



Public Health
England



Protecting and improving the nation's health

Community-based HIV testing in Europe: a systematic review

S. Croxford¹, L. Tavoschi^{2,3}, A. Sullivan⁴, L. Combs⁵, D. Raben⁵, V. Delpech¹, S. Finne Jakobson⁵, A. Amato-Gauci², S. Desai¹

¹Public Health England, London, United Kingdom, ²European Centre for Disease Prevention and Control, Solna, Sweden, ³University of Pisa, Pisa, Italy, ⁴Chelsea and Westminster Hospital NHS Foundation Trust, London, United Kingdom, ⁵Centre of Excellence for Health, Immunity and Infections, Copenhagen, Denmark

Background

- **2010:** European Centre for Disease Prevention and Control (ECDC) published first HIV testing guidance¹
- Guidance used by countries² but HIV testing has remained low³
- **2016:** Project to update testing guidance given novel testing strategies and technologies
- Systematic review to inform the new testing guidance
- **Objective:** to synthesise the body of recent evidence from the EU/EEA on:
 - Strategies aimed at increasing HIV testing
 - Barriers to HIV testing across all testing settings
- **HepHIV 2019:** community-based HIV testing (CBT)

¹ ECDC. HIV testing: increasing uptake and effectiveness in the European Union. Stockholm: ECDC; 2010.

² Sullivan AK, Sperle I, Raben D, Amato-Gauci AJ, Lundgren JD, Yazdanpanah Y, et al. HIV testing in Europe: Evaluating the impact, added value, relevance and usability of the European Centre for Disease Prevention and Control (ECDC)'s 2010 HIV testing guidance. *Eurosurveillance*. 2017;22(48):17-00323.

³ ECDC. HIV testing - Monitoring implementation of the Dublin Declaration on Partnership to fight HIV/AIDS in Europe and Central Asia: 2017 progress report. Stockholm: ECDC; 2017.

Community-based HIV testing

- **Community-based HIV testing (CBT):** programme or service offering HIV testing outside formal health facilities
 - Community-based testing sites (fixed sites): providing client-initiated (voluntary) testing services outside formal health facilities.
 - Drug-services (fixed sites): providing services targeting people who use drugs with a low threshold for attendance and easy access for users
 - Outreach activities (no fixed site): service delivery in the community (e.g. mobile units or vans, street outreach, satellite services based at other agencies)
- Targeted and accessible to groups disproportionately burdened by HIV – may not access traditional HIV testing and care

Methods

- **Systematic searches** (2010-2017): Embase, Medline, PsycINFO, Cochrane, Scopus
- **Conferences abstracts** (2014-2017): CROI, AIDS/IAS, EACS, Drug Therapy, HepHIV
- **Reports** (2014-2017): WHO, HIV in Europe
- Search term concepts: HIV, Europe, HIV testing
- Inclusion/exclusion criteria:
 - EU/EEA (30 countries)
 - No language restrictions
 - Jan. 2010 - Mar. 2017
 - Excluded studies in occupational settings
 - Adults (aged ≥ 15 years) being tested for or diagnosed with HIV
- PRISMA guidelines
- **Critical appraisal: NICE/AXIS checklists**^{1,2}

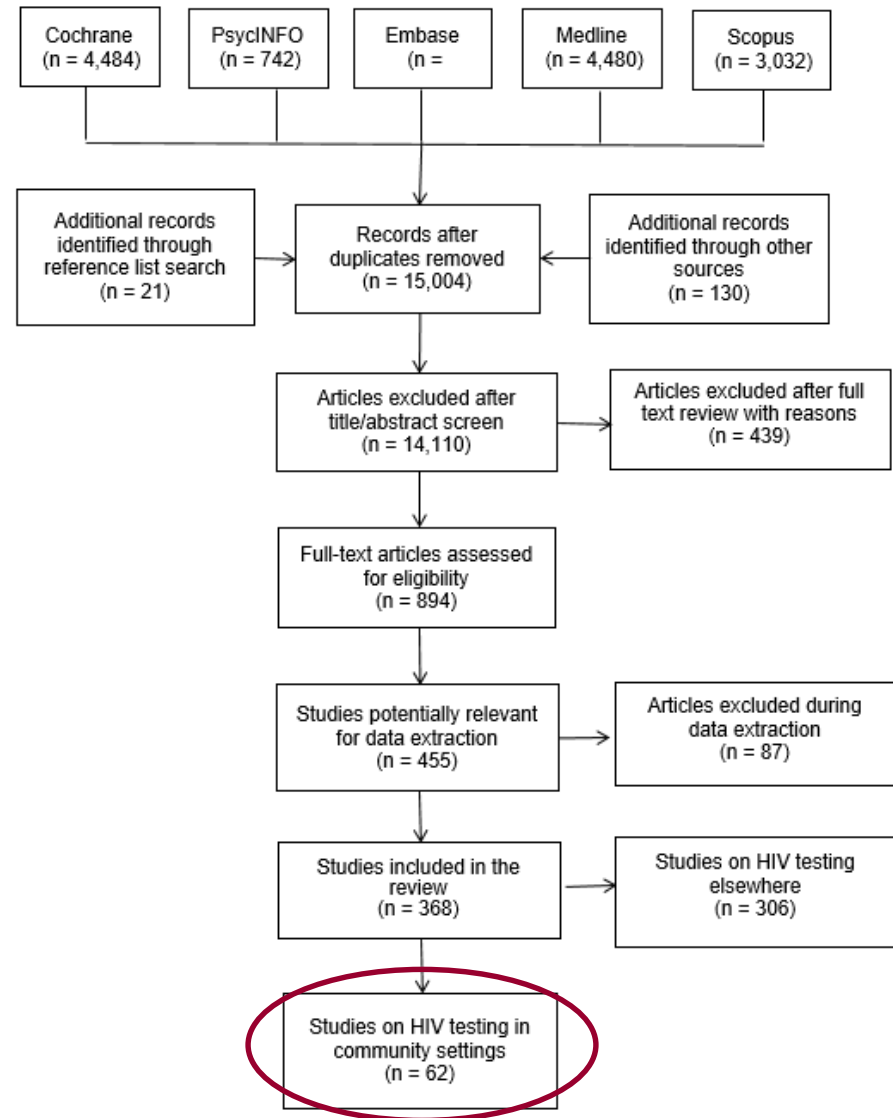
¹ Downes MJ, Brennan ML, Williams HC, Dean RS. Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS). *BMJ Open*. 2016;6(12).

² National Institute for Centre Excellence. Appendix F Quality appraisal checklist – quantitative intervention studies. London: NICE; 2016.

Results: overview

- 62 studies on testing in community-based settings included:
 - Peer-reviewed: 33 studies
 - Conferences: 29 studies

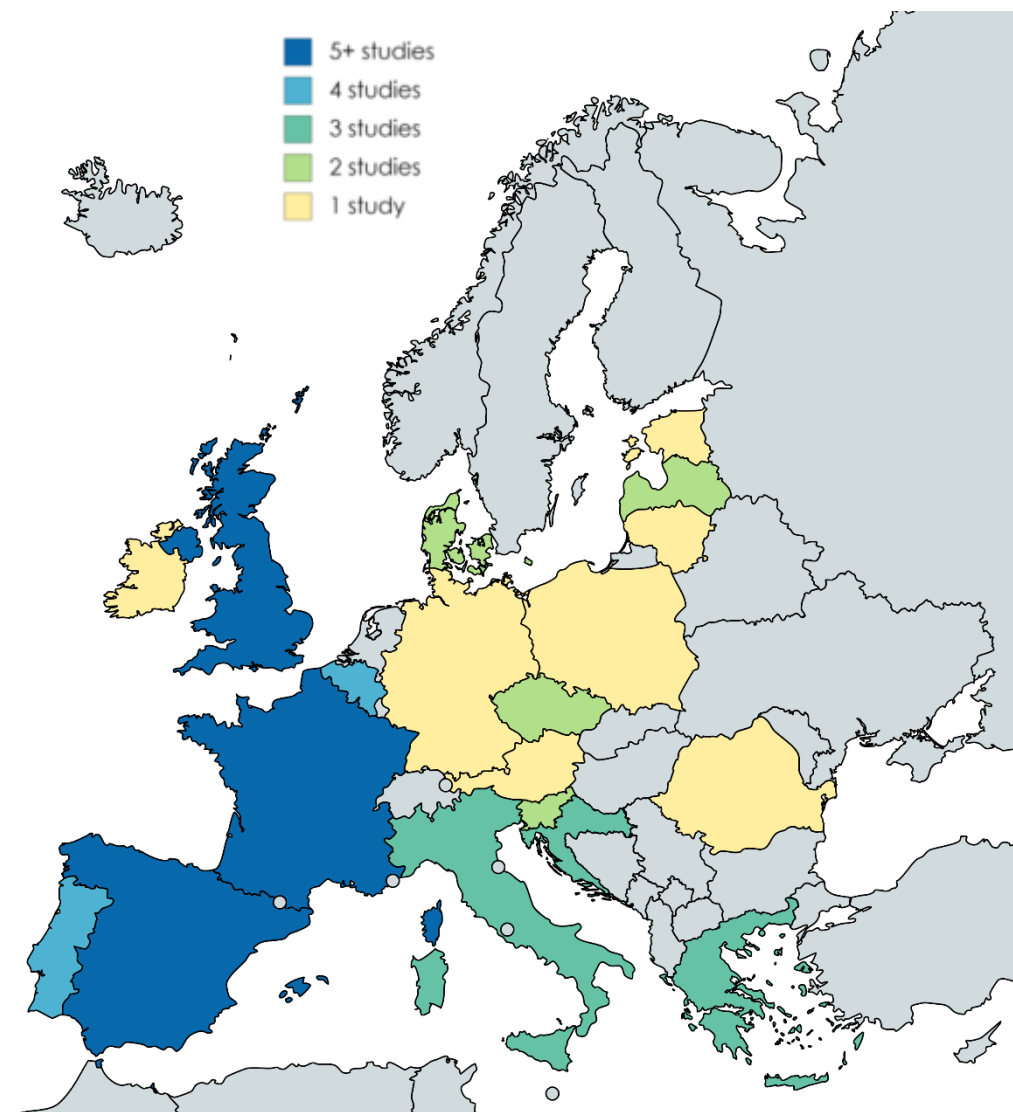
PRISMA flow diagram



Testing implementation

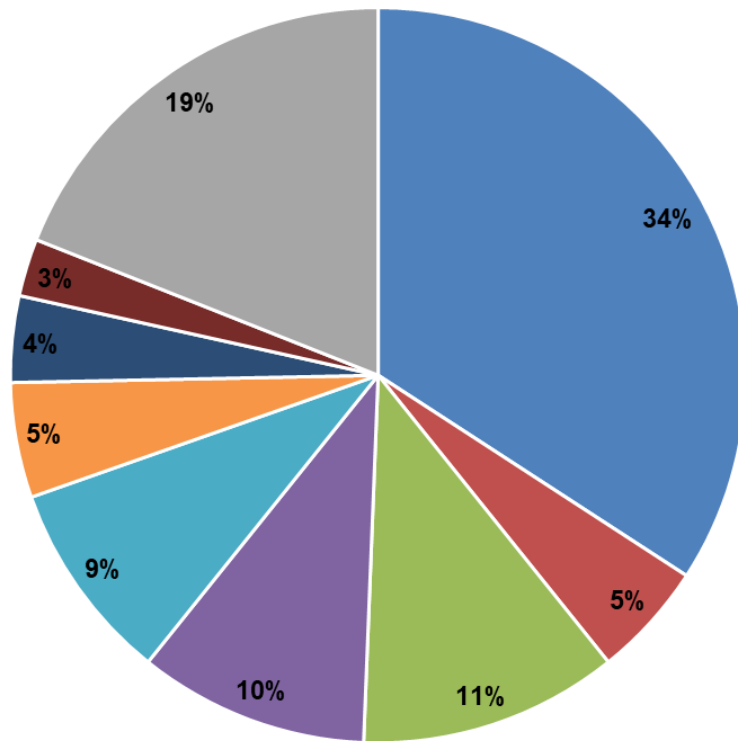
- 56 studies on community-based HIV testing implementation
- Most studies were set in:
 - Spain: 19
 - United Kingdom: 17
 - France: 5
- Three studies covered multiple European countries.

Geographical distribution of community-based HIV testing implementation studies

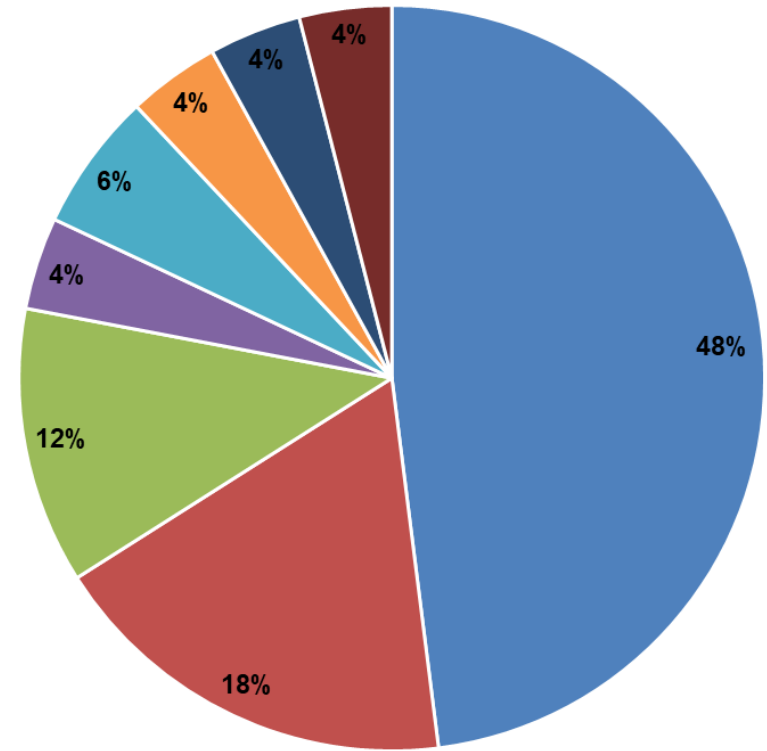


Testing implementation strategies

Community-based testing studies by target group



Community-based testing studies by setting



- Men who have sex with men
- Migrant
- Sex workers
- Homeless
- General population
- Black and minority ethnic groups
- People who use/inject drugs
- Young people
- Key risk groups not specified

- Fixed community testing sites
- Event-based mobile units
- Gay venues
- Homeless services/hostels
- Street-based mobile units
- University-based mobile units
- Brothels
- Migrant venues

Testing indicators

- Positivity/reactivity varied by target group and setting
- Five studies with 0.0% positivity/reactivity
- Not all studies reported key testing indicators
 - Testing uptake: 42
 - Positivity/reactivity: 4

Setting and target population of community-based testing implementation studies (N=56)

Target population	Testing venue	Number of tests performed	% Testing coverage	Positivity rate
Men who have sex with men	Community testing sites	9-14,453	16%-74%	0.9%-4.3%
	Outreach	7-2,955	10%-78%	0.0%-11%
Black and minority ethnic groups /migrants	Community testing sites	302-4,219		2.1%-3.6%
	Outreach	26-5,676	18%	0.0%-6.2%
People who use/inject drugs	Community testing sites	323		1.9%
	Outreach	141-7,113	97%	2.5%-32%
Sex workers	Community testing sites	923-1,969		0.9%-2.1%
	Outreach	112		0.9%
Homeless	Outreach	58-110	45%	0.0%
Young people	Outreach	27-512	19-100%	0.0%
Multiple high risk groups	Community testing sites	341-12,261		0.6%-3.9%
	Outreach	186-8,923	42%-95%	0.0%-2.5%
General population	Community testing sites	1,849-71,465		1.3%-3.2%
	Outreach	188-95,575	5.8%-98%	0.0%-2.2%

Other interventions and cost effectiveness

- 10 studies used multi-faceted interventions to increase testing (HIV testing implementation +):
 - Education/training to those administering the tests: 4
 - Promotion/campaigns to raise awareness of availability of testing: 7
 - Text and online communication of test results: 2
 - Network of community organisations working with key risk groups and offering testing: 1
- Economic evaluation of MSM attending CBT services
 - 2014: Copenhagen, Paris, Lyon, Athens, Lisbon, Ljubljana
 - Total cost of CBTs: €54,390-245,803
 - Cost per HIV test: €41-113
 - Cost per reactive test: €1,966-9,065

Feasibility/acceptability

- 31 studies on the feasibility/acceptability of community-based testing

Testing venue		Selection of feasibility/acceptability indicators
Community testing sites		Community testing acceptable: 65%-70% Community testing recommendation to a friend: 75% Rapid testing in the community acceptable: 90%-96% First time testers: 12%-43% First time accessing any health service: 55%
Outreach services	Sauna	Sauna outreach clinics were well attended and feedback from users was positive, particularly valuing the convenience and confidentiality of the service First time testers: 13%-37%
	Mobile unit	Outreach service acceptable: 90%-99% Self-testing in outreach acceptable: 82% Ability to interpret self-test results correctly: positive result: 96%; invalid result: 94%; negative result: 95% First time testers: 18%-95% First time testers who would have not otherwise tested: 40%
	Hostels	Testing in hostels acceptable: 100%
	Drug services	Testing in harm reduction services easy or very easy to do (staff): 100% Confidence in test results from tests performed in harm reduction services (staff): 60% First time testers: 18%
	Other	Self-sampling cost effective in outreach settings (positivity rate >0.1%) First time testers in brothels: 25%

Conclusions

- Community-based HIV testing: acceptable and effective strategy for reaching populations at higher risk of HIV that may not be accessing healthcare settings
- Wide variety of CBT programmes being implemented in the EU/EEA
- Geographical coverage limited - most studies set in Northern and Western Europe
- Not as much evidence on CBT as testing in healthcare settings
- 47% (29/62) of included studies were not published or peer reviewed
- Few studies reported before/after data - difficult to evaluate the improvement of the intervention
- Important to ensure successful linkage to care after a positive test
- No barriers identified with testing in community settings

More information

- **PS4/04:** Community-based HIV testing in Europe: a systematic review (oral/poster)
- **PO4/01:** HIV self-sampling and self-testing in Europe: a systematic review (poster)
- **PS3/05:** Evidence-based public health guidance for integrated HBV, HCV and HIV testing in Europe (oral/poster)

Acknowledgements

We gratefully acknowledge colleagues at Public Health England and the University of Copenhagen for their assistance in carrying out the systematic review screening, quality assessment and data extraction.

- *Peter Kirwan*
- *Matthew Hibbert*
- *Alison Brown*
- *Nicola Pearce-Smith*
- *Anne Louise Grevsen*
- *Jeff Lazarus*
- *Ida Sperle*
- *Cuong Chau*
- *Meaghan Kall*
- *Zheng Yin*
- *Anh Tran*
- *Anne Raahauge*
- *Maiken Mansfeld*

References

1. Apoola A, Brunt L. A randomised controlled study of mouth swab testing versus same day blood tests for HIV infection in young people attending a community drug service. *Drug and alcohol review*. 2011; 30(1):101-3
2. Beanland F, Schoeman S, Davis P, McCusker P, Doyle T. A year of 'sex, steam and stis'. BASHH; 2015
3. Belza MJ, Rosales-Statkus ME, Hoyos J, Segura P, Ferreras E, Sanchez R, et al. Supervised blood-based self-sample collection and rapid test performance: a valuable alternative to the use of saliva by HIV testing programmes with no medical or nursing staff. *Sex Transm Infect*. 2012;88(3):218-21.
4. Belza MJ, Hoyos J, Fernandez-Balbuena S, Diaz A, Bravo MJ, de la Fuente L, et al. Assessment of an outreach street-based HIV rapid testing programme as a strategy to promote early diagnosis: a comparison with two surveillance systems in Spain, 2008-2011. *Euro Surveill*. 2015;20(14):09.
5. Campos MJ, Rocha M, Rojas J, Ferreira F, Esteves J, Guerreiro R et al. Impact in HIV care continuum of a tailored community-based HIV voluntary counseling testing centre for men who have sex with men: Checkpoint LX, Lisbon, Portugal. *AIDS*; 2016.
6. Champenois K, Le Gall JM, Jacquemin C, Jean S, Martin C, Rios L, 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(2):e000693.
7. Chanos S. Athens Checkpoint: Reducing Undiagnosed HIV Infections in Crisis-Affected Services in Greece. *HepHIV*; 2014.
8. Coll P, Leon A, Garcia F, Carrillo A, Fernandez E, Bravo I, Saz J, et al. Early diagnosis of HIV infections and detection of asymptomatic STI in a community-based organization addressed to MSM. *IAS*; 2015.
9. de la Fuente L, Rosales-Statkus ME, Hoyos J, Pulido J, Santos S, Bravo M, et al. Are participants in a street-based HIV testing program able to perform their own rapid test and interpret the results? *PLoS ONE*. 2012;7.
10. Fernandez-Balbuena S, Belza MJ, Urdaneta E, Esteso R, Rosales-Statkus ME, de la Fuente L, et al. Serving the underserved: an HIV testing program for populations reluctant to attend conventional settings. *Int J Public Health*. 2015;60(1):121-6.
11. Fernandez-Balbuena S, Hoyos J, Rosales-Statkus ME, Nardone A, Vallejo F, Ruiz M, et al. Low HIV testing uptake following diagnosis of a sexually transmitted infection in Spain: Implications for the implementation of efficient strategies to reduce the undiagnosed HIV epidemic. *AIDS Care*. 2016;28(6):677-83.
12. Fernandez-Balbuena S, de la Fuente L, Hoyos J, Rosales-Statkus ME, Barrio G, Belza MJ, et al. Highly visible street-based HIV rapid testing: is it an attractive option for a previously untested population? A cross-sectional study. *Sex Transm Infect*. 2014;90(2):112-8.
13. Fernandez-Lopez L, Folch C, Majo X, Gasulla L, Casabona J. Implementation of rapid HIV and HCV testing within harm reduction programmes for people who inject drugs: a pilot study. *AIDS Care*. 2016;28(6):712-6.
14. Fernandez-Lopez L, Rifa B, Pujol F, Becerra J, Perez M, Merono M, et al. Impact of the introduction of rapid HIV testing in the Voluntary Counselling and Testing sites network of Catalonia, Spain. *Int J STD AIDS*. 2010;21(6):388-91.

15. Fisher M, Wayal S, Smith H, Llewellyn C, Alexander S, Ison C, et al. Home sampling for sexually transmitted infections and HIV in men who have sex with men: a prospective observational study. *PLoS ONE*. 2015;10(4):e0120810.
16. Flavell S, Munang M, Anderson N, Godwin J, Lowe M, Burbidge N, et al. Dried blood spots for HIV and hepatitis community testing in Birmingham. *HIV Medicine*. 2014;15:48.
17. Forbes K, West R, Byrne R, Daniels D. Unintended consequences: A lost opportunity to test men who have sex with men attending contraception and sexual health clinics. *HIV Medicine*. 2014;15:30.
18. Freeman-Romilly N, Sheppard P, Desai S, Cooper N, Brady M. Does community-based point of care HIV testing reduce late HIV diagnosis? A retrospective study in England and Wales. *Int J STD AIDS*. 2017:956462416688573.
19. Greaves L, Symonds M, Saunders J, Lovitt C, Williams A, Baghurst M, et al. Is offering STI & HIV self-sampling kits to men who have sex with men (MSM) in a London sauna a feasible and acceptable way to widen access to testing? *HIV Medicine*; 2014.
20. Hatzakis A, Sypsa V, Paraskevis D, Nikolopoulos G, Tsiara C, Micha K, et al. A seek-test-treat-retain intervention (STTR) in response to an HIV outbreak among injecting drug users in Athens, Greece: the "ARISTOTLE" program. *AIDS*; 2014.
21. Hatzakis A, Sypsa V, Paraskevis D, Nikolopoulos G, Tsiara C, Micha K, et al. Design and baseline findings of a large-scale rapid response to an HIV outbreak in people who inject drugs in Athens, Greece: the ARISTOTLE programme. *Addiction*. 2015;110(9):1453-67.
22. Hoyos J, de la Fuente L, Fernandez S, Gutierrez J, Rosales ME, Garcia de Olalla P, et al. [Street outreach rapid HIV testing in university settings: a priority strategy?]. *Gac Sanit*. 2012;26(2):131-7.
23. Hurtado I, Alastrue I, Garcia de Olalla P, Albiach D, Martin M, Perez-Hoyos S. [Preventive intervention in venues for interaction used by men who have sex with men]. *Gac Sanit*. 2010;24(1):78-80.
24. Ilaria U, Marina C, De Carolis S, Petrelli A, Vescio MF, Pezzotti P. Comparison of rapid and venous HIV testing strategies among vulnerable populations. *European Journal of Epidemiology*. 2015;30 (8):814-5.
25. James C, Brough G, Gillespie R. National HIV Testing Weeks: effective in increasing engagement, HIV testing behaviour and knowledge among target communities, as well as providing a focus for public health, clinical, community and statutory organisations. *AIDS*; 2014.
26. Jeffrey N, Harrison A, Lawson J, Haney L, Mallace L, Foster K. A shot in the dark-will outreach STI and HIV testing work in Newcastle saunas? *HIV Medicine*. 2014;15:40.
27. Klavs I, Kustec T, Fernandez Lopez L, Casabona J, Agusti Benito C, Reyes RM et al. Core indicators for monitoring and evaluation of community based voluntary counselling and testing (CBVCT) for HIV in the COBATEST Network, 1st Half 2015 Data. *HepHIV*; 2017.
28. Klingenberg RE, Mannherz S, Brockmeyer NH, Wach J, Winter R, Tiemann C, et al. [Local health study : Outreach medical services for female sex workers in Bochum]. *Hautarzt*. 2016;67(12):989-95.
29. Legoupil C, Peltier A, Henry Kagan V, Segouin C, Alberti C, de Masse L, et al. Out-of-hospital screening for HIV, HBV, HCV and Syphilis in a vulnerable population, a public health challenge. *AIDS Care*. 2016:1-3.
30. Lenart M, Cigan B, Lobnik M. The importance of a broad spectrum approach for screening of sexually transmitted infections in community-based voluntary counselling and testing centres. *International Journal of STD and AIDS*. 2015;1):103-4.
31. Loos J, Manirankunda L, Platteau T, Albers L, Franssen K, Vermoesen T, et al. Acceptability of a community-based outreach HIV-testing intervention using oral fluid collection devices and web-based HIV test result collection among sub-Saharan African migrants: a mixed-method study. *JMIR Public Health Surveill*. 2016;2(2):e33.

32. Lorente N, Preau M, Vernay-Vaisse C, Mora M, Blanche J, Otis J, et al. Expanding access to non-medicalized community-based rapid testing to men who have sex with men: an urgent HIV prevention intervention (the ANRS-DRAG study). *PLoS ONE*. 2013;8(4):e61225.
33. MacPherson P, Chawla A, Jones K, Coffey E, Spaine V, Harrison I, et al. Feasibility and acceptability of point of care HIV testing in community outreach and GUM drop-in services in the North West of England: a programmatic evaluation. *BMC Public Health*. 2011;11:419.
34. Manavi K, Williams G, Newton R. The uptake of HIV and syphilis testing in a nurse-delivered service during Gay Pride events. *Int J STD AIDS*. 2012;23(12):887-9.
35. McMillan S, Whitlock G, Day S, Allen K, Gilmour C, Jenkins J, et al. Targeted outreach: Does it work? *HIV Medicine*. 2014;15:18.
36. Meulbroek M, Pérez F, Dalmau-Bueno A, Pujol F, Saz J, Taboada H, et al. BCN Checkpoint: same-day confirmation of reactive HIV rapid test with point of care PCR test accelerates linkage to care and reduces anxiety. *HepHIV*; 2017.
37. Meulbroek M. BCN Checkpoint: achievements, challenges and future plans of a community centre for MSM. *HepHIV*; 2017.
38. Meulbroek M, Ditzel E, Saz J, Taboada H, Perez F, Perez A, et al. BCN Checkpoint, a community-based centre for men who have sex with men in Barcelona, Catalonia, Spain, shows high efficiency in HIV detection and linkage to care. *HIV Medicine*. 2013;14 Suppl 3:25-8.
39. Okpo E, Corrigan H, Gillies P. Blood borne virus (BBV) testing in a university setting in North-East Scotland: a pilot initiative. *Public Health*. 2015;129(6):825-7.
40. Parisi MR, Soldini L, Negri S, Vidoni GM, Gianotti N, Nozza S, et al. Early diagnosis and retention in care of HIV-infected patients through rapid salivary testing: a test-and-treat fast track pilot study. *New Microbiol*. 2015;38(4):20.
41. Parisi MR, Soldini L, Vidoni G, Clemente F, Mabellini C, Belloni T, et al. Cross-sectional study of community serostatus to highlight undiagnosed HIV infections with oral fluid HIV-1/2 rapid test in non-conventional settings. *New Microbiol*. 2013;36(2):121-32.
42. Perelman J, Rosado R, Amri O, Morel S, Rojas Castro D, Chanos S, et al. Economic evaluation of HIV testing for men who have sex with men in community-based organizations - results from six European cities. *AIDS Care*. 2016:1-5.
43. Platteau T, Wouters K, Apers L, Avonts D, Nostlinger C, Sergeant M, et al. Voluntary outreach counselling and testing for HIV and STI among men who have sex with men in Antwerp. *Acta Clin Belg*. 2012;67(3):172-6.
44. Platteau T, Franssen K, Apers L, Kenyon C, Albers L, Vermoesen T, et al. Swab2know: An HIV-testing strategy using oral fluid samples and online communication of test results for men who have sex with men in Belgium. *J Med Internet Res*. 2015;17(9):e213.
45. Platteau T, Agusti C, Florence E, Lixandru M, Ooms L, Vermoesen T, et al. Euro HIV EDAT Project (WP9/2): HIV-testing Using Oral Fluid Samples and Online Communication of Test Results (Swab2know). *HepHIV*; 2017.
46. Prazuck T, Karon S, Gubavu C, Andre J, Legall JM, Bouvet E, et al. A finger-stick whole-blood HIV self-test as an HIV screening tool adapted to the general public. *PLoS ONE*. 2016;11(2):e0146755.
47. Qvist T, Cowan SA, Graugaard C, Helleberg M. High linkage to care in a community-based rapid HIV testing and counseling project among men who have sex with men in Copenhagen. *Sex Transm Dis*. 2014;41(3):209-14.
48. Roberts C, Watson L, Turner R, Caverley-Frost L, Scott P, Allen K. Reaching the unreachable-nurse-led STI screening at erotica 2013. *HIV Medicine*. 2014;15:27.
49. Rosales-Statkus ME, de la Fuente L, Fernandez-Balbuena S, Figueroa C, Fernandez-Lopez L, Hoyos J, et al. Approval and potential use of over-the-counter HIV self-tests: the opinion of participants in a street based HIV rapid testing program in Spain. *Aids Behav*. 2015;19(3):472-84.

50. Ruutel K, Ustina V, Parker RD. Piloting HIV rapid testing in community-based settings in Estonia. *Scand J Public Health*. 2012;40(7):629-33.
51. Sekhon P, Corredor C, Resinenete J, Quraishi A, Dhairyawan R, Soni S. Outreach initiatives encourage HIV testing in hard-to-reach communities. *HIV Medicine*. 2014;15:106-7.
52. Stoniene L, Kulsis S, Shabarova Z. Monitoring and evaluation of AHF "Test and Treat" programme in Lithuania. *HepHIV*; 2017.
53. Shawe J, White A, Ball A, Stretch R, Cannon E, Rees L, et al. Improving the sexual health of homeless people: Does providing nurse-led care within hostels improve contraceptive use and uptake of sexual health screening? *European Journal of Contraception and Reproductive Health Care*. 2014;19:S140.
54. Simões D, Frieta R, Rocha M, Curado A, Silva D, Rojas J, et al. Scaling up standards, testing and linkage to care: implementation of a Portuguese community-based screening network. *AIDS*; 2016..
55. Simões D, Frieta R, Rocha M, Meireles P, Aguiar A, Barros H. Community based screening network: Combined HIV, Hepatitis and syphilis testing and monitoring - a community led partnership in Portugal. *HepHIV*; 2017.
56. Stockwell S, Dean G, Cox T, Tweed M, Poole J, Hume G, et al. The sexual health of the homeless-an outreach sexual health screening project. *Sex Transm Infect*. 2015;91:A90.
57. Taegtmeier M, MacPherson P, Jones K, Hopkins M, Moorcroft J, Laloo DG, et al. Programmatic evaluation of a combined antigen and antibody test for rapid HIV diagnosis in a community and sexual health clinic screening programme. *PLoS ONE*. 2011;6(11):e28019.
58. Turner R, Day S, Allen K, Ostridge E, Nulty K, Cooney G, et al. Increasing STI diagnosis, treatment and awareness at the world's largest annual sexuality and lifestyle convention with the aid of point-of-care testing. *Sex Transm Infect*. 2016;92:A55.
59. Warriner J, Harbottle J, James C. P253 - National HIV testing week: Normalising HIV testing for atrisk communities through a yearly community/clinical campaign. *HIV Medicine*. 2014;15:97.
60. Wood M, Elks R, Grobicki M. Outreach sexual infection screening and postal tests in men who have sex with men: How do they compare with clinicbased screening? *HIV Medicine*. 2014;15:32.
61. Zakowicz AM, Lozyska O, Bidzinashvili K, Billie B, Dominković Z, Golovko S, et al. Community-based HIV rapid testing and linkage to care. Efficacy of multi-country testing initiatives during European testing week 2014. *IAS*; 2015.
62. Zekan Š, Youle M, Rode OĐ, Lepej SŽ, Kosanović M, Begovac J. A one stop shop" STD service for MSM in Croatia/South East Europe - A New Approach. *EACS*; 2015.