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HIV self-sampling and self-testing in Europe: a systematic review

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INTRODUCTION

In 2010, the European Centre for Disease Prevention and Control (ECDC) published HIV testing guidance with the aim to inform the development, monitoring and evaluation of national HIV testing strategies and programmes in the countries of the European Union (EU) and European Economic Area (EEA).[1]

In consideration of the rapid developments in the field of HIV testing and the accumulating evidence on innovative testing approaches and novel testing technologies, ECDC launched a project in 2016 to update their testing guidance in an effort to support countries in developing and improving their national testing policies.

The objective of this systematic review was to synthesise the body of recent evidence on HIV testing strategies applied in Europe to inform the ECDC testing guidance. This poster summarises the literature on HIV self-sampling (SS) and self-testing (ST).

METHODS

Systematic searches: Embase, Medline, PsycINFO, Cochrane Library and Scopus

Search of conference abstracts (2014-2017): CROI, AIDS, IAS, EACS, HIV Drug Therapy, HEPHIV

Searches of testing guidance reference lists: WHO and HIV in Europe

Search terms covered HIV, the concept of HIV testing and Europe.

Inclusion/exclusion criteria:

- EU/EEA (30 countries)
- Published Jan. 2010 - Mar. 2017
- Adults (aged ≥15 years) being tested for or diagnosed with HIV
- Excluded studies in occupational settings
- No language restrictions

Two independent reviewers for title/abstract screening, full-text review, data extraction and quality assessment using NICE/AXIS checklists.[2,3]

Data were extracted and entered onto an online REDcap form.

The authors of conference abstracts without available full-texts were contacted for poster copies or oral presentation slides.

Results presented here on HIV SS and ST.

A full list of references can be found on the printed leaflet.

RESULTS

Of the 15,004 deduplicated records captured in the systematic review, 368 were included after screening and full text review. Seventeen studies on HIV SS and 12 studies on ST were identified.

Most studies were set in either the United Kingdom (n=17) or Spain (n=5) (Figure 1). One study covered multiple European countries.

SS was implemented in 13 studies (oral fluid: n=8; blood: n=6) across a variety of settings (online: n=10; community sites: n=2, outreach n=5; STI clinics: n=1), with men who have sex with men (MSM) being the most common target group (n=9) (Table 1).

In comparison, ST was implemented in 6 studies (oral fluid: n=3; blood: n=3) through outreach (n=3) and online (n=3); for the most part, ST programmes were not restricted to risk groups (n=5 among the general population).

Both strategies had variable uptake (10%-67%) and reactivity (0.2%-6.7%; one study with 0.0%) dependent on the population targeted and SS/ST location.

Four studies presented other strategies aimed at increasing HIV SS/ST including education/training to those administering the tests (n=2), campaigns to raise awareness (n=1) and online communication of test results (n=1).

The feasibility and acceptability of HIV SS and ST was explored in 24 studies. Overall, HIV SS and ST were found to be highly acceptable and easy to use, attracting high proportions of first time testers (Table 2).

Figure 1: Geographical distribution of HIV self-sampling and self-testing studies

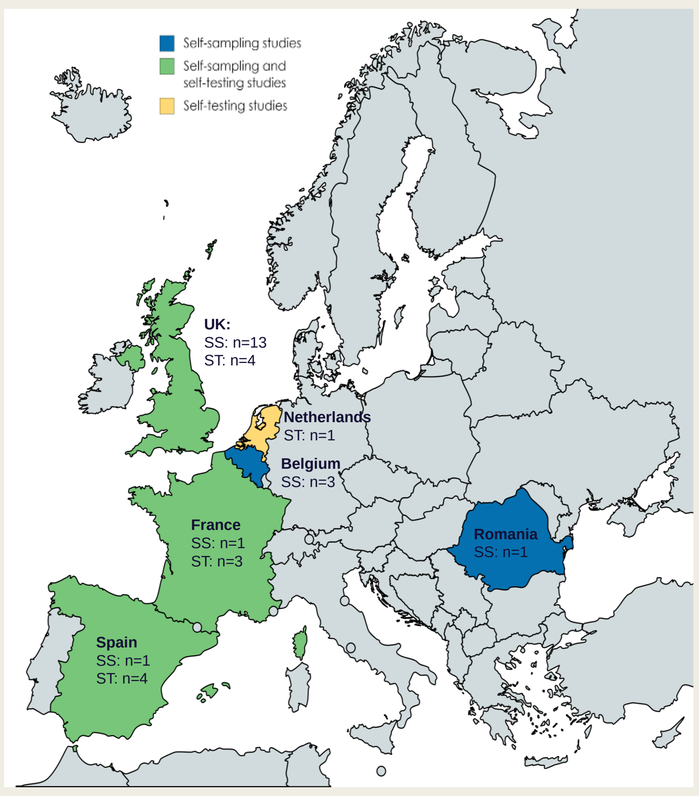

Table 2: Feasibility/acceptability of HIV self-sampling and self-testing

Testing type	Sample size	Selection of feasibility/acceptability indicators
HIV self-sampling	150-411,632	Self-sampling acceptable: 87%-97% Self-sampling instructions easy to understand (finger-prick): 94% Self-sampling kit easy to use: 80% Self-sampling recommendation to a friend: negative: 97%; positive: 66% Preference for self-sampling: 69% Ability of self-sampling to reach risk groups - samples ordered by: MSM: 82%-94%; black Africans: 3.4%-42% Home self-sampling cost effective (positivity rate >0.1%) First time testers: 10%-45%
HIV self-testing	47-5,908	Self-testing acceptable:71%-98% Self-testing easy to do: 92%-99% Self-test result easy to interpret: 97%-99% Self-testing recommendation to a friend or family member: 89% Ability to interpret self-test results correctly: 99% Purchasing the self-test if the price was: ≥€30: 18%; ≥€20 : 40% First time testers: 26%-51%

Five studies described barriers to HIV ST from the perspective of the potential tester, including: a lack of awareness of self-tests, concern about the capacity to perform ST, fear of a reactive result without any support and cost.

One study explored barriers to home-sampling among MSM and found men worried about stigma, confidentiality, privacy, the accuracy of the SS test and the lack of opportunity to discuss the results with a health-care professional.

Table 1: HIV self-sampling and self-testing implementation studies

Author, year	Study location	Study period	Study description	Testing venue	Target population	Testing provision
Ahmed-Little et al, 2015	Manchester, UK	Jun 2011 - Dec 2012	A project pilot, "RUClear", to expand HIV testing outside traditional settings using home-sampling kits (dry-blood-spot testing) available online to people aged 16+	Home	-	SS (B)
Brady et al, 2014	UK	Phase 1: Jan - Sep 2013 Phase 2: Nov 2013 - Mar 2014	A national HIV home sampling service using 4th generation dried blood spot HIV tests	Home	MSM BME Other risk groups	SS (B)
Elliot et al, 2016	London, UK	Nov 2008 - Nov 2010	A service evaluation of the "Dean Street at Home" online risk assessment and home HIV SS service for MSM	Home	MSM	SS (OF/B)
Fisher et al, 2015	Brighton, UK	Feb - Sep 2008	A comparison of a STI/HIV home-sampling for MSM aged 18+ run from a GUM clinic, outpatient service and a community-based rapid testing service	Community testing sites	MSM	SS (OF)
Gillespie, 2014	UK	Feb - Mar 2014	A national online SS service for HIV testing offering dried blood-spot kits to communities with the highest prevalence of undiagnosed HIV infection	Home	-	SS (B)
Greaves et al, 2014	London, UK	Not specified	A pilot sauna-based, SS STI screening service for MSM	Outreach Home	MSM	SS (OF)
Guerra et al, 2016	UK	Nov 2015 - Jan 2016	A nationwide HIV SS service free for populations most at-risk of HIV acquisition commissioned by participating local authorities	Home	Key HIV risk populations not specified	SS (B)
Platteau et al, 2015	Antwerp, Belgium	Dec 2012 - Apr 2014	An HIV-testing strategy using oral fluid samples and online communication of test results for MSM aged 18+ (Swab2know)	Outreach Home	MSM	SS (OF)
Platteau et al, 2017	Multiple countries	Jan - Sep 2016	An assessment of the acceptability and feasibility of outreach and online HIV testing on oral fluid samples, and web-based delivery of test results among HIV risk groups (Swab2know)	Outreach Home	MSM Migrants SWs	SS (OF)
Reeves et al, 2014	London, UK	Dec 2012 - Nov 2013	An internet-based HIV home sampling project in which gay or bisexual men could order a free HIV saliva sampling kit	Home	MSM	SS (OF)
Wood et al, 2014	UK	Not specified	A nurse-delivered outreach STI and BBV screening service was established for asymptomatic MSM at a local sauna, alongside constantly available "do it yourself" postal SS packs	Outreach Home	MSM	SS (B)
Elmahdi et al, 2014	London, UK	May-Dec 2012	An HIV SS kit distribution service for HIV negative MSM attending a specialist clinic for young MSM in London. MSM given the kits were trained to self-sample.	STI clinic	MSM	SS (OF)
Loos et al, 2016	Antwerp, Belgium	2012 - 2013	A community-based outreach HIV testing intervention using oral fluid collection devices and web-based HIV test result collection among sub-Saharan African migrants aged 17-73 (Swab2know)	Community testing sites Outreach	Migrants	SS (OF)
Brady et al, 2016	UK	Apr 2015 - Feb 2016	An evaluation of the first 9 months of HIV ST in the UK	Home	-	ST (OF)
Gibson et al, 2016	UK	May 2015 - May 2016	A pilot project providing oral-fluid HIV self-tests online and a service evaluation feedback survey	Home	-	ST (OF)
Zuure et al, 2016	Netherlands	Aug 2014 - Dec 2015	An online HIV ST service providing reliable oral fluid HIV self-tests in combination with internet counselling for individuals at risk for HIV, especially MSM and migrants from HIV-endemic countries. A campaign promoting the service and a user acceptability survey were also conducted.	Home	MSM Migrants	ST (OF)
Prazuck et al, 2016	Paris, France	Apr - Jul 2014	An evaluation of an HIV screening programme for adults aged 18+ using finger-stick whole blood HIV tests in outreach sites (commercial centres and mobile screening units in urban centres) and in a hospital anonymous testing centre	Outreach	-	ST (B)
de la Fuente et al, 2012	Madrid, Spain	Oct 2009 - Feb 2010	A street-based programme of HIV testing using whole-blood rapid tests in a neighbourhood with a large number of gay venues, two campuses and two railway stations	Outreach	-	ST (B)
Belza et al, 2012	Madrid, Spain	Nov 2009 - Jan 2010	An evaluation of a street-based programme of HIV ST under the supervision of a skilled counsellor in a neighbourhood with a large number of gay venues and in two campuses at a university	Outreach	-	ST (B)

OF=oral fluid; B=blood; BME=black and minority ethnic groups; MSM=men who have sex with men; PWID=people who inject drugs; SW=sex workers; SS=self-sampling; ST=self-testing
* Testing intervention presented in another included study (duplicate) n=5

DISCUSSION

HIV SS and ST are strategies that have been implemented to reach people not accessing conventional testing services in the EU/EEA.

Both SS and ST are highly acceptable, easy to use and successful in reaching populations at higher risk for HIV, as well as first time testers. It is critical that SS and ST be accompanied by well-defined referral pathways into HIV care for anyone with a reactive test result

Few studies reported before/after data, making it difficult to evaluate the improvement in test coverage. Furthermore, the geographical range of the studies was limited, with all but one study originating from Western Europe.

Another limitation of this review is that almost half (41%; 12/29) of the literature included was not published nor peer reviewed (i.e. conferences or reports).

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