively checking a box for choosing to participate in the study. This consent method was chosen to protect participants' anonymity. Participation in the study was voluntary and anonymous, participants were informed that they could discontinue study participation at any time point without any consequences.

RESULTS

Sociodemographics

A total of 595 persons participated in the survey study between 1 February and 31 December 2016. Twenty-four individuals declined to participate, which gives a response rate of 96%.

Participants came from 78 different countries and less than half of the participants were born in Sweden (44.7%) (table 1). After Sweden, the most common countries of origin were Iraq, Uganda, Colombia and China. Most respondents identified as male and 24 respondents reported experience as a transwoman

Table 2 Experience of Testpoint and where information about Testpoint was found

Question		Number of respondents (%) Total number 570 persons
Have you tested at Testpoint previously?	Yes, once	102 (17.9)
	Yes, twice	26 (4.6)
	Yes, 3-5 times	16 (2.8)
	No	426 (74.7)
Had you heard of Testpoint before today?*	Yes	154 (57.7)
	No	113 (42.3)
How did you find out about Testpoint?†	Grindr	117 (20.6)
	Qx/Quiser	98 (17.2)
	Saw the testing team here	128 (22.5)
	Internet	144 (25.3)
	Through friend or partner	78 (13.7)
	Other	86 (15.1)
Testing location	RFSL Stockholm	351 (59.0)
	RFSL Örebro	24 (4.0)
	Other location where Testpoint is regularly offered‡	162 (27.2)
	Temporary testing site§	58 (9.8)

*Two hundred and sixty-seven respondents only.

†More than one response possible.

‡Night club, sauna, cruising area.

§Smaller pride and other Lesbian, gay, bisexual, transgender-oriented festivals in Sweden.

(table 1). The majority (70%) held steady employment and had university level education (68%). The median age was 31 years (IQR 25–41 years).

Foreign-born participants had lived in Sweden for a median of 3 years and half had lived in Sweden for 1–12 years. Thirty-six participants reported having lived in Sweden less than 1 year.

More than 40% of the participants had never heard of Testpoint prior to part-taking in the HIV counselling and testing (table 2). The majority (63%) participated when the venue-based testing programme was available at the RFSL Stockholm and Örebro offices. About one-third (27%) tested at night clubs, sauna clubs, video/sex clubs and at cruising areas. The proportion of people tested at the different sites is similar to the proportion of time that the venue-based testing programme was available at these sites. Those who came to test at RFSL offices had a higher level of education than those who tested elsewhere ($p=0.036$) while those who tested at other venues to a larger extent reported that the reason to test was spontaneous (78% compared with 11%, $p>0.001$). There was no difference between the testing sites regarding whether the participant was born in Sweden or not.

Persons who tested positive for HIV

Five of 595 persons tested positive for HIV, a prevalence of 0.8% (95% CI 0.3 to 2.0), of which one person already knew that he was HIV positive. All were referred for treatment and care, but none of them agreed to a follow-up interview. The five were born in five different countries, of which one was Sweden, the median age was 33 years and two had university education. Three had tested before, one had never tested before and one did not report on previous testing. Four of the positive tests were performed at the RFSL office in Stockholm and one at a night club.

Sexual risk behaviour and testing experience

The most commonly stated reasons for choosing to test was routine testing or having had condomless sex. A few individuals were afraid of having been infected, experienced symptoms of primary HIV infection or had shared injection equipment.

Almost all participants had had condomless anal sex previously, and almost 20% had so in the last 2 weeks. About 60% of respondents reported having had condomless anal sex in the last 12 months. Thirteen participants reported condomless anal sex with more than 10 sex partners during the last 12 months, of which three with more than 20 partners. A higher percentage among Swedish-born participants reported condomless anal sex with more than ten sex partners during the last 12 months (4% compared with 1%, $p=0.02$). Among those who reported condomless anal intercourse with more than 10 partners a larger proportion stated the reason for testing today as spontaneous compared with the rest of the participants (9% vs 1.7%, $p=0.002$). The latter remained statistically significant in the multivariable analysis when controlling for age, country of birth and level of education.

Three-quarters of participants has used recreational drugs during sex in the last 12 months, most commonly alcohol (63%), followed by poppers/nitrate (25%) and cannabis/spice (9%). Thirty participants (5%) reported having used either cocaine, crystal meth, ketamine, crack, amphetamine, ecstasy, lysergic acid diethylamide (LSD), gamma-hydroxybutyrate (GHB), or heroin during sex in the last 12 months. These participants had a median age of 28 years, compared with 31 among other participants. In the multivariable analysis, when controlling for sexual identity, trans experience, country of birth, level of education and reason for testing, younger age remained significantly associated with drug use ($p=0.03$). Seven participants (1.2%) reported that they had shared drug injection tools during the last 12 months. Three percent of participants reported having bought or sold sex during the last 12 months.

Previous HIV testing

One-fifth, that is, 115 participants had never tested for HIV before. The median age of those who had never tested for HIV before was 27 years, compared with 32 among those who had tested before ($p<0.001$). One-fifth of those who were born in Sweden reported never having tested before, compared with 17% among foreign-born participants ($p=0.017$). Twenty-seven per cent of participants with trans experience reported never having tested before, compared with 19% among other participants ($p=0.008$). Among participants with university education, 15% had never tested before, half the proportion of those with lower education level ($p<0.001$). Being born in Sweden ($p=0.02$) and young age ($p<0.0001$) remained significantly associated with never having tested for HIV before in multivariable analysis.

Thirty participants had last tested for HIV five or more years ago. The median age in this group was 39, compared with 31 among those who had tested more recently ($p=0.006$). Ten per cent of the Swedish-born participants had tested for HIV five or more years ago, while 5% among foreign-born reported this time frame ($p=0.043$). Age remained significantly associated ($p=0.004$) to having last tested five or more years ago in the multivariable analysis.

Half the participants had tested within the past 12 months and among those 135 participants had tested twice. There was no statistically significant difference between these 135 participants and the rest regarding age, education and being foreign born.

About one-fifth ($n=113$) of the participants stated that they would not have tested for HIV at a healthcare facility if the venue-based programme was not available. Among these, 'routine test' (23.9%) and condomless sex (20.4%) were the most common reasons for testing. Eight per cent stated that the test was a spontaneous test, which is about the same frequency as for the rest of the study population. About 50% in the group stated to have had condomless anal sex in the last 12 months, a slightly lower frequency than among the rest of the respondents (60%, $p=0.04$).

DISCUSSION

This study evaluated the Testpoint project, the first large-scale programme in Sweden providing venue-based HIV testing by peer non-healthcare personnel. The programme reached persons belonging to groups with higher HIV risk among MSM and transgender people. Five of 595 persons were diagnosed with HIV and referred for treatment and care. The data suggest that this low-threshold programme enabled first time testers to come, as well as promoted repeat testing among high-risk individuals.

One of the objectives of Testpoint was to test people living with HIV unknowingly. Five persons, 0.8% (95% CI 0.3 to 2.0) of the participants, tested positive for HIV. Four of them did not already know their HIV status. The HIV prevalence among those tested at Testpoint is higher than the estimated prevalence of 0.07% in the general population⁷ but lower than the prevalence estimate of 2%–6% among MSM in Sweden.¹⁵ However, these figures are from 2012 and also hold uncertainty. The number of persons tested at Testpoint was about 60% of that initially expected. This could be due to Testpoint being a new actor and therefore unknown. More frequent testing with extended opening hours as well as wider marketing might have increased the uptake. By comparison, the well-established healthcare provider *Venhälsan*, the largest actor for MSM HIV testing in Stockholm, tested 7447 MSM in 2015.¹⁶

Almost half of the participants reported having condomless anal sex during the last 6 months, which is comparable to the Sialon study, where MSM were recruited for interviews and HIV testing at gay venues in several European cities.¹⁷ About 5% of the participants had used cocaine, crystal meth, amphetamine or similar drugs in the last 12 months, which is lower than the Sialon study.¹⁸ On the other hand, the number of people who had used alcohol or poppers during sex was comparable to Sialon. This probably reflects the rate of drug use in Sweden compared with the European countries in which Sialon was conducted. Another reason the participants in our study reported less risk taking may be that they had chosen to go to Testpoint for HIV testing, while the Sialon study contacted participants at gay venues.¹⁷ It is worth discussing whether Testpoint reached MSM with the highest risk of HIV. One reason this does not seem to be the case is the fact that the HIV prevalence among the participants was lower than the estimates for the Swedish MSM population.¹⁵ Possibly, people with perceived higher risk behaviour choose to get tested at formal healthcare clinics where it is possible to test for both HIV and other STIs. Similarly, people who tested at venues in our study had a lower level of education than those testing at the RFSL offices, suggesting a higher awareness of testing and more planned testing in the group with higher education.

Testpoint's main target group is MSM, with a particular focus on young, foreign-born MSM and transgender people. All of these groups were represented among our participants. The programme was especially successful in reaching foreign-born MSM, which constituted 55% of the participants. This is a high

proportion, considering that about 23% of the population in Stockholm is foreign born. The high proportion could be due to targeted information about Testpoint in different languages and the fact that it might be more difficult for persons born outside Sweden to navigate the healthcare system to get access to HIV testing elsewhere. Additionally, among those who tested, 4.2% said they were or had been trans, a group that has been shown to be at particularly high risk of HIV, and also to have poor uptake of testing.^{19,20} Even in our study, the individuals with trans experience were more likely than the rest of the cohort never to have had an HIV test before.

One-fifth of the study participants had never before had an HIV test, showing that first time testers are also reached by Testpoint. A similar prevalence of MSM that have never tested for HIV has been reported previously from the 2010 EMIS study, where MSM were interviewed through a web-banner survey,²¹ and in a French study of a programme similar to Testpoint, 30% of participants had not tested in the previous 2 years.²² In the Sialon study, between 12% and 38% of participants did not know their HIV status.¹⁸

One-fifth of those who came to Testpoint stated that they would not have tested at a healthcare facility if they did not have access to Testpoint. This could imply that they perceived it difficult to get access to testing through the Swedish healthcare system, for example, relatively recently immigrated foreign-born individuals. A previous survey reported that this group preferred HIV testing outside the formal healthcare setting.²³ Supporting this, a study from France reported high satisfaction among MSM receiving an HIV test in a non-healthcare setting.²²

The main limitations of the study stem from it being an observational study without a control group. However, we aimed at studying those who would voluntarily come for testing, for which the design can be said to be suitable. In addition, 96% of Testpoint participants took part in the study, providing a good representation of the group. It must also be considered that all responses are self-reported by the participants. The social desirability bias that could arise in staff-administered questionnaires might have caused participants to under report drug use or sexual risk taking, but as discussed above we do not suspect major deviations from actual behaviour. As we do not have an exact denominator for the Swedish MSM population, it is difficult to know how the study participants compare with the overall MSM population in this area. However, some figures do stand out. For example, we are relatively certain that the proportion foreign-born MSM in Sweden is lower than the 54% found here.

In conclusion, we found that Testpoint reached its target population of foreign born, young MSM and trans persons. It also reached first-time testers and seems to have enabled HIV testing among individuals who stated that they would not have tested at a healthcare facility if Testpoint did not exist. Our findings show that peer HIV testing outside the healthcare setting is a possible way of increasing uptake of testing in high-risk groups. However, further innovative strategies are needed to provide ways to reach and diagnose even more persons living unknowingly with HIV to enable linkage to effective antiretroviral treatment and care.

Handling editor Anna Maria Geretti

Acknowledgements The authors wish to thank all the staff at Testpoint who participated in data collection, and Jon Gjönnas and Olov Lindblad at RFSL who gave valuable input on the study design, entered data and helped with the logistics of the data collection. We also wish to thank all study participants.

Contributors SS and JE contributed to the conception and design of the study. JE drafted the manuscript. JH and JE contributed to the analysis of the data. All authors

contributed to the interpretation of the study, revised the manuscript and critically revised and approved the final manuscript.

Funding The study was conducted with financial support from the governmental grant 'Insatser mot hiv/aids och andra smittsamma sjukdomar' (Interventions against HIV/AIDS and other communicable illnesses) aiming at reaching the targets set in the national strategy against HIV/AIDS and other communicable illnesses (Prop. 2005/06:60).

Competing interests None declared.

Patient consent for publication Not required.

Ethics approval This study was approved by the Regional Ethical Review Board in Stockholm (Reference number 2016/740-31/1).

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement Data are available upon reasonable request.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iD

Jaran Eriksen <http://orcid.org/0000-0003-1146-5615>

REFERENCES

- Rodger AJ, Cambiano V, Bruun T, *et al.* Sexual activity without condoms and risk of HIV transmission in Serodifferent couples when the HIV-positive partner is using suppressive antiretroviral therapy. *JAMA* 2016;316:171–81.
- O'Connor J, Vjecha MJ, Phillips AN, *et al.* Effect of immediate initiation of antiretroviral therapy on risk of severe bacterial infections in HIV-positive people with CD4 cell counts of more than 500 cells per μ L: secondary outcome results from a randomised controlled trial. *Lancet HIV* 2017;4:e105–12.
- Gisslén M, Svedhem V, Lindborg L, *et al.* Sweden, the first country to achieve the Joint United Nations Programme on HIV/AIDS (UNAIDS)/World Health Organization (WHO) 90-90-90 continuum of HIV care targets. *HIV Med* 2017;18:305–7.
- Folkhälsomyndigheten. Beräkning av mörkertalet bland personer som lever med hivinfektion i Sverige, 2015. Available: <https://www.folkhalsomyndigheten.se/documents/smittskydd-sjukdomar/hivprevention-sexuell-halsa/hiv-morkertal.pdf?epslanguage=sv>
- Brännström J, Svedhem Johansson V, Marrone G, *et al.* Deficiencies in the health care system contribute to a high rate of late HIV diagnosis in Sweden. *HIV Med* 2016;17:425–35.
- Folkhälsomyndigheten. *Mörkertal av personer som lever med hivinfektion i Sverige*. Public Health Agency of Sweden, 2015.
- Folkhälsomyndigheten. HIV under 2015, 2016. Available: <https://www.folkhalsomyndigheten.se/folkhalsorapportering-statistik/statistikdatabaser-och-visualisering/sjukdomsstatistik/hivinfektion/>
- Folkhälsomyndigheten. HIV under 2014, 2015. Available: <http://www.folkhalsomyndigheten.se/ammesomraden/statistik-och-undersokningar/sjukdomsstatistik/hivinfektion/>
- Baral SD, Poteat T, Strömdahl S, *et al.* Worldwide burden of HIV in transgender women: a systematic review and meta-analysis. *Lancet Infect Dis* 2013;13:214–22.
- Shrivastava SR, Shrivastava PS, Ramasamy J. How can we improve the universal uptake of HIV testing services? World Health organization. *Int J Prev Med* 2016;7.
- WHO. *Who recommends HIV testing by lay providers. Policy brief*. Geneva, Switzerland: World Health Organization, 2015.
- RFSL. Testpoint: Riksförbundet för homosexuella, bisexuella, transpersoner och queeras rättigheter, 2015. Available: <http://www.testpoint.se/>
- Webropol. Webropol webbaserat enkätverktyg 2016.
- Stata 13.0 [program]. Texas, USA 2014.
- Swedish Institute for Infectious Disease Control (SMI). *Global AIDS response: progress report 2012*. Sweden, Stockholm: Swedish Institute for Infectious Disease Control (SMI), 2012.
- Personal communication with Dr Göran Bratt, Personal communication with Dr Göran Bratt, Consultant physician, Venhälsan/Infectious disease clinic, Stockholm South Hospital (Södersjukhuset) consultant physician, Venhälsan/Infectious disease clinic 2017.
- Mirandola M, Folch Toda C, Krampac I, *et al.* HIV bio-behavioural survey among men who have sex with men in Barcelona, Bratislava, Bucharest, Ljubljana, Prague and Verona, 2008–2009. *Euro Surveill* 2009;14. doi:10.2807/ese.14.48.19427-en. [Epub ahead of print: 03 Dec 2009].
- Ferrer L, Furegato M, Foschia J-P, *et al.* Undiagnosed HIV infection in a population of MSM from six European cities: results from the Sialon project. *Eur J Public Health* 2015;25:494–500.
- Schein AI, Travers R. Barriers and facilitators to HIV and sexually transmitted infections testing for gay, bisexual, and other transgender men who have sex with men. *AIDS Care* 2017;29:990–5.
- Clark H, Babu AS, Wiewel EW, *et al.* Diagnosed HIV infection in transgender adults and adolescents: results from the National HIV Surveillance system, 2009–2014. *AIDS Behav* 2017;21:2774–83.
- Swedish Institute for Infectious Disease Control (SMI). *EMIS 2010 Sverige - Svenska resultat från den europeiska internetundersökningen EMIS 2010 – en studie om män som har sex med män*. Solna: SMI, 2013.
- Champerois K, Le Gall J-M, Jacquemin C, *et al.* ANRS-COMTEST: description of a community-based HIV testing intervention in non-medical settings for men who have sex with men. *BMJ Open* 2012;2:e000693.
- Strömdahl S, Liljeros F, Thorson AE, *et al.* HIV testing and prevention among foreign-born men who have sex with men: an online survey from Sweden. *BMC Public Health* 2017;17.