HIV testing: increasing uptake among people who may have undiagnosed HIV

Evidence review on:
The most effective ways to increase the uptake of HIV testing to reduce undiagnosed HIV among people who may have been exposed to it

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1. Introduction

In September 2014 it was agreed that NICE's guidelines on HIV testing in black Africans and HIV testing in men who have sex with men (MSM) (PH33 and PH34) should be partially updated and combined into one piece of guidance to take account of new evidence relating to indicator conditions, changes in the law relating to home testing and self-sampling, and to reflect changes in commissioning responsibilities for HIV testing. It was agreed that the partial update would combine the recommendations in PH33 and PH34 into generic recommendations and, where appropriate, make specific recommendations for high risk population groups and consider potential changes to indicator conditions and home testing and sampling.

This evidence review has been conducted to support the update of PH33 and PH34 and will focus on the effectiveness of interventions which increase awareness of the benefits of, the opportunity for and uptake of HIV testing. The review will also examine new evidence relating to interventions aimed at improving the uptake of HIV testing among all people who may have undiagnosed HIV. The evidence reviews for PH33 and PH34 will also be considered as part of the overall evidence base.

2. Methods

This review was conducted according to the methods guidance set out in 'Developing NICE guidelines: the manual' (October 2014).

2.1. Review question

Review question 1: What are the most effective ways to increase the uptake of HIV testing to reduce undiagnosed HIV among people who may have been exposed to it?

- RQ 1a: What interventions to increase awareness of the benefits of HIV testing and details of local testing services among the general public and healthcare workers are the most effective?

- RQ 1b: What interventions to increase opportunity for, and uptake of, HIV testing are the most effective?

The evidence relating to the cost effectiveness of interventions and factors which help or hinder the uptake of HIV testing will be presented separately.

2.2. Searching, screening, quality assessment and data extraction

A single systematic search of relevant databases and websites was conducted from 1996 (the start date for the searches for PH33 and PH34) to May 2015 to identify relevant evidence for this review (see Appendix 5).

The protocols outline the methods for the review, including the search protocols and methods for data screening, quality assessment and synthesis.

All references from the database searches were screened on title and abstract against the criteria set out in the protocols. A random sample of 10% of titles and abstracts was screened by two reviewers independently, with differences resolved by discussion. Agreement at this stage was 93.4%. Full-text screening was carried out by two reviewers

independently on 10% of papers. Agreement at this stage was 100%. Reasons for exclusion at full paper stage were recorded (see Appendix 4).

Any studies which were included in PH33 and PH34 have been excluded from this evidence review. There may be some studies which were excluded by PH33 and PH34 which have been included in this review, for example, those covering the more general population or other at-risk groups.

Each included study was data extracted by one reviewer, with all data checked in detail by a second reviewer. Any differences were resolved by discussion.

Included studies were rated individually to indicate their quality, based on assessment using a checklist. Each included study was assessed by one reviewer and checked by another. Any differences in quality grading were resolved by discussion. The tool used to assess the quality of studies is included in Appendix 3 and a summary of the QA results of all included studies is included in Appendix 2. The quality ratings used were:

++ All or most of the checklist criteria have been fulfilled, and where they have not been fulfilled the conclusions are very unlikely to alter.

+ Some of the checklist criteria have been fulfilled, and where they have not been fulfilled, or are not adequately described, the conclusions are unlikely to alter.

– Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter.

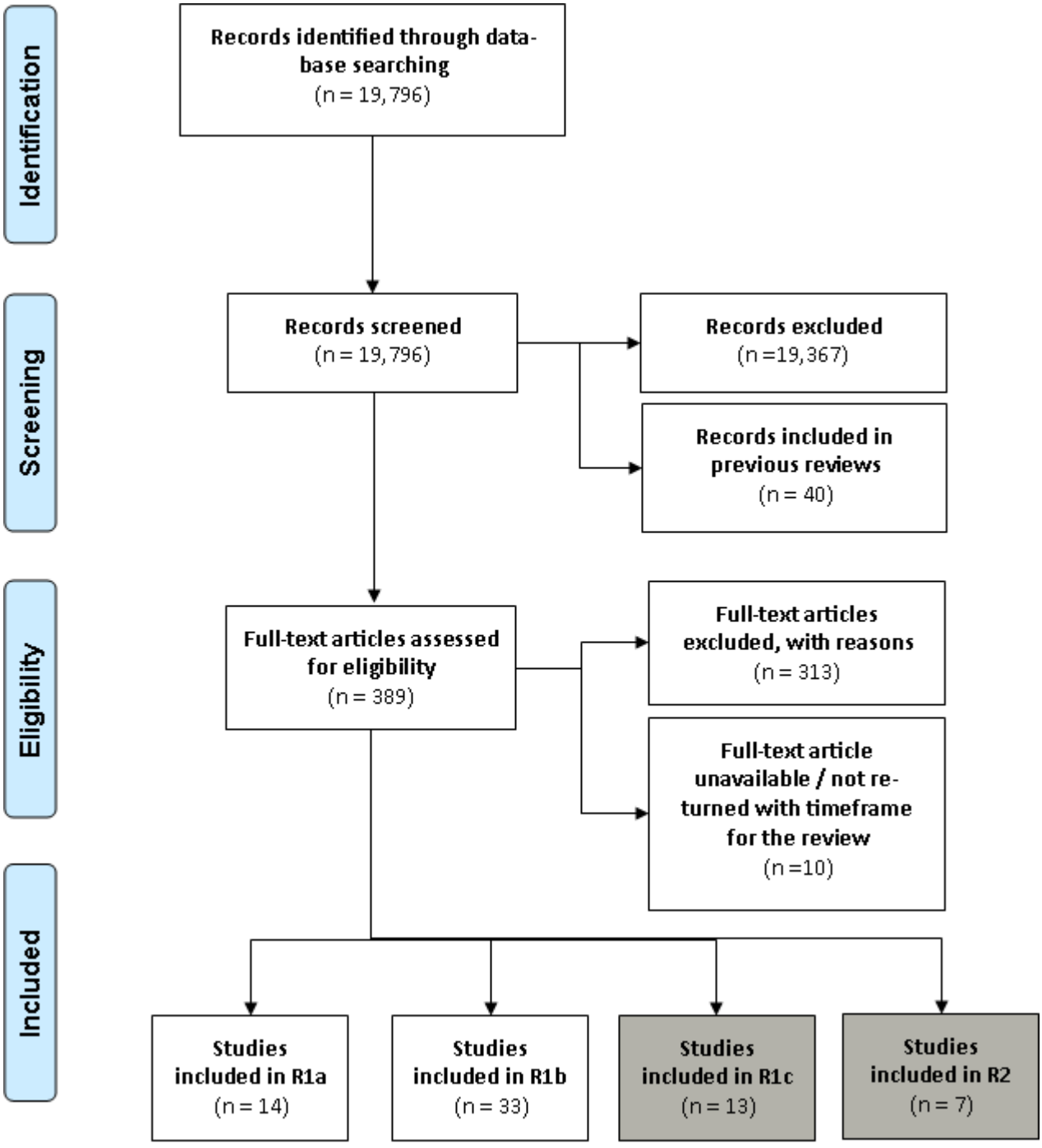
3. Results

3.1. Flow of literature through the review

47 studies were included in review 1. Figure 1 below shows the flow of literature through the review. A brief summary of reasons for exclusion at full text is included in the table below.

Reason	Number
Did not meet the study type criteria	105
Conference abstract	96
Not UK based qualitative study	50
Not about HIV test uptake	20
No specific intervention	15
Outcomes not relevant	13
Out of scope	9
Not English language	3
Other	2

Figure 1. Flow of literature through the review
(note: 1 paper is included in two reviews causing the total to be 390 full text studies)



3.2. Characteristics of the included studies

Full details of the included studies are given in the evidence tables in Appendix 1. Tables 3.2.1 and 3.2.2 below show in which country the studies were conducted, and provide a brief summary of the interventions, populations and settings investigated in these studies.

3.2.1. *RQ 1a: What interventions to increase awareness of the benefits of HIV testing and details of local testing services among the general public and healthcare workers are the most effective?*

First author, year	Design	Country	Setting	Population	Intervention	QA rating
One-to-one interventions						
Educational video interventions						
Calderon et al., 2007	RCT[1]	USA	Emergency department in a tertiary care hospital	ED patients aged ≤18 years	Pretest educational and counselling video	+
Calderon et al., 2011	RCT	USA	Adult and paediatric emergency departments	ED patients aged 15-21 yrs	HIV educational video	++
Saifu, 2011	nRCT[2]	USA	Veterans affairs medical walk-in centre	Non-ED patients triaged to the walk-in centre	Kiosk educational module	-
Computerised interviews and risk assessments						
Kurth et al., 2013	Cross-sectional	USA	Urban, trauma centre emergency department	Clinically stable, ED patients aged ≤18 years	Computerised risk assessment and feedback tool	+
Merchant et al., 2011	RCT	USA	Urban, adult emergency department	ED patients aged 18-64 yrs	Audiocomputer-assisted, interview system–delivered, tailored feedback intervention about reported HIV risk behaviours	-
Richens et al., 2010	RCT	UK	Sexual health clinics	All patients aged ≤16 years attending wit h a new clinical episode.	Computer-assisted interview; Computer-assisted personal interview; Pen and paper interview	++
Motivational interviewing through outreach activities						
Outlaw et al., 2010	RCT	USA	Outreach venues	African American MSM aged between 16-24 yrs	30-minute field outreach session based on motivational interviewing	++
Risk assessments and brief interventions						
Merchant et al., 2014	RCT	USA	Two urban emergency	ED drug using	Risk assessment and	++

[1] Randomised controlled trial
[2] Non-randomised controlled trial

First author, year	Design	Country	Setting	Population	Intervention	QA rating
			departments	patients aged 18-64 yrs	brief intervention about drug misuse and screening for HIV/Hepatitis C (HCV)	
Opportunistic information provision						
Information leaflets						
Das et al., 2004	BA[3]	UK	GUM clinic	All patients attending the clinic	Information leaflet about HIV infection	-
Rogstad et al., 2003	BA	UK	STI clinic in a large hospital	All new attenders at the routine STI clinics	Patient leaflet explaining tests performed in the clinic.	-
Social media						
Social networking for MSM						
Rhodes et al., 2011	Cross sectional BA	USA	Online chat room	MSM	Trained interventionist communicated with participants about HIV testing, testing locations and processes of testing.	-
Young et al., 2013	Cluster RCT	USA	Online social networking community (Facebook)	African American/Latino men MSM aged ≤18 years	Trained peer leaders communicated with participants about HIV prevention and testing.	+
Mass-media campaigns						
Communication and media campaign messages						
Kasting et al., 2014	RCT	USA	Urban community health clinics	Female patients aged ≤18 years	Health communication messages describing the benefits of and refuting objections to HIV testing	+
Uhrig et al., 2012	RCT	USA	Online	African American women aged 18-34 yrs	HIV prevention and testing media campaign	+

[3] Before and after study

3.2.2. *RQ 1b: What interventions to increase opportunity for, and uptake of, HIV testing are the most effective?*

First author, year	Design	Country	Setting	Population	Intervention	QA rating
Types of test						
Rapid vs. traditional tests						
Antonio-Gaddy et al., 2006	BA	USA	HIV testing sites	People attending for HIV testing	Rapid vs normal testing	-
Conners et al., 2012	BA	USA	Veteran health substance misuse clinics	Clinic users	Nurse initiated oral rapid testing	-
Metsch et al., 2012	RCT	USA	Drug treatment programmes	DT programme users	Referral offsite vs onsite testing vs. information only	++
Read et al., 2013	RCT	Aus	STI service	MSM	Rapid testing vs. conventional tsting	++
Targeted vs. universal testing						
Christopoulos et al., 2011	Retrospective BA	USA	ED	Targeted patients	Clinician initiated targeted testing	-
Lyons et al., 2013	Cluster RCT	USA	ED	ED patients	Targetted vs Universal screening	+
Myers et al., 2009	BA	USA	Community health centres	Patients	Introduction of routine testing	-
Roy et al., 2013	Cluster RCT	UK	TB clinics	Patients with TB at clinics	Universal offer, staff training and multilingual information	++
Seewald et al., 2013	Comparative retrospective study	USA	Methadone treatment programme	Users of programme	Routine HIV testing	-
Stopka et al., 2007	BA	USA	Outreach	IDUs	Offering HIV and HCV testing simultaneously	-
Opt in vs opt out testing						
Brooks et al., 2009	ITS[4]	USA	STI clinic	Clinic attendees	Opt out testing	-
Hack et al., 2013	Retrospective chart review	USA	Paediatric ED	13-20 year old ED attendees	Routine opt in testing	-

[4] Interrupted time series

Kavasery et al., 2009a	CT[5]	USA	Womens prison	Newly incarcerated women	Optimal time to offer opt out test in prison	+
Kavasery et al., 2009b	Prospective controlled trial	USA	Correctional facility	Newly incarcerated men	Optimal time to offer opt out test in prison	+
Klein et al., 2014	BA	USA	Sexual health clinics	Clinic users	Routine opt-out testing	-
White et al., 2011a	Quasi experimental	USA	ED	ED patients	Opt-in vs. opt out testing.	+
White et al., 2011b	Prospective observational	USA	ED	ED patients	Opt in vs. opt out testing	-
Fingerstick vs. oral fluid testing						
Donnell-Fink et al., 2012	RCT	USA	ED	Attendees at ED	Acceptance for fingerstick vs oral fluid test	+
Point of care rapid testing vs. laboratory-performed rapid testing						
White et al., 2011c	Retrospective cohort	USA	ED	ED attendees	Point of care testing vs. laboratory testing	-
Home sampling for HIV vs. conventional clinic-based testing						
Smith et al., 2015	Prospective observational	UK	HIV/STI testing sites	MSM	Home sampling vs clinic sampling	-
Changes in service delivery						
Electronic reminders						
Bourne et al., 2011	Non-randomised experimental study	Aus	Sexual health clinic	Users of service	SMS reminders to attend for testing	-
Burton et al., 2014	CBA[6]	UK	Sexual health clinic	Users of service	SMS reminders to attend for testing	-
Schnall et al., 2014	BA	USA	ED	Clinicians	Electronic reminders for staff	-
Sundaram et al., 2009	RCT	USA	Veteran medical clinic	Drs and nurse practitioners	Computer based reminders for staff	+
Impact of the professional/person offering the test						
Anaya et al., 2008	RCT	USA	Veterans Affairs clinics	Clinic attendees	3 different models for screening, counselling and testing	+
Kinsler et al., 2013	Comparative	USA	'safety net' clinics	Clinic attendees	Opt out testing offered by	-

[5] Controlled trial
[6] Controlled before and after

					nurse vs. by physician	
Snow et al., 2011	Case-control	Aus	MSM focussed GP	MSM attendees	Introduction of a nurse specialist in STI	-
Walensky et al., 2011	RCT	USA	ED	Attendees at ED	Acceptance rates with HIV counsellors vs. current staff	++
Organisational interventions						
Goetz et al., 2008	CBA	USA	Veteran medical clinic	Organisational systems	Multicomponent organisational change intervention	-
Goetz et al., 2011	CBA	USA	Veterans health clinics	Organisational systems	Multicomponent organisational change intervention	-
Pillay et al., 2013	Longitudinal	UK	GP surgeries	GPs	Training for GPs	-
Financial incentives for testing						
Haukoos et al., 2005	Prospective controlled clinical study	USA	ED	Patients at high risk of HIV	Financial incentive for HIV testing	+
Settings where tests can be carried out						
Probation vs. community setting						
Gordon et al., 2013	RCT	USA	Probation	Probationers	Testing at probation setting vs community testing	+

3.3. Study findings

3.3.1. RQ 1a: What interventions to increase awareness of the benefits of HIV testing and details of local testing services among the general public and healthcare workers are the most effective?

14 studies were included in the review. Overall, the quality of the studies was good, with 4 of the studies graded [++] and 5 studies graded [+]. The remaining 5 studies were graded [-] (see Table 3.2.1).

Studies were grouped by the intervention the study tested:

One-to-one interventions

- Educational video interventions (3 studies)
- Computerised interviews and risk assessments (3 studies)
- Motivational interviewing through outreach activities (1 study)

- Risk assessments and brief interventions (1 study)

Opportunistic information provision

- Information leaflets (3 studies)

Social Media

- Social networking for MSM (2 studies)

Mass-media campaigns

- Communication and media campaign messages (2 studies)

One-to-one interventions

Educational video interventions

Two RCTs and 1 nRCT investigated the use of HIV educational video interventions for patients (Calderon et al., 2007 [+]; Calderon et al., 2011 [++]; Saifu et al., 2011 [-]). All the studies were conducted in the USA.

Calderon et al. (2007 [+]) compared an HIV pre-test educational and counselling video with face to face counselling (standard care) in adults in a hospital Emergency Department (ED) in New York. Patients in the video counselling group were offered immediate testing after watching the video and an appointment to return for test results and post-test counselling within 2 weeks. Patients in the standard care group who agreed to be tested were asked to return the next business day for face to face counselling and testing and to return in 2 weeks for their results. The study found that patients in the video group were more likely to be tested and receive their results (57/202 [28.2%] vs 8/202 [3.9%]; difference=24.3%, 95% Confidence interval (CI) 17% to 31%) than patients in the standard care group. However, there were a large number of patients who declined to participate in the study who felt that they were not at risk for HIV. As such, the evidence may not be generalisable to patients who do not feel that they are at risk of contracting HIV. In addition, patients in the standard care group were required to return the next day for testing unlike the intervention group who were tested on the same day which could explain differences in uptake between the groups.

A further study by Calderon et al. (2011 [++]) evaluated the effectiveness of an HIV educational video in young people aged 15 to 21. Two hundred patients in a hospital ED in New York were randomised to the educational video or face to face counselling. At the conclusion of the study, all participants in both groups who agreed to be tested received a rapid oral HIV test, test results, and face to face post-test counselling. The study found a significant difference in post-intervention mean HIV knowledge scores between the video group and the face to face counselling group (78.5% and 66.3%, respectively; difference=12.2%, $p<0.01$, 95% CI 3.2% to 16.5%). There was also a significantly higher uptake of voluntary HIV testing after completion of the study in the video group compared to the face to face counselling group (51% vs 22% respectively, $p<0.01$). It is possible that the patients who refused to participate in the study could have introduced selection bias. However, there was no significant difference in age, race, gender, or HIV risk factors between study participants and those who refused.

Saifu et al. (2011 [-]) conducted a study in a Los Angeles veterans affairs medical walk-in centre to assess the effect of a 2 minute kiosk-based educational module on HIV testing

rates and patient knowledge. During alternating 2 week blocks over a 7 month period., patients were referred to view the kiosk followed by usual care (71 patients), or the kiosk was turned off and no changes were made to usual care processes (79 patients). All patients were offered rapid oral HIV testing. The study found that the kiosk was not associated with greater likelihood of HIV testing compared with usual care (Odds ratio (OR) 0.7, 95% CI 0.4 to 1.4). However, only 46% of participants in the intervention group actually watched the educational module. Further analyses showed that there was a non-significant association between increased HIV testing and viewing the educational module (Adjusted OR (aOR) 1.3, 95% CI 0.6 to 3 - the results were adjusted for age, gender and race.). An assessment of patient's knowledge of risk factors and oral rapid HIV tests was also undertaken in the last month of the study (44 patients). This found a significant difference (p=0.001) in knowledge scores between the kiosk (median score 9; IQR 8 to 9) and control periods (median score 7; IQR 6 to 8).

Evidence Statement 1: Impact of educational video interventions on uptake of HIV testing in people who may have undiagnosed HIV

There was strong evidence from 2 RCTs [+; ++] (both US[1,2]) to indicate that educational videos are an effective intervention to increase uptake in HIV testing compared to face to face counselling. One study[1] found that adult ED patients who watched the video were more likely to accept immediate testing and receive their results within 2 weeks compared to patients in the standard care group who were asked to return the next business day for face to face counselling and testing and to return in 2 weeks for their results (28.2% vs 3.9%; difference=24.3%, 95% CI 17% to 31%). The second study[2] reported a significantly higher uptake of rapid oral HIV testing in young people aged 15-21 years who watched the video compared to those who received face to face counselling (51% vs 22% [p<0.01]). However, the results of 1 [-] NRCT[3] suggested that an educational video module was not associated with increased uptake of rapid oral HIV testing in patients attending a veterans affairs medical walk-in centre (OR 0.7 [95% CI 0.4 to 1.4]), although less than 50% of participants in the intervention group actually viewed the video. Further analyses indicated that there was a non-significant association between increased HIV testing and viewing the video (aOR 1.3, 95% CI 0.6 to 3).

Applicability: The evidence is only partially applicable to HIV testing in the UK because the studies were all undertaken in the USA, although the interventions would be feasible in a UK-based setting.

Evidence Statement 2: Impact of educational video interventions to increase knowledge about HIV testing in people who may have undiagnosed HIV

There was moderate evidence from an RCT [++] and a NRCT [-] (both US[2,3]) to suggest that video interventions may increase knowledge about HIV testing. Both studies reported a significant difference in HIV knowledge scores between the video and control groups: 78.5% vs 66.3%, % difference=12.2%, 95% CI 3.2–16.5, p<0.01[2]; median score 9 [IQR 8–9] vs 7 [IQR 6–8], p=0.001[3].

Applicability: The evidence is only partially applicable to HIV testing in the UK because the studies were undertaken in the USA, although the interventions would be feasible in a UK-based setting.

1. Calderon et al., 2007 [+]

2. Calderon et al., 2011 [++]

3. Saifu et al., 2011 [-]

Computerised interviews and risk assessments

A cross-sectional study and 2 RCTs investigated computerised risk assessment tools to increase uptake of HIV testing (Kurth et al., 2013 [+]; Merchant et al., 2011 [-]; Richens et al., 2010 [++]). Two studies were conducted in the USA and one in the UK.

Kurth et al. (2013 [+]) evaluated an interactive computer tool aimed at facilitating rapid HIV testing in an urban trauma centre ED in the Pacific North West. Five hundred and 17 non-acute adult patients were randomly allocated to a computer tool (the Computer Assessment and Risk reduction Education (CARE) tool) and a rapid HIV test prior to the standard ED visit, or to the standard ED visit and chart review to assess risk behaviours and HIV/STI test referrals noted. The CARE tool provided risk assessment, a rapid HIV test video, HIV test consent and personalised feedback, as well as tailored behavioural skill-building videos and development of a specific HIV risk reduction plan. 97% of patients (251/258) in the computer group consented to the rapid HIV test and received their test results. In contrast, only 1 HIV test was conducted in the standard care group. However, at the time of the study, the ED did not provide HIV testing for patients other than those being treated for an occupational blood exposure or for clinical indication, therefore the study could not be conducted as a randomised comparison of computer versus ED staff-delivered HIV testing.

Merchant et al. (2011 [-]) assessed the effect of an audio, computer-assisted, interview system based feedback intervention about reported HIV risk behaviours compared with no intervention on the uptake of rapid HIV testing in 566 patients in an adult ED in New England. The intervention group received a questionnaire plus tailored audio feedback messages to responses about their risk behaviours whereas the no intervention group received the questionnaire only. After completing of the risk questionnaire, participants in both groups were offered a free, rapid, fingerstick HIV test. Test results were provided during the ED visit to those who consented to testing. The study reported that uptake of testing was similar in both the intervention and no intervention groups (54.1% vs 55.5% respectively; difference = −0.01%, 95% CI −0.09% to 0.07%). However, a lack of blinding of the research assistant and patient to study arm allocation could have affected the results.

Richens et al. (2010 [++]) assessed the use of computer-assisted interviews (CASI) compared with computer-assisted personal interviews (CAPI) and pen and paper interviews (PAPI) between patients and clinicians, in 2,351 sexual health clinic patients in London. Uptake of HIV testing was one of the secondary outcomes measured by study. Compared to PAPI, testing for HIV was conducted significantly less often in the CASI group (OR 0.73, 95% CI 0.59 to 0.90). There was no difference in HIV test uptake between PAPI and CAPI (OR 0.98, 95% CI 0.78 to 1.21). Patient characteristics were reported by centre and not by intervention group therefore it is unclear if there were any difference between the groups which could have impacted on the results of the study.

Evidence Statement 3: Impact of computerised interviews and risk assessments on uptake of HIV testing in people who may have undiagnosed HIV

There is moderate evidence from 2 RCTs [-;++] (one US[2] and one UK[3]) to suggest that computerised interviews and risk assessments are not associated with increased uptake of HIV testing. One study[2] found similar rates of testing in both a group receiving audio, computer-assisted based feedback on HIV risk behaviours compared with no feedback (54.1% vs 55.5% respectively; difference = −0.01%, 95% CI −0.09% to 0.07%). The second study[3] reported that HIV testing was significantly lower in patients using computer-assisted interviews compared to pen and paper interviews (OR 0.73, 95% CI 0.59 to 0.90). There was

also no difference in test uptake between computer-assisted interviews and pen and paper interviews (OR 0.98, 95% CI 0.78 to 1.21). However, 1 [+] cross-sectional study[1] found that 97% of patients using a risk assessment and educational computer tool agreed to testing and received their results prior to discharge from the ED. In contrast, only 1 HIV test was undertaken in the standard care group.

Applicability: The evidence is directly applicable because one of the studies was undertaken in the UK and the interventions assessed are feasible in the UK context.

1. Kurth et al., 2013 [+]

2. Merchant et al., 2011 [-]

3. Richens et al., 2010 [++]

Motivational interviewing through outreach activities

Outlaw et al. (2010 [++]) conducted an RCT to assess the effect of motivational interviewing on HIV testing rates and rates of return for test results among African American MSM in the USA. 96 participants were randomised to field outreach combined with motivational interviewing, and 92 to traditional field outreach. The traditional field outreach intervention focused on the provision of education to participants, whereas the motivational interviewing intervention focused on expressing empathy, exploring ambivalence, and building motivation for change. All participants were offered HIV testing after the intervention. Those that accepted received HIV counselling and oral testing, and test results were available 7 to 10 days later. Significantly more participants in the motivational interviewing group were tested for HIV after the intervention compared with the traditional field outreach group (49% vs 20% respectively; x^2_1=17.94, p=0.000). Participants in the motivational interviewing group were also significantly more likely to return for test results (98% vs 72%; x^2_1=10.22, p=0.001).

Evidence Statement 4: Impact of motivational interviewing on uptake of HIV testing and rates of return for test results among African American MSM

There is moderate evidence from 1 RCT [++] from the US[1] to suggest that the addition of motivational interviewing to field outreach is effective at increasing HIV counselling and testing (49% vs 20%; x^2_1=17.94, p=0.000) and rates of return for test results (98% vs 72%; x^2_1=10.22, p=0.001) among MSM.

Applicability: The evidence is only partially applicable to HIV testing in the UK. That is because the study was undertaken in the USA and there may be differences in the way that services are delivered in the UK context.

1. Outlaw et al., 2010 [++]

Risk assessments and brief interventions

Over a 13 month period, Merchant et al. (2014 [++]) evaluated a brief intervention to increase uptake of combined rapid HIV/HCV testing in drug using ED patients in the USA. 395 patients were randomly assigned to receive HIV/HCV risk assessment alone (control arm) or an HIV/HCV risk assessment plus a brief intervention aimed at motivating participants to consent to rapid testing for HIV/HCV. On completion of the intervention,

participants in both groups were offered free, rapid HIV/HCV testing. Those agreeing to testing were provided the results of their tests while in the ED. The study found that uptake of combined HIV/HCV testing was similar between the two groups (64.5% vs 65.2%; difference = −0.7%, 95% CI −10.1% to 8.7%).

Evidence Statement 5: Impact of combined risk assessments and brief interventions on uptake of HIV testing amongst drug using patients in an ED

There is moderate evidence from 1 RCT [++] from the US[1] to suggest that a brief intervention in combination with a risk assessment for HIV and HCV has no effect on uptake of HIV testing in drug using patients (64.5% vs 65.2%; % difference=−0.7% [95% CI −10.1–8.7]).

Applicability: The evidence is only partially applicable to HIV testing in the UK. That is because the study was undertaken in the USA and there may be differences in the way that services are delivered in the UK context.

1. Merchant et al., 2014 [++]

Opportunistic information provision

Information leaflets

Two BA studies assessed the use of patient leaflets (Das et al., 2004 [-]; Rogstad et al., 2003 [-]). Both the studies were conducted in the UK.

Das et al. (2004 [-]) conducted an audit of the impact of an information leaflet in low risk patients attending a Genitourinary medicine (GUM) clinic. Patients had the option of accepting, declining or deferring an HIV test. A review of the case notes of 500 patients showed that HIV test uptake had increased significantly at 8 months compared to 2 weeks after the introduction of the leaflet (62% vs 50%, p=0.001). However, it is unclear if the participants were similar at both time points assessed in the study, or if any differences could have introduced bias to the results.

Rogstad et al. (2003 [-]) assessed the impact of a leaflet explaining all tests (including HIV testing) that were routinely performed at an Sexually transmitted infection (STI) clinic in a large teaching hospital. All new attenders at the clinic were given the leaflet when they booked in and during consultation medical staff obtained verbal consent for an HIV test to be performed. As a result of the leaflet there was a significant increase in both the offer of an HIV test (654/1004 [65%] to 371/397 [94%], p<0.001) and in the number of patients tested (325/1004 [32%] to 210/397 [53%], p<0.001). Patient characteristics were not reported in the study, therefore it is not possible to assess potential confounding factors.

Evidence Statement 6: Impact of information leaflets on uptake of HIV testing in people who may have undiagnosed HIV

There is weak evidence from 2 BAs [-] (both UK[1,2]) to suggest that a patient leaflet may increase HIV test uptake in patients attending a GUM/STI clinic. One study[1] showed a significant increase in test uptake 8 months after the introduction of a patient leaflet (62% vs 50%, p=0.001). The second study[2] demonstrated a significant increase in both the offer (65% vs 94%, p<0.001) and acceptance (32% vs 53%, p<0.001) of HIV testing as a result of the leaflet.

Applicability: The evidence is directly applicable because both studies were undertaken in the UK.

1. Das et al., 2004 [-]

2. Rogstad et al., 2003 [-]

Social Media

Social networking for MSM

A cross sectional BA study and a cluster RCT examined the use of online social networking interventions to increase uptake of HIV testing (Rhodes et al., 2011 [-]; Young et al., 2013 [+]). Both the studies were conducted in the USA.

Rhodes et al. (2011 [-]) evaluated the effect of an intervention implemented in a chat room providing social and sexual networking for MSM. Over a 6 month period, a trained interventionist entered a chat room and provided information and answered questions about HIV and testing. The results showed that participants were more likely to report having had an HIV test in the past 12 months at post-intervention compared to pre-intervention (OR 1.8, 95% CI 1.4 to 2.5, p<0.001). Post hoc analyses also indicated that those who reported having seen and those who reported having chatted with the interventionist online were more likely to report being tested at post-test than those who did not see or chat with the interventionist (p<0.001). However, HIV testing in the last 12 months was assessed using an online assessment. Participants were not required to complete the assessment and it was self-reported therefore their responses may not be representative of the true effect of the intervention.

Young et al. (2013 [+]) conducted a study of the impact of HIV peer education for MSM delivered through a social networking website. During the 12 week intervention period, peer leaders in the intervention group communicated with participants about HIV prevention and testing; in the control group, peer leaders communicated about the importance of exercising, healthy eating and maintaining a low-stress lifestyle. Every 4 weeks, participants in both groups were able to request a free, home-based HIV testing kit. More intervention participants requested an HIV testing kit than control participants (25/57 [44%] vs 11/55 [20%], mean difference 24%, 95% CI 8 to 41%). There were also higher rates of test return (9/57 [15.8%] vs 2/55 [3.6%]) and follow-up for test results (8/57 [14%] vs 0/55 [0%]) in the intervention group compared to controls. Statistical analyses of returned tests and follow-up for test results were not presented due to sparse data. Peer leaders were required to deliver tailored messages to their groups in response to feedback and engagement. Differences in communication style and content could have impacted on the results of the study.

Evidence Statement 7: Impact of social media on home-based HIV testing and self-reported testing rates in MSM

There was weak evidence from a BA study [-] and an RCT [+] (both US[1,2]) to suggest that online social networking interventions may be effective in promoting uptake of HIV testing in MSM. One study[1] found that the intervention significantly increased self-reported HIV testing (OR 1.8, 95% CI 1.4 to 2.5, p<0.001). The second study[2] found that participants in the intervention group were more likely to request (44% vs 20%, mean difference=24%, 95% CI 8 to 41%) and return (15.8% vs 3.6%) home HIV testing kits, and to follow-up for their results (14% vs 0%) than those in the control group.

Applicability: Although the studies were undertaken in the US, the evidence is directly applicable because both the population considered, and the interventions are relevant to the UK context.

1. Rhodes et al., 2011 [-]

2. Young et al., 2013 [+]

Mass-media campaigns

Communication and media campaign messages

Two RCTs investigated the effectiveness of communication messages and media campaigns (Kasting et al., 2014 [+]; Uhrig et al., 2012 [+]). Both the studies were conducted in the USA.

Kasting et al., (2014 [+]) evaluated the impact of health communication messages on HIV testing rates among women. 1,919 female patients attending community health clinics in Indianapolis were randomised to receive: an information-only control message including brief, basic information about HIV/AIDS and the rapid HIV test being offered; a one-sided message advocating HIV testing; a two-sided message acknowledging and refuting a superficial objection to HIV testing (e.g. “Some people may not get tested because they think it is inconvenient to wait 20 minutes to get the result”); and a two-sided message acknowledging and refuting a more serious objection to HIV testing (e.g. “Some people do not get tested for HIV because they are afraid that they will find out that they have HIV infection”). After the intervention, participants were offered free, oral, fluid rapid HIV testing. The rates of HIV testing were similar between the control group, the two-sided superficial and the two-sided serious message group (test acceptance rates 86%, 83% and 82% respectively). However, the one-sided message group had significantly lower rates of testing (80%) than the control group (OR 0.66, 95% CI 0.47 to 0.93, p=0.018). Further analysis indicated that this effect was moderated by 'perceived obstacles to testing'; relative to the control intervention, there were significantly lower rates of HIV testing with the one-sided message in the “high perceived obstacles” group (OR 0.36; 95% CI 0.19–0.67; p=0.001) but not in the “low perceived obstacles” group (OR 0.84; 95% CI 0.55–1.28); p=0.427). Computer and electronic survey failures led to the loss of data from 113 (5.3%) participants which could have biased the analysed results.

Uhrig et al. (2012 [+]) conducted a web-based trial to assess the effectiveness of media campaign messages (‘Take Charge. Take the Test’) on knowledge and intentions to get tested for HIV. African American women aged 18 to 34 were randomised into 2 groups: exposure to campaign messages (radio advertisements, a billboard advertisement image and an electronic information booklet on HIV testing) and no exposure. All participants completed a baseline survey and 2 follow-up surveys at 2 and 6 weeks post-baseline. The results were adjusted to control for the following confounders: prior exposure to HIV testing messages, false baseline exposure to TCTT, and unsuccessful delivery of full radio stimuli in each model. At 6 weeks post-baseline, participants in the exposure group were significantly more likely than the control group to demonstrate increased knowledge of where to get a free HIV test (Adjusted OR (aOR)=2.56, 95% CI 1.32 to 4.98, p<0.01). The exposure group was also more likely to report an intention to be tested for HIV in the next 6 months at the 2-week follow-up (aOR=1.53, 95% CI 1.04 to 2.26, p<0.05). However, this intention was not sustained at the 6 week follow-up (aOR=0.87, 95% CI 0.51 to 1.48). There was also a non-significant intention to be tested in the next 12 months at both the 2-week (aOR=1.54, 95% CI 0.97 to 2.43) and 6-week follow-up (aOR=1.54, 95% CI 0.82 to 2.90).

Evidence Statement 8: Impact of communication messages on uptake of HIV testing amongst women

There was moderate evidence from 1 RCT [+] from the US[1] on the effectiveness of communication messages on uptake of HIV testing. The study found similar rates of testing between the two-sided communication message groups (acknowledging and refuting objections to HIV testing) and the control group (test acceptance rates 83%, 82% and 86% respectively). There were, however, significantly lower rates of testing in the one-sided message group (describing only the benefits of HIV testing) compared with the control (OR 0.66, 95% CI 0.47–0.93, p=0.018). Further analysis indicated that this effect was moderated by 'perceived obstacles to testing', with a significantly lower rate of HIV testing with the one-sided message in the “high perceived obstacles” group (OR 0.36; 95% CI 0.19–0.67; p=0.001) but not in the “low perceived obstacles” group (OR 0.84; 95% CI 0.55–1.28); p=0.427).

Applicability: The evidence is only partially applicable to HIV testing in the UK because the study was undertaken in the USA, although the intervention may be feasible in a UK-based setting.

Evidence Statement 9: Impact of media campaign messages on intentions to be HIV tested amongst women

There was moderate evidence from 1 RCT [+] from the US[2] on the effectiveness of media campaign messages on intentions to be tested for HIV. The study found that women exposed to campaign messages were more likely to report an intention to be tested for HIV in the next 6 months at the 2-week follow-up (aOR=1.53, 95% CI 1.04 to 2.26, p<0.05), however, this intention was not sustained at the 6-week follow-up (aOR=0.87, 95% CI 0.51 to 1.48).

Applicability: The evidence is only partially applicable to HIV testing in the UK because the study was undertaken in the USA, although the intervention may be feasible in a UK-based setting.

Evidence Statement 10: Impact of media campaign messages on knowledge of where HIV testing is offered

There was moderate evidence from 1 RCT [+] from the US[2] to suggest that media campaign messages on HIV testing may be effective at increasing knowledge of where to get a free HIV test (aOR=2.56, 95% CI 1.32 to 4.98, p<0.01).

Applicability: The evidence is only partially applicable to HIV testing in the UK because the study was undertaken in the USA, although the intervention may be feasible in the UK context.

1. Kasting et al., 2014 [+]

2. Uhrig et al., 2012 [+]

3.3.2. RQ 1b: What interventions to increase opportunity for, and uptake of, HIV testing are the most effective?

33 studies were included in the review of interventions to increase the opportunity for and uptake of HIV testing. Overall, the quality of the studies was poor, with only 4 of the studies

graded [++]. 9 studies were graded [+] and the remaining 20 studies were graded [-] (see Table 3.2.2).

Studies were grouped by the intervention the study tested:

Types of test

- Rapid testing vs. traditional testing (4 studies)
- Targeted testing vs. universal testing (6 studies)
- Opt-in vs. opt out testing (7 studies)
- Fingerstick vs. oral fluid testing (1 study)
- Point-of-care rapid testing vs. laboratory-performed rapid testing (1 study)
- Home sampling for HIV vs. conventional clinic-based testing (1 study)

Changes in service delivery

- Electronic reminders (4 studies)
- Impact of the professional/person offering the test (4 studies)
- Organisational interventions (3 studies)
- Financial incentives for testing (1 study)

Settings where tests can be carried out

- Probation vs. community setting (1 study)

Types of test

<u>Rapid testing vs. traditional testing</u>

Two RCTs (Metsch et al, 2012 [++]; Read et al, 2013 [++]), and two BA studies (Antonio-Gaddy et al, 2006 [-]; Conners et al, 2012 [-]) compared rapid and traditional testing.

Three of the studies were conducted in the USA and one was conducted in Australia.

Antonio-Gaddy et al, 2006 (BA [-]) trained staff at 61 sites that offered HIV testing including community sites, state prisons, and county jails in New York State to offer patients a choice between a rapid fingerprick test (where patients received their results during the consultation) and a standard test with the sample collected either by phlebotomy or by oral fluid sample (where patients had to return to the site at a later date to collect their results). They compared it to a similar period of time before the introduction of the rapid fingerprick test. Almost all (1249 [96.5%] of 1294) clients surveyed selected rapid over conventional HIV testing. During the evaluation period, 6,187 HIV tests were reported, 1,667 (36.9%) more than during the same period in 2002. All 5,771 clients received their rapid HIV test results compared with 333 (85.8%) of 388 clients ($p<0.0001$) who had elected conventional testing. After performing rapid testing for 12 weeks, 32 (80%) of 40 trained counsellors reported feeling ‘‘very comfortable’’ delivering reactive rapid test results compared with 14 (35%) of

40 trained counsellors (p<0.001) before training. Wide variations in time periods and poor reporting limit this study.

Metsch et al., 2012 (RCT [++]) and Conners et al., 2012 (BA [-]) both conducted studies comparing rapid to traditional testing for drug users.

Metsch and colleagues (RCT [++]) randomised 1,281 HIV-negative (or status unknown) adults who attended any of 12 community drug treatment programmes to (1) referral for off-site HIV testing, (2) HIV risk-reduction counselling with on-site rapid HIV testing, or (3) verbal information about testing only with on-site rapid HIV testing. There was a significant difference in testing and receipt of results across the 3 treatment groups (p=0.003):

- 18.4% off-site
- 79.7% on-site with risk-reduction counselling
- 84.8% on-site with information only

There was not a significant site-by-treatment interaction across the 3 treatment groups (p=0.19).

Participants randomised to on-site rapid testing were significantly more likely to complete and receive the results of an HIV test compared with participants randomised to the off-site referral arm (p<0.001; Mantel-Haenszel risk ratio (aRR) = 4.52; 97.5% CI 3.57 to 5.72 [results adjusted for race/ethnicity, gender, and site strata for the receipt of HIV test results]).

Conners et al (BA [-]) implemented and evaluated a nurse-initiated HIV oral rapid testing strategy at three Veterans Health Administration Substance Use Disorder clinics in the USA (implementation included streamlined nurse training and a computerized clinical reminder). Rapid testing increased during the intervention from baseline (traditional testing) at all three sites examined. Although rapid test rates decreased during the post-intervention period, the rates at two of the three sites remained significantly higher than baseline – from 2.0 to 5.0% at site 1 (p<0.05), from 1.2% to 1.1% at site 2 (p<0.05) and from 0 to 24.0% at site 3 (p<0.05). The total number of HIV tests (both rapid and blood) increased and remained higher than baseline six-month post- intervention at site 3 (21.7 to 32.2%, p<0.05). At site 2 they decreased in the post-intervention period from 20.9% to 11.1% (p<0.05) and at site 1 there was no meaningful increase in testing from 23.5 to 26.9% (p<0.05).

Read et al., 2013 (Randomised controlled trial [++]) conducted a trial in a public sexual health service in Melbourne, Australia to determine if the provision of rapid HIV testing to men who have sex with men attending a health service would increase their frequency of HIV testing over time. Men attending the service were randomised to either ongoing access to rapid HIV testing obtained with finger prick or to conventional HIV serology with venepuncture, over 18 months.

Evidence statement 11: Impact of rapid testing vs. traditional testing on uptake of HIV testing amongst people who may have undiagnosed HIV in drug treatment centres and substance use clinics

There is mixed evidence of varying quality from 1 RCT [++][1] and 2 BA [-][2,3] from the US assessing the effectiveness of rapid testing over traditional testing in substance use settings.

Two studies introduced rapid testing in drug treatment centres. One RCT [++][1] found that on-site rapid HIV testing in drug treatment centres made participants significantly more likely

to complete and receive the results of an HIV test compared with traditional testing (p<0.001; aRR = 4.52; 97.5% CI 3.57 to 5.72). A BA [-][3] found that nurse initiated rapid testing can be incorporated into some types of substance use clinics with minimal perceived impact on workflow and time however it has no significant impact on testing rates. One BA [-][2] found that introducing rapid testing at existing HIV testing sites also increased testing uptake and the proportion receiving their test results (96.5% chose rapid over traditional testing and 100% received their results compared to 85.8% of those who chose a traditional test).

Applicability: The evidence is from the US studies is only partially applicable to HIV testing in the UK, although the interventions would be feasible in a UK-based setting. One of the studies[3] was conducted within the US Veterans Health system and therefore has very limited applicability to the UK.

1. Metsch et al, 2012 [++]

2. Antonio-Gaddy et al, 2006 [-]

3. Conners et al, 2012 [-]

Evidence statement 12: Impact of rapid testing vs. traditional testing on uptake of HIV testing amongst people who may have undiagnosed HIV in a sexual health service

One Australian RCT [++][1] found that providing access to rapid HIV testing in a sexual health service did not result in a sustained increase over time in HIV testing by men who have sex with men; however, the rate of initial HIV testing did increase by a third. Participants were followed for 278 person years. Men in the rapid test arm had 469 tests (mean 1.63 tests a year), and men in the conventional test arm had 396 tests (mean 1.42 tests a year); incidence rate ratio 1.15, 95% confidence interval 0.96 to 1.38; P=0.12.

Applicability: The study is from Australia and is directly applicable because both the population considered and intervention are relevant to the UK context.

1. Read et al, 2013 [++]

<u>Targeted testing vs universal testing</u>

Two cluster RCTs (Lyons et al, 2013 [+]); Roy et al, 2013 [++]), three BA studies (Christopoulos et al, 2011 [-], Myers et al 2009 [-], Stopka et al, 2007 [-]) and one comparative retrospective study (Seewald et al, 2013 [-]) compared the effectiveness of targeted testing schemes with universal testing schemes.

Five of the studies were conducted in the USA; one was conducted in the UK.

Christopoulos et al., 2011 (Retrospective BA study [-]) and Lyons et al., 2013 (Cluster RCT [+]) both conducted studies in EDs at hospitals in the USA.

Christopoulos and colleagues (Retrospective BA study [-]) evaluated the increase in the number of tests and new HIV diagnoses resulting from the addition of targeted testing to clinician-initiated diagnostic testing. Clinicians were encouraged to test everyone with:

- Clinical presentation consistent with HIV infection

- Presence of HIV risk factors

- Inpatient admission, regardless of presenting issue

After the expanded testing, the number of tests increased from a median of 114 tests per month to 273 tests per month, p=0.004.

Lyons et al (Cluster RCT [+]) compared universal and targeted patient selection for HIV screening in a lower prevalence urban Emergency Department. Targeted screening was offered for any risk indicator identified from charts, staff referral, or self-disclosure. Universal screening was offered regardless of risk. Baseline seroprevalence was estimated from consecutive de-identified blood samples. There were 9,572 eligible visits during which the patient was approached. For universal screening, 40.8% (1,915/4,692) consented with six newly diagnosed (0.31%, CI 95 0.13%–0.65%). For targeted screening, 37% (1,813/4,880) had no testing indication. Of the 3,067 remaining, 1,454 (47.4%) consented with 3 newly diagnosed (0.22%, CI 95 0.06%–0.55%). Estimated seroprevalence was 0.36% (CI 95 0.16%–0.70%). Targeted screening had a higher proportion consenting (47.4% v. 40.8%, p<0.002), but a lower proportion of ED encounters with testing (29.7% v. 40.7%, p<0.002).

Myers et al., 2009 (Before and after study [-]) set out to measure the impact of application of the CDC guidelines for routine screening in health centres serving communities disproportionately affected by HIV in the southeastern USA. They compared frequency of screening before and after the implementation of the intervention, and also analysed the data for any demographic differences. Compared to approximately 3,000 patients in the year prior to implementation, 16,148 patients were offered testing with 10,769 tested in the year following the implantation of routine testing. Younger patients, African Americans and Latinos were more likely to receive testing. This study only reports aggregate data and a lot of data is missing about reasons for not testing.

Roy et al., 2013 (Cluster randomised controlled trial [++]) compared risk based testing to universal HIV testing in TB clinics in London. A total of 1,315 participants (demographically similar) were included in this study: 963 patients from 18 intervention group clinics and 352 patients in six control group clinics. At baseline, intervention group test acceptance was 84% (183 out of 217 patients), offer 76% (235 out of 308 patients) and coverage 72% (221 out of 308 patients). Following the intervention these increased to 86% (462 out of 534 patients), 87% (568 out of 655 patients) and 81% (534 out of 655 patients), respectively. Control group acceptance was 81% (91 out of 112 patients), offer 89% (125 out of 141 patients) and coverage 76% (107 out of 141 patients). Following the intervention these increased to 87% (172 out of 197 patients), 96% (202 out of 211 patients) and 85% (180 out of 211 patients) respectively.

Seewald et al., 2013 (Comparative retrospective study [-]) and Stopka et al., 2007 (BA study [-]) both looked at interventions with drug users.

The Seewald study retrospectively compared electronic records from a methadone maintenance treatment programme (MMTP) to determine whether a routine HIV rapid testing program performed by medical providers without pre-test counselling or the provision of incentives was more effective than risk-based HIV rapid testing done by referral to HIV counsellors with pre-test counselling and incentives over the previous 12 months. In the 12 months of targeted HIV rapid testing, 1559 rapid HIV tests were performed. Of these, 438 (28%) were duplicates (i.e. the same individuals were identified and tested two or more times in the same year). The remaining 1121 patients represented 14% of the total 7875 patients on methadone during this 12-month period. In the 12 months after routine HIV rapid testing was implemented, 2810 HIV tests were administered with only 110 (4%) duplicates. The 2700 patients tested represent 34% of the 7870 distinct MMTP patients in the 12 months during routine HIV testing. Significantly more patients were tested for HIV after implementation of routine rapid testing compared with the targeted testing (p<0.0001, OR:

3.2: 95% CI: 2.9–3.4). This increase occurred despite the removal of incentives (specifically, transportation vouchers), but was linked to fewer duplicate tests. Increased uptake of the HIV rapid test among MMTP patients in all age groups, all races/ ethnicities and both genders occurred. Only a third of patients were tested, and it is unclear why that is the case or why they refused.

Stopka and his colleagues investigated whether offering HIV testing concurrently with Hepatitis C testing concurrently would increase the uptake of testing. During a 2 month baseline phase, staff members conducted outreach in traditional locations on the streets; in local parks; adjacent to syringe exchange programs; and at public health vans, clinics, and drug and alcohol treatment centres. Outreach conducted during the baseline phase was identical to outreach typically conducted among IDUs. IDUs interested in receiving an HIV test were referred to HIV counsellors or, if recruited by a counsellor, were invited into the testing venue or scheduled for a later date. During the intervention phase, IDUs were recruited in the same manner and at the same locales used during the baseline phase, but both HCV and HIV C&T were offered. Site staff members actively promoted HCV C&T during this phase, and HIV C&T was offered as an "add-on." Clients were then tested using an oral testing device for HIV and a finger-stick test device for HCV. All testing IDUs in both phases were asked to return two weeks later to receive their HIV and HCV test results. HIV C&T rates were significantly higher when HIV and HCV C&T were offered together (27.1%, 354/1,305) than when HIV C&T services were offered alone (8.4%, 138/1,645) ($p<0.05$). The study reports no demographic detail and this limits its quality.

Evidence statement 13: Impact of targeted vs. Universal testing on uptake of HIV testing in outreach and Emergency Department settings

There is strong evidence from 6 studies (5 US[1-5] and 1 UK[6]) that offering universal testing in particular in some high risk groups[4-6] is consistently associated with increased uptake of HIV testing.

Three studies (1 retrospective study [-][4], 1 BA[-][5] and 1 cluster RCT [++][6)] showed that providing universal testing in TB clinics[6] and substance misuse services (routine rapid testing compared with the targeted testing; $p<0.0001$, OR: 3.2: 95% CI: 2.9–3.4)[4] or concurrently with Hepatitis C testing for drug users in outreach settings (Uptake of HIV and HCV C&T together (27.1%, 354/1,305) and alone (8.4%, 138/1,645) ($p<0.05$)[5] increased the uptake of testing. One BA [-][3] found that implementing universal testing in a general health centre also increased the number of tests (3,000 before compared to 10,769 after).

Two studies (1 BA [-][1] and 1 Cluster RCT [+][2]) in Emergency Departments (ED) found that the introduction of targeted testing to diagnostic testing in ED increased testing (number of tests increased from a median of 114 tests per month to 273 tests per month, $p = 0.004$)[1], however if universal testing was already in place then the addition of targeted testing did not add any benefit (targeted screening had a higher proportion consenting (47.4% v. 40.8%, $p<0.002$), but a lower proportion of ED encounters with testing (29.7% v. 40.7%, $p<0.002$)[2].

Applicability: Most of the evidence is from the US studies and is only partially applicable to HIV testing in the UK, although the interventions would be feasible in a UK-based setting. One of the studies[3] was from the UK and is directly applicable.

1. Christopoulos et al, 2011 [-]

2. Lyons et al, 2013 [+]

3. Myers et al, 2009 [-]

4. Seewald et al, 2013 [-]

5. Stopka et al, 2007 [-]

6. Roy et al, 2013 [++]

Opt-in testing vs opt-out testing

Two controlled trials (Kavasery et al, 2009a&b [both +]); one interrupted time series (ITS) (Brooks et al, 2009 [-]); one retrospective chart review (Hack et al, 29013 [-]); one BA study (Klein et al, 2014 [-]); one quasi-experimental study (White et al, 2011a [+]) and one prospective observational study (White et al, 2011b [-]) compared opt in testing and opt out testing. An ‘opt out’ test means that the healthcare worker suggests that it would be good idea to take a test, and that it will be carried out unless the patient asks for it not to be done. An 'opt-in' test means that patient needs to ask to have an HIV test (though healthcare workers may still discuss the benefits of testing, or make patients aware that tests are available).

All of the studies were conducted in the USA.

Brooks et al., 2009 (ITS [-]) and Klein et al., 2014 (BA [-]) both conducted studies in sexual health clinics to examine the effects of introducing routine opt-out testing in sexual health clinics.

Brooks et al (ITS [-]) looked at a four stage intervention in a Denver sexual health clinic that saw 33,772 patients who were included in the study. The study used RPR (rapid plasma regain) tests for syphilis as the benchmark. The HIV/RPR ratio and the HIV positivity rate for patients presenting for evaluation of a new problem were measured during 4 time frames:

- Period 1: 11 months before introduction of optional rapid HIV testing;
- Period 2: 6 months during which rapid testing was optional and standard ELISA testing slowly phased out;
- Period 3: 10 months after discontinuation of ELISA and introduction of logistic changes to improve clinic flow
- Period 4: 19 months following introduction of opt-out HIV consenting.

Comparator: RPR (rapid plasma regain) test for syphilis, which has almost 100% uptake.

Across all 4 periods, 33,772 visits occurred at which an RPR test was obtained. At these visits, 30,405 (90%) HIV tests were performed. The HIV/RPR ratio increased as follows:

- Period 1 – 0.79
- Period 2 – 0.86
- Period 3 – 0.92
- Period 4 – 0.96

HIV positivity varied from 0.5% in Period 1% to 0.8% in Period 2% to 0.6% in Period 3% to 0.7% in Period 4. Patients obtaining their HIV test results increased from 66% in Period 1% to 99% in Period 4. This study is limited by its poor design and poor methodological detail.

Klein et al (BA [-]) examined the impact of routine, opt-out HIV testing in clinical settings, regardless of patient risk profile or HIV testing history compared to previous practice of opt-in, risk-based HIV testing. Pre intervention, 426 new HIV-infected cases were identified from 128,029 tests (0.33%), whereas 816 new HIV-infected cases were found from 274,745 tests post intervention (0.30%). Pre intervention, HIV testing increased by 55 tests per month (95% CI 41 to 72), but only 34 tests per month (95% CI 26 to 42) post intervention. Increases in HIV testing rates were most pronounced in women and non-Hispanic whites.

Kavasery et al., 2009a & b (both controlled trials [+]) published two studies investigating the implementation of routine opt-out screening in correctional facilities, one women's (2009a) and one men's (2009b). The teams investigated the optimal time to offer an opt-out test to newly incarcerated prisoners. In the women's prison, 323 sequential entrants to the jail over a five week period were assigned to be offered routine opt-out HIV testing at one of three points after incarceration: immediate (same day, n=108), early (next day, n=108), or delayed (7 days, n=107). The primary outcome was the proportion of women in each group consenting to testing. Routine opt-out HIV testing was significantly highest (73%) among the early testing group compared to 55% for immediate and 50% for 7 days post-entry groups. Other factors significantly (p=0.01) associated with being HIV tested were younger age and low likelihood of early release from jail based on bond value or type of charge for which women were arrested.

In an identical study in a men's prison, 298 sequential entrants to the jail over a three week period were assigned to be offered routine opt-out HIV testing at one of three points after incarceration: immediate (same day, n = 103), early (next day, n = 98), or delayed (7 days, n = 97). The primary outcome was the proportion of men in each group consenting to testing.

Routine opt-out HIV testing was significantly higher for the early (53%: aOR = 2.6; 95% CI = 1.5 to 4.7) and immediate (45%: aOR = 2.3; 95% CI = 1.3 to 4.0) testing groups compared to the delayed (33%) testing group. The immediate and early testing groups, however, did not significantly differ (p = 0.67). In multivariate analyses, factors significantly associated with routine opt-out HIV testing were assignment to the 'early' testing group (p=0.0003) and low likelihood of early release (p=0.04).

White et al., 2011a (Quasi-experimental study [+]) & 2011b (Prospective observational study [-]).

The 2011a study was an experimental equivalent time-sample, conducted in an urban Emergency Department with an annual census of 80,000 visits. HIV screeners performed non-targeted HIV screening using point-of-care, rapid HIV tests. Screeners offered eligible patients HIV screening using either opt-in or opt-out consent methods on alternate weeks.

Of the eligible patients, 2409 were offered HIV screening, with 1209 (50%) on opt-in days and 1200 (50%) on opt-out days. The acceptance rate of opt-in HIV screening was 63% [767 of 1209, 95% confidence interval (CI): 61% to 66%] and the acceptance rate of opt-out HIV screening was 78% (931 of 1200, 95% CI: 75% to 80%), absolute difference 14% (95% CI: 11% to 18%). The acceptance rate of opt-out HIV screening remained greater after adjusting for patient demographics, admission status, acuity, treatment area, privacy of encounter, and screening staff identity (aOR=2.0, 95% CI: 1.7 to 2.4).

The 2011b study was a 1-year prospective observational study comparing 2 6-month screening approaches. During the opt-in phase, triage nurses referred patients to HIV testers

stationed at triage, who obtained separate opt-in written consent and performed rapid oral fluid tests. During the opt-out phase, registration staff conducted integrated opt-out consent and then referred patients to HIV testers. They assessed the proportion of potentially eligible patients who were offered screening (screening offer rate), the proportion offered screening who accepted (screening acceptance rate), the proportion who accepted screening and subsequently completed testing (test completion rate), and the proportion of potentially eligible patients who completed testing (overall screening rate) during each phase. For the opt-in versus the opt-out phases, respectively, there were 23,236 potentially eligible patients versus 26,757, screening offer rate was 27.9% versus 75.8% (p<0.001), screening acceptance rate was 62.7% versus 30.9%(P< 0.001), test completion rate was 99.8% versus 74.6% (P< 0.001), and overall screening rate was 17.4% versus 17.5% (P< 0.90).

Finally, Hack et al., 2013 (Retrospective chart review [-]) to investigate the effectiveness of opt out testing in a paediatric Emergency Room. Data collected from patients aged 13-20 were analysed for the first 3 months after the introduction of routine opt-out rapid screening and compared to the same period in the previous year during which time rapid screening was offered based on clinical indicators.

Three hundred (11%) of the 2,645 patients aged 13-20 were offered routine HIV screening in the PED. 2254 patients (74%) accepted testing, but no new cases of HIV were found. During the pre-intervention comparator phase, 39 patients aged 13-20 were tested for HIV, so routine testing increased the number of tests by 446%. The validity of this study is undermined by its poor retrospective audit methodology.

Evidence statement 14: Impact of opt in vs. opt out testing on uptake of HIV testing amongst people who may have undiagnosed HIV

There is mixed evidence from 7 studies (all US[1-7]) about opt-out testing in various settings.

Two studies (1 ITS [-][1] and one BA [-][2]) were set in sexual health clinics. One found that the introduction of several changes in clinic procedures, including the introduction of opt-out testing can increase HIV testing uptake relative to routine syphilis testing (testing ratio relative to syphilis testing increased to 0.96 and the number of patients receiving their results increased from <66% to 99%)[1]. The other study found that the rate of increase in the number of HIV tests performed per month slowed down from 55 tests per month (95%CI 41-72) pre-intervention to 34 tests per month (95%CI 26-42) post-intervention[5].

Two controlled trials [+] in prisons (one male[4] and one female[3]) found that routine opt-out HIV testing in a women's jail setting was feasible, with highest rates of testing if performed the day after incarceration (Routine opt-out HIV testing was significantly highest (73%) among the early testing group (24 hours) compared to 55% for immediate and 50% for 7 days post-entry groups). In a high attrition men's jail, routine opt-out HIV testing was not only feasible, but resulted in the highest rates of HIV testing when performed within 24 hours of incarceration. Testing was significantly higher for the early (53%: aOR = 2.6; 95% CI = 1.5 to 4.7) and immediate (45%: aOR = 2.3; 95% CI = 1.3 to 4.0) testing groups compared to the delayed (33%) testing group. The immediate and early testing groups, however, did not significantly differ (p=0.67).

In Emergency Departments, one study[6] found that opt-out HIV screening using supplemental staff increases patient acceptance (acceptance rate of opt-in was 63% [767 of 1209, 95% confidence interval (CI): 61% to 66%] and acceptance rate of opt-out was 78% (931 of 1200, 95% CI: 75% to 80%). However, another study[7] found that even though a significantly higher proportion of patients were offered HIV screening with an opt-out approach at registration, this was offset by much higher screening acceptance and test completion rates with an opt-in approach at triage (opt-in versus opt out screening offer rate was 27.9% versus 75.8% [*P*<

0.001], screening acceptance rate was 62.7% versus 30.9% [*P*< 0.001], test completion rate was 99.8% versus 74.6% (*P*< 0.001), and overall screening rate was 17.4% versus 17.5% [*P*< 0.90]). Overall screening rates with the 2 approaches were nearly identical. A study[2] in a paediatric Emergency Department found its 13- 20 year old patients are very accepting of HIV testing, and the volume of screening was increased by 446% when routine opt-out screening was offered.

Applicability: All of the evidence is from the US studies and is only partially applicable to HIV testing in the UK, although the interventions would be feasible in a UK-based setting.

1. Brooks et al., 2009 [-]
2. Hack et al., 2013 [-]
3. Kavasery et al., 2009a [+]
4. Kavasery et al., 2009b [+]
5. Klein et al., 2014 [-]
6. White et al., 2011a [+]
7. White et al., 2011b [-]

Fingerstick vs. oral fluid testing

Donnell-Fink et al., 2012 (RCT [+]) conducted a study as phase II of the USHER study (see section 3.3.2.5 Walensky et al., 2011) to compare HIV test acceptance rates among patients routinely offered fingerstick compared to those routinely offered oral fluid screening in an urban hospital ED in a US city hospital. USHER-Phase II was a single-centre, prospective, RCT that randomised subjects to either fingerstick or oral rapid HIV screening.

Eligible patients aged 18 to 75 years were invited to participate in the trial. The primary outcome measure was HIV test acceptance rate. 2,012 eligible patients were approached, of whom 1,651 (82%) consented to trial participation and enrolled. Among those enrolled 830 and 821 were randomised to the fingerstick and oral fluid arms, respectively. Acceptance of rapid HIV testing was similar in both arms; 67% (553/830) of subjects accepted fingerstick testing compared to 69% (565/821) who accepted oral (p=0.34).

Evidence statement 15: Impact of fingerstick vs. oral fluid tests on uptake of HIV testing amongst people who may have undiagnosed HIV

There is moderate evidence from 1 US RCT [+][1] to indicate that uptake of HIV testing was similar between patients routinely offered fingerstick testing compared to oral fluid testing in an ED (67% accepted fingerstick testing compared to 69% who accepted oral testing (p=0.34)).

Applicability: The evidence is from the US and is only partially applicable to HIV testing in the UK, although the intervention would be feasible in a UK-based setting

1. Donnell-Fink et al., 2012

Point of care rapid testing vs laboratory-performed rapid testing

White et al., 2011c (Retrospective cohort study [-]) compared two 6-month models of physician-initiated rapid HIV testing – point-of-care versus laboratory-performed – in a hospital Emergency Department (ED) in the USA. During the point-of-care phase, nursing staff performed oral fluid testing. During the laboratory phase, the laboratory performed whole-blood testing. For the point-of-care versus laboratory phase, respectively, there were 24,345 potentially eligible patients versus 26,363. The proportion of potentially eligible patients who had physician-initiated rapid HIV testing ordered was higher in the point-of-care phase compared to the laboratory phase (3.3% vs. 2.4%, p<0.001). However, the proportion of ordered tests completed (test completion rate) was higher in the laboratory phase than in the point-of-care phase (75.3% vs. 86.8%, p<0.001). The overall testing rate (the proportion of potentially eligible patients who had HIV testing completed) was 2.5% in the point-of care phase versus 2.1% in the laboratory phase (p<0.009). Eighteen (3.0%) of the point-of-care-tested patients and 15 (2.7%) of the laboratory-tested patients had reactive tests (p<0.02). The total testing time was greater in the laboratory phase (88 versus 66 minutes; p<0.001); however, there was no significant difference in the length of stay between phases (6.2 versus 6.9 hours; p<0.15).

Evidence statement 16: Impact of point of care rapid testing vs. laboratory-performed rapid testing on test order and completion rates in an ED

There was weak evidence from 1 retrospective cohort study [-][1] from the US to suggest that physicians were more likely to order HIV testing in a point-of-care rapid testing model compared to a laboratory-performed rapid testing model (3.3% vs. 2.4%, p<0.001). However, test completion rates were higher in the laboratory phase than in the point-of-care phase (75.3% vs. 86.8%, p<0.001). Overall, the proportion of potentially eligible patients who had HIV testing completed were similar between phases (2.5% in the point-of-care phase vs. 2.1% in the laboratory phase, p<0.009). The total testing time was greater in the laboratory phase (88 versus 66 minutes; p<0.001), however, there was no significant difference in the length of stay between phases (6.2 versus 6.9 hours; p<0.15).

Applicability: The evidence is from the US and is only partially applicable to HIV testing in the UK, although the intervention would be feasible in a UK-based setting.

1. White et al., 2011c [-]

Home sampling for HIV vs. conventional clinic-based testing

Smith et al., 2015 (Prospective observational [-]) published a UK study of the impact of home sampling kits on rates of HIV and STI testing among 3 groups: HIV negative (by self–report) MSM attending in person or contacting the GUM clinic via telephone requesting an STI screen (group 1); MSM with HIV infection attending the HIV outpatient clinic for routine outpatient follow-up (group 2); and MSM attending a rapid HIV testing service provided by the GUM clinic in a community-based organisation (group 3). Men in group 1 were offered a home sampling kit to obtain a self-collected specimen for STI and HIV as an alternative to testing in GUM clinic. Participants were asked to state on the specimen request form if they wished to have an HIV test as part of their home sampling kit screen. Men in group 2 were offered the option of a home sampling kit for STI as an alternative to the GUM clinic; and men in group 3 were offered a home sampling kit for STI only if their HIV test was negative.

Amongst men in group 1, there was a greater acceptance of home sampling kits (62.5%, 95% CI 53.5 to 70.9) compared to conventional GUM clinic-based testing (37.5% (95% CI:

29.1–46.5)) (p=0.0004). The uptake of HIV testing amongst these home sampling kits users was 81% (n = 50/62) with the median interval since last HIV test being 9 months (range: 1–186). This study is limited by a small sample size.

Evidence statement 17: Impact of home sampling vs. clinic based sampling on uptake of HIV testing amongst MSM

There was weak evidence from 1 UK based prospective observational study [-][1] to indicate that uptake of home sampling for HIV and STIs was significantly higher compared to conventional GUM clinic-based testing amongst HIV negative MSM attending or contacting a GUM clinic for STI testing. 62.5% (95% CI: 53.5–70.9) of MSM accepted home sampling compared to 37.5% (95% CI: 29.1–46.5) who opted for conventional GUM clinic-based testing (p = 0.0004). The uptake of HIV testing amongst the home sampling kits users was 81% (n=50/62) with the median interval since last HIV test being 9 months (range: 1–186).

Applicability: This study is from the UK and is directly applicable.

1. Smith et al., 2015

Changes in service delivery

Electronic reminders

One RCT (Sundaram et al, 2009 [+]); one nRCT (Bourne et al, 2011 [-]); one controlled BA study (Burton et al, 2014 [-]) and one BA study (Schnall et al, 2014 [-]) explored the effectiveness of electronic reminders. Two of these studies were from the USA and tested electronic notes on physicians' medical records in an ED (Schnall et al., 2014) and a Veterans Health clinic (Sundaram et al., 2009). The other two studies, one from Australia (Bourne et al., 2011) and one from the UK (Burton et al., 2014) deal with the effectiveness of SMS reminders to patients at sexual health clinics.

Schnall et al., 2014 (BA [-]) implemented an electronic reminder in a busy hospital ED. During the pre-intervention period, an electronic "HIV Testing" order set was available for clinicians to order a test or document a reason for not offering the test (e.g. patient is not conscious). During the intervention period, an electronic alert was then added to enforce completion of the order set, effectively preventing ED discharge until an HIV test was offered to the patient. Data was analysed from 79,786 visits, measuring HIV testing and detection rates during the pre-intervention period and during the six months following the implementation of the alert. The percentage of visits where an HIV test was performed increased from 5.4% in the pre-intervention period to 8.7% (p<0.001) after the electronic alert. After the implementation of the electronic alert, there was a 61% increase in HIV tests performed per visit. However, the percentage of patients testing positive per total patients-tested was slightly lower in the post-intervention group than the pre-intervention group (0.48% vs. 0.55%), but this was not significant.

Sundaram et al., 2009 (RCT [+]) set up computer based reminders to either assess HIV risk behaviours or to offer HIV testing at 5 primary care clinics within the US Veterans Health care system. All 32 providers (physicians and nurses) received an educational session discussing the importance of HIV screening and testing, the policies and processes in place for obtaining informed consent, and documenting pre- and post- test counselling. Providers were allocated to two groups:

Intervention (n=15): Providers received one of two types of computer based reminders for each patient:

1. HIV risk assessment reminder (if a patient did not have a documented risk behaviour for HIV and had not been tested at a VA clinic in the previous year)

2. HIV test reminder (if a patient had a documented HIV risk behaviour and had not been tested at a VA facility in the previous year).

Providers were required to complete an interactive dialogue box to resolve the reminders. The reminders were not mandatory and could be ignored, but they continued to appear each time the medical record was accessed until they were resolved. Providers received a detailed guide on how to use the reminders.

Control (n=17): Providers received only the education session.

Rates of testing were low (<2%) in both intervention and control groups. There were no differences in the change in testing rates between the intervention and control groups (0.29% versus 0.52%, p=0.75). There was substantial variation in the rates of HIV testing among both groups of providers. This study was conducted among US veterans and that may limit its usefulness.

Bourne et al., 2011 (Non-randomised experimental study [-]) compared HIV negative MSM who had an STI/HIV test and received an SMS reminder (n=714) with those tested in the same period (comparison group; n=1,084) and a similar period before the SMS system was introduced (pre-SMS; n= 1,753), neither of whom received SMS reminders. The reminder stated "You are due for your next screening. Please call SSHC on 93827440 to make an appointment". No other types of testing reminders were sent during the study period. SMS reminders were sent on average 4 months after the baseline test, and the recommended retest period is 3-6 monthly for MSM.

HIV/STI re-testing was significantly higher in the SMS (64%) than the comparison group (30%, p<0.001) and the pre-SMS group (31%, p<0.001). The OR associated with HIV/STI re-testing in the SMS group was 4.3 (95% CI 3.5 to 5.2; p<0.001) compared to the comparison group and 3.0 (95% CI 2.4 to 3.7; p<0.001) compared to the pre-SMS group.

After adjusting for differences in baseline characteristics, the OR in the SMS group was 4.4 (95% CI 3.5 to 5.5; p<0.001) compared to the comparison group and 3.1 (95% CI 2.5 to 3.8; p<0.001) compared to the pre-SMS group. The study gives no details of how people were selected for SMS or not and this could introduce bias.

Similarly, Burton et al., 2014 (Controlled BA [-]) measured re-attendance rates for two groups of higher risk patients in the UK: those listed for routine SMS text reminders (n=274) and a control group of patients from the previous year with the same risk profile who had not received any active recall (n=266). Re-attendance was counted if it was within 4 months of the end of the episode of care. Re-attendance rates were not statistically different (p=0.78) between the text group 33% (95% CI 28 to 39) and the control group 35% (95% CI 29 to 40).

Evidence statement 18: Impact of electronic reminders on the offer and uptake of HIV testing for people who may have undiagnosed HIV

1 RCT [+][1] and 1 BA [-][2] (both US) provide weak evidence about the use of electronic reminders in physicians electronic notes. In the BA study[2] there was a 61% increase in HIV tests performed per visit after the implementation of an electronic alert. The RCT[1] found that a similar electronic alert resulted in no differences in the change in testing rates between the

intervention and control groups (0.29% versus 0.52%, p=0.75). Overall, the study reported low rates of testing (<2%) in both intervention and control groups.

2 studies (1 UK[3] and 1 Aus[4]) found mixed evidence about the effectiveness of SMS reminders for HIV tests. An nRCT[4] found that SMS reminders were significantly associated with increased likelihood of re-testing compared to a comparison group (OR 4.4, 95% CI 3.5 to 5.5; p<0.001). Participants who received an SMS reminder were also significantly more likely to re-test than people in a similar period before the SMS system was introduced (OR 3.1, 95% CI 2.5 to 3.8; p<0.001). The other study (CBA[3]) implemented a similar system in the UK and reported that re-attendance rates were not statistically different (p=0.78) between the SMS group 33% (95% CI 28 to 39) and the control group 35% (95% CI 29 to 40). However, they note a very high background re-attendance rate.

Applicability: Most of the evidence is from the US and Aus studies and is only partially applicable to HIV testing in the UK, although the interventions would be feasible in a UK-based setting. One of the studies[3] was from the UK and is directly applicable.

1. Sundaram et al., 2009 [+]

2. Schnall et al., 2014 [-]

3. Burton et al., 2014 [-]

4. Bourne et al., 2011 [-]

Impact of the professional/person offering the test

Two RCTs (Anaya et al, 2008 [+] and Walensky et al, 2011 [++]); one case control study (Snow et al, 2013 [-]) and one comparative study Kinsler et al, 2013 [-]) addressed the differential effects of the role of professional who offered the test on test uptake. Three of the studies were from the USA and one was from Australia.

Anaya et al., 2008 (RCT [+]) compared 3 different testing modalities in two Veterans Health clinics in the same US city. 251 patients were randomised to 1 of 3 models of routine HIV testing:

1. Model A: Traditional HIV counselling/testing Control arm, study recruiters advised patients to discuss their need for an HIV test with their physician. Physicians were then responsible for ensuring patients received a test. Testing was administered through usual clinical laboratory mechanisms. This ‘traditional’ method of HIV testing requires a 2-visit process, the first for blood draw and the second to inform patients of results.

2. Model B: Nurse-initiated screening + traditional counselling/testing In this arm, nurses initiated an HIV screening protocol.. Rather than awaiting physician orders, nurses entered HIV testing orders into a patient’s electronic medical record and directed patients to the laboratory for venepuncture. Patients had to return for results.

3. Model C: Nurse-initiated screening + streamlined counselling/rapid testing As in model B, nurses entered test orders into the computerized record, initiated streamlined counselling and administered rapid testing. The nurses, who had been previously trained in the use of rapid testing, obtained an oral swab and asked

patients to return to the clinic testing area when the physician visit was completed. Results were available approximately 20 minutes later and transmitted to the patient.

Testing rates were 40.2% (model A), 84.5% (model B), and 89.3% (model C; p=<0.01). Test result receipt rates were 14.6% (model A), 31.0% (model B), 79.8% (model C; all p=<0.01). Sexual risk reduction and knowledge improvement did not differ significantly between counselling methods.

Kinsler et al., 2013 (Comparative study [-]) compared patient acceptability of provider-initiated opt-out HIV screening with nurse initiated opt-out HIV screening among 220 patients between the ages of 18–64 from two publically funded "safety-net" outpatient clinics in a US city. The study found that 77% of patients agreed to HIV testing using opt-out screening, and that HIV test acceptance was higher with the physician initiated opt-out model compared with the nurse initiated opt-out model (aOR=2.92; 95% CI=1.37 to 6.22).

Snow et al., 2013 (Case control study [-]) introduced a sexual health practice nurse into an Australian general practice that specialised in gay men's health to investigate the effect on HIV and STI testing. They compared the proportion of gay and other men who have sex with men (MSM) tested for HIV, syphilis, chlamydia (urethral and anal) and gonorrhoea (anal), or all of the above (defined as a complete set of tests at a single visit), two years before and one year after the nurse was introduced (Clinic A).

Clinic B, a general practice which also specialised in gay men's health, but with no sexual health nurse, was used as a control.

In Clinic A, amongst HIV negative MSM the proportion of men who had a complete set of HIV and STI tests increased from 41% to 47% (p < 0.01) after the nurse was introduced. Amongst HIV positive MSM attending clinic A there was an increase in the proportion of men who had a complete set of tests after the nurse was introduced from 27% to 43% (p<0.001). In Clinic B there was no significant increase in testing in the proportion of either HIV negative or HIV positive men who had a complete set of tests over the same time periods. The study is poorly designed, with no demographic data.

Walensky et al., 2011 (RCT [++]) report on part of the evaluation of the Universal Screening for HIV Infection in the Emergency Room [USHER] trial, a prospective RCT that implemented an HIV screening program in the Emergency Department of an urban tertiary medical centre. Emergency Department patients were screened and consented for trial enrolment by an USHER research assistant. Eligible subjects were randomised to rapid HIV testing offered by a dedicated counsellor (counsellor arm) or by an ED provider (provider arm).

In the counsellor arm, counsellors—without other clinical responsibilities—assumed nearly all testing-related activities (consent, counselling, delivery of test results). In the provider arm, trained ED emergency service assistants (nursing assistants) consented and tested the participant in the context of other ED-related responsibilities. In this arm, ED house officers, physician assistants, or attending physicians provided HIV test results to trial participants. Outcome measures were rates of HIV testing and test offer among individuals consenting for study participation. Among individuals offered the test, test acceptance was also measured.

During the study period, 8,187 eligible patients were approached in the ED, and 4,855 (59%) consented and were randomised to trial participation. The mean age was 37 years, 65% were women, and 42% were white. The overall testing rate favoured the counsellor arm (57% versus 27%; p<0.001); 80% (1,959/2,446) of subjects in the counsellor arm were offered an HIV test compared with 36% (861/2,409) in the provider arm (p<0.001). HIV test

acceptance was slightly higher in the provider arm (counsellor arm 71% versus provider arm 75%; p=0.025).

Evidence statement 19: Impact of the professional/person offering the test on uptake of HIV testing for people who may have undiagnosed HIV

2 US[1,2] studies found moderate evidence that both Drs and nurses could deliver effective HIV testing interventions. One RCT[+][1] found that introducing nurse led rapid testing and streamlined counselling increased uptake from 40.2% (traditional model) to 79.8% (p< 0.01). The other comparative study [-][2] found that 77% of patients agreed to HIV testing using opt-out screening, and that HIV test acceptance was higher with a physician initiated opt-out model compared with a nurse initiated opt-out model (aOR=2.92; 95% CI=1.37 to 6.22).

2 studies, 1 Aus[3] and one US[4] found strong evidence to support the use of additional staff specifically for sexual health HIV testing. 1 case control study [-][3] introduced a sexual health nurse into a general practice to offer testing to MSM. The proportion of men who had a complete set of HIV and STI tests increased from 41% to 47% (p<0.01). There was no increase at the control clinic. In the RCT [++][4] counsellors were introduced to EDs specifically to offer HIV counselling and testing as opposed to normal ED providers. The overall testing rate favoured the counsellor arm (57% versus 27%; p<0.001); 80% (1,959/2,446) of subjects in the counsellor arm were offered an HIV test compared with 36% (861/2,409) in the provider arm (p<0.001).

Applicability: 3 of the studies were US and 1 was Aus and are only partially applicable to HIV testing in the UK, although the interventions would be feasible in a UK-based setting.

1. Anaya et al., 2008 [+]
2. Kinsler et al., 2013 [-]
3. Snow et al., 2011 [-]
4. Walensky et al., 2011 [++]

<u>Organisational interventions</u>

Two controlled BA studies (Goetz et al, 2008 [-] and Goetz et al, 2011 [-]) and one longitudinal study (Pillay et al, 2013 [-]) looked at the effectiveness of organisational change, however see also Brooks et al (2009) in section 3.3.2.3. Two of the studies took place in the USA and one in the UK.

Goetz et al., 2008 (controlled BA [-]) evaluated whether a multi-component intervention increases the rate of HIV diagnostic testing in 5 geographically separate regional Veterans Health care systems in the USA. 2 of the five health care systems received the intervention (18 facilities) and the other 3 were controls (19 facilities). There were 4 components of intervention:

- Decision support - a real time, electronic clinical reminder to identify patients at increased risk and to encourage offer of a test.
- Audit feedback - an audit-feedback system to inform health care providers of clinic-level performance in regards to HIV evaluation and testing rates in at-risk patients.

- Provider activation - The provider activation program included academic detailing, social marketing, and provider and patient educational materials

- Organisational factors - written informed consent and pre-test HIV counselling are required for all HIV tests in Veterans Affairs. To expedite this process, nurse-based rather physician-based pre-test counselling was set up along with the use of a streamlined HIV counselling process that, together with the HIV Consent form, covers all the required elements of HIV pre-test counselling and documents consent in 2–3 minutes. The logistical challenges of post-test HIV counselling were reduced by encouraging telephone notification and brief post-test counselling after negative HIV test results.

At the two intervention sites, the adjusted rate of testing increased from 4.8% to 10.8% and from 5.5% to 12.8% (both comparisons, $p<0.001$). In addition, there were 15 new diagnoses of HIV in the pre-intervention year (0.46% of all tests) versus 30 new diagnoses in the post-intervention year (0.45% of all tests). No changes were observed at the control facilities.

Goetz et al., 2011 (controlled BA [-]) exported exactly the same intervention, with the same 4 components, to an additional 4 Veterans Health care systems.

Adjusted Odds Ratio (aOR) of HIV testing at the additional four sites pre to post intervention:

	aOR	(95% CI)
Site A	2.8	(2.6, 3.0)
Site B	3.1	(2.8, 3.4)
Site C	2.2	(2.0, 2.4)
Site E	3.9	(3.5, 4.3)

Both Goetz studies are within the Veterans Health system, and this may limit their usefulness.

Pillay et al., 2013 (Longitudinal study [-]) aimed to evaluate the impact of a multifaceted educational intervention (Sexual Health in Practice, SHIP) on general practice HIV testing rates in a high prevalence London area. Intervention SHIP offered training in sexual health clinical skills to general practitioners (GPs) and practice nurses (PNs) in Haringey. SHIP training aims to break down stigma in sexual health and provide sexual history and communication tools (e.g. differential diagnosis), and provides resources to practices (including condoms). Numbers of GP HIV tests were collected from laboratories for 24 months prior, 19 months during and 5 months after training. Attendance data and practice list sizes were obtained. By the end of the training intervention, 39 of 51 practices had at least one trained individual. These `trained' practices conducted an average 526 HIV tests p.a. before training began which rose to a projected 1556 p.a. (on the basis of the last 6 months of data). Testing rates of trained and untrained practices increased from 2.29 to 6.66 and 1.54 to 1.90 tests/1000 registered patients/year ($p=0.0016$ and $p=0.5195$) respectively. The rate of positive diagnosis was high in the trained group (18.0 and 16.7 positives/1000 tests before and after training began; $p=0.7908$). This equates to a rise from 9.5 to 22 new diagnoses p.a.

Evidence statement 20: Impact of organisational change on the offer of HIV testing to people who may have undiagnosed HIV

3 studies provide weak evidence about the effectiveness of organisational change. Two of the studies took place in the USA[1,2] and one in the UK[3].

2 controlled BA[1,2] studies [-] measured the impact of a 4 part intervention on HIV testing rates involving decision support, audit feedback, provider activation and organisational factors. In the first study[1], the rate of testing at 2 intervention sites increased from 4.8% to 10.8% and from 5.5% to 12.8% (both comparisons, p<.001). No changes were observed at the control facilities. The other study[2] rolled out the same intervention to 4 more sites and post intervention, the aOR for testing were 2.8 (95% CI; 2.6, 3.0); 3.1 (2.8, 3.4); 2.2 (2.0, 2.4); 3.9 (3.5, 4.3).

A further longitudinal study[3] [-] examined the impact of sexual health training for GP practice staff in London. These `trained' practices conducted an average 526 HIV tests p.a. before training began which rose to a projected 1556 p.a. Testing rates of trained and untrained practices increased from 2.29 to 6.66 and 1.54 to 1.90 tests/1000 registered patients/year (p=0.0016 and p=0.5195) respectively.

Applicability: Most of the evidence is from the US studies and is only partially applicable to HIV testing in the UK, although the interventions would be feasible in a UK-based setting. One of the studies was from the UK and is directly applicable.

1. Goetz et al., 2008 [-]

2. Goetz et al., 2011 [-]

3. Pillay et al., 2013 [-]

Financial incentives for testing

Haukoos et al., 2005 (Prospective controlled clinical study [+]) conducted a quasi-experiment at a busy urban ED in the USA. The study was divided into three study periods. During the first and third periods, no financial incentive was offered for completing HIV counselling and testing. During the second period, a $25 incentive was offered for completing HIV counselling and testing. During the study, 372 patients were referred for HIV counselling and testing (252 in the control periods and 120 in the intervention period). The results showed that patients were more likely to complete HIV counselling and testing in the intervention period than in the control period (23% vs. 8% respectively; OR 3.4; 95% CI 1.8 to 6.3). After controlling for race or ethnicity, the effect of the financial incentive remained significant (OR 3.4; 95% CI 1.8 to 6.6).

Evidence statement 21: Impact of financial incentives on uptake of HIV testing amongst people who may have undiagnosed HIV in an ED

One prospective controlled clinical study [+][1] from the US offered moderate evidence that a financial incentive of $25 can increase the uptake of HIV counselling and testing in an ED (OR 3.4; 95% confidence interval = 1.8 to 6.3).

Applicability: The evidence is from the US and is only partially applicable to HIV testing in the UK, although the intervention would be feasible in a UK-based setting.

1. Haukoos et al., 2005 [+]

Settings where tests can be carried out

Probation vs. community setting

Gordon et al., 2013 (RCT [+]) conducted a two-group RCT at probation/parole offices in parts of the USA. Male and female probationers/parolees were interviewed (n=1263) and then offered HIV testing based on random assignment to one of two conditions: 1) On-site rapid HIV testing conducted at the probation/parole office; or 2) Referral for rapid HIV testing off-site at a community HIV testing clinic. Outcomes were: 1) undergoing HIV testing; and 2) receipt of HIV testing results. Participants were significantly more likely to be tested onsite at a probation/parole office versus off-site at a HIV testing clinic ($p<0.001$). There was no difference between the two groups in terms of receiving HIV testing results ($p>0.05$).

Evidence statement 22: Impact of off-site community vs. onsite probation setting on uptake of HIV testing amongst people on parole who may have undiagnosed HIV

There is moderate evidence from 1 US RCT [+][1] to suggest that people on probation/parole were significantly more likely to be tested onsite at a probation/parole office versus off-site at an HIV testing clinic ($p<0.001$). However, there was no difference between the two groups in terms of receiving HIV testing results ($p>0.05$).

Applicability: The evidence is from the US and is only partially applicable to HIV testing in the UK, although the intervention would be feasible in a UK-based setting.

1. Gordon et al 2013 [+]

4. Discussion

4.1. Strengths and limitations of the review

Overall, the quality of the studies was mixed. As noted in section 3.3, the evidence relating to the awareness of HIV testing was generally good (4 studies graded ++, 5 studies graded + and 4 studies graded -). However, the quality of the studies relating to uptake of HIV testing was poor (4 studies graded ++, 9 studies graded + and 20 studies graded -).

Several limitations are seen across the studies, relating particularly to study design (specifically the absence of control groups), lack of reporting of patient characteristics, lack of blinding, and use of subjective outcomes. Further detail of the strengths and weaknesses of individual studies can be found in the evidence tables (Appendix 4).

4.2. Applicability

As noted in the evidence statements, few of the studies included in the review were conducted in the UK, with most evidence coming from the USA. This may limit the applicability of some findings to the context of HIV testing in the UK due to differences in healthcare policy, funding and service delivery.

4.3. Gaps in the evidence

4.3.1. RQ 1a: What interventions to increase awareness of the benefits of HIV testing and details of local testing services among the general public and healthcare workers are the most effective?

We set out to find evidence on interventions which increase awareness of the need and benefits of HIV testing, and of local HIV testing services, amongst people who may have undiagnosed HIV, as well those which increase awareness of the indicators for, and the benefits of HIV testing amongst those who should offer/ refer people for testing.

No specific evidence was identified in relation to the following interventions:

- One-to-one information provision through planned outreach activities
- Group-based information provision through lessons, talks and group activities

We found no evidence on increasing awareness about the benefits of testing amongst those who should offer/ refer people for testing. The majority of studies identified focused on interventions to increase awareness in people who may have undiagnosed HIV, measured through uptake of HIV testing. There were also some studies which also looked at the impact of interventions on people's understanding of HIV and HIV testing services. However, we found no evidence which specifically reported on the following outcomes:

- The time that elapses between HIV infection and diagnosis
- The number of HIV diagnoses among at risk groups
- Awareness of the benefits of early HIV diagnosis
- Awareness of what it means to be HIV-positive

4.3.2. RQ 1b: What interventions to increase opportunity for, and uptake of, HIV testing are the most effective?

The second part of the review was focused on interventions which increase the offer of an HIV test by those who should offer/ refer people for testing, and which increase the uptake of HIV testing among people who may have undiagnosed HIV.

No specific evidence was identified in relation to the following interventions:

- Changes in service delivery relating to changes in opening times, appointment systems, and confidentiality.
- Increasing the number of tests offered in primary care and other settings outside sexual health services.
- Increasing the number of settings where tests can be carried out, particularly: non-clinical settings such as voluntary organisations, community organisations and community pharmacies; outreach settings such as bars, clubs, faith settings or public sex environments.

There was also limited evidence on home testing and sampling.

Most of the studies identified focused on interventions to increase uptake of HIV testing in people who may have undiagnosed HIV, or increase the offer of tests by those who should offer/ refer people for testing. None of the studies that we found specifically reported on the following outcomes:

- the time that elapses between HIV infection and diagnosis
- the number of HIV diagnoses among at risk groups
- the reported history and frequency of taking HIV tests
- the number and types of venue where HIV testing is offered

5. Included studies

1. Anaya, Henry D., Hoang, Tuyen, Golden, Joya F., Goetz, Matthew Bidwell, Gifford, Allen, Bowman, Candice, Osborn, Teresa, Owens, Douglas K., Sanders, Gillian D., Asch, Steven M., Improving HIV screening and receipt of results by nurse-initiated streamlined counseling and rapid testing, Journal of general internal medicine, 23, 800-7, 2008

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6. Appendix 1 Evidence Tables

5.1 What interventions to increase awareness of the benefits of HIV testing and details of local testing services among the general public and healthcare workers are the most effective?

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Full citation
Calderon, Y., Haughey, M., Leider, J., Bijur, P. E., Gennis, P., Bauman, L. J., Increasing willingness to be tested for human immunodeficiency virus in the emergency department during off-hour tours: a randomized trial, Sexually transmitted diseases, 34, 1025-9, 2007

Quality score
+

Study type
Randomised controlled trial

Aim of the study
To compare the rate of HIV testing in patients receiving video counselling with immediate testing versus standard care (referral to counselling and testing the next day).

Location and setting</td>
<td>Inclusion criteria
Stable patients aged 18 years and over who presented to the adult ED between 4pm and midnight during the study period.

Exclusion criteria
Patients who were clinically unstable, unable to understand the consent process, had been HIV tested within 6 months and were informed of the result, or had a confirmed diagnosis of HIV were excluded from the study.</td>
<td>Number of participants
Total screened = 961
Eligible = 805 (83.8%)
Agreed to participate =404 (50.2%)
Intervention=202
Control=202

Participant characteristics
<table>
<tr><th>Characteristics</th><th>Video Group (N=202)</th><th>Counsellor Group (N=202)</th></tr>
<tr><td>Age mean +-
SD</td><td>28
+- 8.7</td><td>29 +-
9.3</td></tr>
<tr><td>% Male</td><td>37.6 (76)</td><td>37.6 (76)</td></tr>
<tr><td>% Ethnic background</td><td></td><td></td></tr>
<tr><td>Hispanic</td><td>49.5 (100)</td><td>55.0 (111)</td></tr>
<tr><td>Black</td><td>40.6 (82)</td><td>34.7 (70)</td></tr>
<tr><td>White</td><td>5.0 (10)</td><td>6.4 (13)</td></tr>
<tr><td>Asian</td><td>2.0 (4)</td><td>0 (0)</td></tr>
<tr><td>Other</td><td>3.0 (6)</td><td>4.0 (8)</td></tr>
<tr><td>% Prior HIV testing</td><td>70.3 (142)</td><td>73.3 (148)</td></tr>
<tr><td>% Sex without a condom</td><td>70.3 (142)</td><td>75.7 (153)</td></tr>
<tr><td>% History sexually transmitted disease</td><td>22.6 (44)</td><td>27.2 (55)</td></tr>
<tr><td>% History hepatitis</td><td>1.0 (2)</td><td>5.0 (10)</td></tr>
<tr><td>% History drug use</td><td>8.4 (17)</td><td>18.3 (37)</td></tr>
<tr><td>% Active drug use</td><td>6.9 (14)</td><td>6.4 (13)</td></tr>
<tr><td>% Needle stick exposure</td><td>3.0 (6)</td><td>2.5 (5)</td></tr>
<tr><td>% Alcohol abuse</td><td>4.5 (9)</td><td>4.5 (9)</td></tr>
<tr><td>% Homelessness</td><td>9.9 (20)</td><td>13.4 (27)</td></tr>
</table>
</td>
<td>Intervention / Comparison

Intervention: a pretest educational and counselling video that covered the essential elements of the pretest counselling sessions used during standard care, including nature and meaning of the HIV test and benefits of testing. After watching the video patients were offered immediate testing after watching the video and an appointment to return for test results and post-test counselling within 2 weeks.

Comparison: face to face counselling with a trained HIV counsellor, including information on the nature and meaning of the HIV test and benefits of testing. Following counselling, patients who agreed to testing were asked to return the next business day for face to face counselling</td>
<td>Primary outcomes
<table>
<tr><th></th><th>Video %</th><th>Counsellor %</th><th>Difference (95% CI) %</th></tr>
<tr><td>Agreed to HIV testing</td><td>92.6 (187/202)</td><td>4.5 (9/202)</td><td>88.1 (84 to 93)</td></tr>
<tr><td>Returned for test results – % of those tested</td><td>30.5 (57/187)</td><td>89.0 (8/9)</td><td>-58.5 (-80 to -37)</td></tr>
<tr><td>Returned for test results - % of all patients</td><td>28.2 (57/202)</td><td>3.9 (8/202)</td><td>24.3 (17 to 31)</td></tr>
</table>
Overall, patients in the video group were more likely to be tested and receive their results than those in the standard referral group.</td>
<td>Limitations identified by author
It was undertaken before rapid testing was available in the hospital.

Although the aim of the study concerned receptivity to testing, it did not include results of the test.

The authors were unable to ascertain whether patients in the standard of care group might have sought testing at another site. If patients went to other sites for testing this would falsely reduce the return rate for the standard of care referral group.

The study used a convenience sample, excluded unstable patients and adolescents, and there may have been a selection bias as patients were generally healthy enough to wait in the waiting area and were willing to be HIV</td>
</tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
An emergency department in a tertiary care public hospital in the Bronx, New York. **Length of follow up** N/A **Source of funding** Not reported		<table><tr><td>% No risk factors</td><td>17.8 (36)</td><td>14.4 (29)</td></tr></table>	and testing and to return in 2 weeks for their results.		tested. There were also a large number of patients who declined to participate who felt that they were not at risk for HIV. As such, the evidence about the effectiveness of this experimental model can be generalized only to patients presenting to inner-city EDs who feel that they may be at risk of contracting HIV and want to be tested. **Limitations identified by review team** The intervention group were given the opportunity to ask questions about testing after watching the pre-test video. This may have impacted on their decision to undergo testing. Also, patients in the standard care group were required to return the next day for testing unlike the intervention group who were tested on the same day which may explain differences in uptake between the groups.
Full citation Calderon, Y., Cowan, E., Nickerson, J., Mathew, S., Fettig, J., Rosenberg, M., Brusalis, C., Chou,	**Inclusion criteria** Inclusion criteria required that patients be sexually active, aged 15 to 21 years, and	**Number of participants** Of 590 patients approached, 333 (56.4%) were eligible for study entry. Of the 333 eligible patients, 200 (60.1%) agreed to participate in the study and were randomly assigned evenly to the 2 study arms.	**Intervention / Comparison** **Intervention:** the intervention group viewed an HIV	**Primary outcomes** **HIV knowledge** There was no significant difference in pre-intervention HIV knowledge scores between the groups. Mean HIV knowledge scores were	**Limitations identified by author** The measure used to evaluate HIV knowledge was not a formally validated tool.

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>K., Leider, J., Bauman, L., Educational effectiveness of an HIV pretest video for adolescents: a randomized controlled trial, Pediatrics, 127, 911-6, 2011

Quality score
++

Study type
Randomised controlled trial

Aim of the study
To compare the effectiveness of a 'youth friendly' HIV educational video with face to face counselling in conveying
HIV knowledge and obtaining consent for HIV testing among adolescent patients of an urban emergency department.

Location and setting
The adult (aged 18 – 21 years) and paediatric (aged 15–17 years) EDs and the urgent care centre of Jacobi Medical Center,
a Level 1 trauma and tertiary care</td>
<td>speak English.

Exclusion criteria
Patients were excluded if they were medically unstable, in obvious pain, unable to understand the consent process, did not speak
English, were known to be HIV positive, or had been tested within the past 6 months.</td>
<td>HIV video=100
In-person counselling=100

Participant characteristics
<table>
<tr><th></th><th>Video group % (n=100)</th><th>Counsellor group % (n=100)</th></tr>
<tr><td>Age < 18 y</td><td>58</td><td>66</td></tr>
<tr><td>Female gender</td><td>48</td><td>47</td></tr>
<tr><td>Race</td><td></td><td></td></tr>
<tr><td>American Indian</td><td>3.0</td><td>2.0</td></tr>
<tr><td>Asian</td><td>2.0</td><td>5.0</td></tr>
<tr><td>Black</td><td>39</td><td>25</td></tr>
<tr><td>Native Hawaiian</td><td>0</td><td>1.0</td></tr>
<tr><td>White</td><td>9</td><td>16</td></tr>
<tr><td>Other</td><td>48</td><td>51</td></tr>
<tr><td>Hispanic</td><td>41</td><td>52</td></tr>
<tr><td>Previous HIV test</td><td>30</td><td>40</td></tr>
<tr><td>Vaginal sex in previous year</td><td>96</td><td>93</td></tr>
<tr><td>Anal sex in previous year</td><td>35</td><td>28</td></tr>
<tr><td>Oral sex in previous year</td><td>49</td><td>40</td></tr>
<tr><td>Multiple sexual partners</td><td>63</td><td>64</td></tr>
<tr><td>Bisexual</td><td>6</td><td>7</td></tr>
<tr><td>MSM</td><td>11</td><td>9</td></tr>
</table>
</td>
<td>educational video including information on the nature and meaning of the HIV test and benefits of testing.

Control: the control group received in-person HIV counselling.

All participants completed pre-intervention and post-intervention HIV knowledge measures. All participants were offered an optional rapid HIV test after they completed the study.

Participants agreeing to be tested for HIV received a rapid oral HIV test,
test results, and in-person posttest counselling. Participants in the intervention group who wished to be tested for HIV at the conclusion of the study received in-person pretest HIV counselling from a trained counsellor prior to testing.</td>
<td>significantly higher in the video group compared with the counsellor group (78.5% vs 66.3%, respectively; difference of 12.2% [P<0.01; 95% CI 3.2%–16.5%]).

Secondary outcomes

Uptake of rapid HIV testing
Significantly more participants in the video group were tested for HIV than in the face to face counselling group (51% vs 22% respectively, p=0.01).

Overall, the results demonstrate that an HIV educational video improved HIV knowledge and increased HIV testing compared to in-person counselling.</td>
<td>Youth participation was lower than expected, although participation rates were comparable to other studies on adolescent ED patients.

It is possible that the patients who refused participation could have introduced selection bias; however,
there was no significant difference in age, race, gender, or HIV risk factors between study participants and those who refused.</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>centre located in Bronx, New York.

Length of follow up
N/A

Source of funding
Funding for this study was provided by National Institutes of Health Institute of Child Health and Human Development grant.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Full citation
Das, Satyajit, Huengsberg, Mia, Radcliffe, Keith, Impact of information leaflets on HIV test uptake amongst GUM clinic attendees: an update, International journal of STD & AIDS, 15, 422-3, 2004

Quality score
-

Study type
Before and after

Aim of the study
To re-assess HIV test uptake in GUM clinic attendees over 6 months after the introduction of an information leaflet in place of verbal pre-test counselling.</td><td>Inclusion criteria
Patients not previously known to be HIV positive.

Exclusion criteria
Not reported</td><td>Number of participants
January 2002=307
August 2002=500

Participant characteristics

Demographic data for patients - August 2002
<table><tr><td></td><td>N (%)</td></tr><tr><td>Gender</td><td></td></tr><tr><td>Male</td><td>250</td></tr><tr><td>Female</td><td>250</td></tr><tr><td>Heterosexual</td><td>487 (97.4)</td></tr><tr><td>Ethnic minority groups</td><td>225 (45)</td></tr><tr><td>Afro-Caribbean</td><td>116 (23.2)</td></tr></table></td><td>Intervention / Comparison
A printed information leaflet about the risks of HIV infection replacing standard verbal pre-test counselling. All patients received the leaflet at reception.</td><td>Primary outcomes
HIV test uptake
<table><tr><td></td><td>January 2002</td><td>August 2002</td><td>P value</td></tr><tr><td>Total</td><td>155/307 (50)</td><td>310/500 (62)</td><td>0.001</td></tr></table>
The results indicate that HIV test uptake increased significantly between two weeks after the introduction of the leaflet and 8 months later.</td><td>Limitations identified by author
Not described

Limitations identified by review team
The study was an uncontrolled before and after study and outcomes were assessed through case record review which could be prone to error. As a result it is difficult to assess whether the results of the study are a true reflection of the effect of the intervention.</td></tr>
</table>

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>Location and setting
Genito-Urinary Medicine (GUM) clinic, Coventry, UK

Length of follow up
N/A

Source of funding
Not reported</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Full citation
Kasting, Monica L., Cox, Anthony D., Cox, Dena, Fife, Kenneth H., Katz, Barry P., Zimet, Gregory D., The effects of HIV testing advocacy messages on test acceptance: a randomized clinical trial, BMC medicine, 12, 204, 2014

Quality score
+

Study type
Randomised controlled trial

Aim of the study
To evaluate one-sided and two-sided health communication messages designed to overcome attitudinal barriers with the aim of increasing HIV testing rates among women.</td><td>Inclusion criteria
Eligible participants were women who were 18 years of age and older, able to understand English or Spanish, HIV-negative (via self-report), non-pregnant, and seeking clinical services at one of seven urban community health clinics located in Indianapolis, USA.

Exclusion criteria
Pregnant women (by self-report) were excluded because HIV testing is routinely recommended and provided to all women who are pregnant.</td><td>Number of participants
Total analysed=1919
Control=483
One-sided intervention=480
Two-sided superficial intervention=481
Two-sided serious intervention=475

Participant characteristics
<table>
<tr><th></th><th>Total (n=1919)</th><th>Control (n=483)</th><th>Intervention 1 (n=480)</th><th>Intervention 2 (n=481</th><th>Intervention 3 (n=475)</th></tr>
<tr><td>Mean age</td><td>42.7</td><td>42.9</td><td>42.9</td><td>42.3</td><td>42.6</td></tr>
<tr><td>Hispanic</td><td>20%</td><td>18%</td><td>18%</td><td>24%</td><td>20%</td></tr>
<tr><td>Non-Hispanic Black</td><td>44%</td><td>45%</td><td>43%</td><td>44%</td><td>43%</td></tr>
<tr><td>Non-Hispanic White / Other</td><td>36%</td><td>37%</td><td>39%</td><td>31%</td><td>37%</td></tr>
<tr><td>Lifetime sexual partners</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td><5</td><td>35%</td><td>35%</td><td>35%</td><td>35%</td><td>35%</td></tr>
<tr><td>5-10</td><td>36%</td><td>37%</td><td>35%</td><td>37%</td><td>33%</td></tr>
<tr><td>>10</td><td>30%</td><td>28%</td><td>29%</td><td>28%</td><td>32%</td></tr>
<tr><td>Annual family income</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td><$10,000</td><td>47%</td><td>47%</td><td>47%</td><td>48%</td><td>45%</td></tr>
</table></td><td>Intervention / Comparison
Women were randomised into the following groups:

Control: an information-only control condition including brief, basic information about HIV/AIDS and about the rapid HIV test being offered (this information was provided to all four arms).

Intervention 1: a one-sided message describing only the benefits of HIV testing.

Intervention 2: a two-sided message describing a relatively minor objection to testing (e.g. “Some people may not get tested because they think it is inconvenient to wait 20 minutes to get the</td><td>Primary outcomes

HIV test acceptance
The highest rate of testing (86%) occurred among participants in the control group, who received no persuasive message. Neither the two-sided superficial nor the two-sided serious message group (test acceptance rates 83% and 82%, respectively) differed significantly from the control group (86%) in acceptance of HIV testing. However, the one-sided message group had significantly lower rates of testing (80%) than the control group (86%) (OR, 0.66; 95% CI, 0.47–0.93; p=0.018). The results indicated that 'perceived obstacles to testing' moderated this effect; relative to the control intervention, there were significantly lower rates of testing with the one-sided message for the “high perceived obstacles” group (OR, 0.36; 95% CI 0.19–0.67; p=0.001) but not for the “low perceived obstacles” group (OR 0.84; 95% CI 0.55–1.28); p=0.427).</td><td>Limitations identified by author
There was a relatively high rate of test acceptance across groups, indicating that a ceiling effect may have limited our ability to increase testing rates with simple health messages.

It is possible that there was a self-selection bias with this study and the participants who were willing to participate in the study were also more willing to get tested for HIV.

Limitations identified by review team
Computer and electronic survey failures led to the loss of data from 113 (5.3%) participants which could potentially bias the analysed results.</td></tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Inclusion / Exclusion criteria</th>
<th>Population</th>
<th>Intervention / Comparison</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>Location and setting
7 urban community health clinics in Indianapolis, USA.

Length of follow up
N/A

Source of funding
The study was supported by a research grant from NIH and a training grant from the Walther Foundation.</td>
<td></td>
<td>
<table>
<tr><td>$10,000-$29,999</td><td>42%</td><td>45%</td><td>40%</td><td>41%</td><td>42%</td></tr>
<tr><td>≥$30,000</td><td>12%</td><td>9%</td><td>13%</td><td>11%</td><td>13%</td></tr>
<tr><td>Perceived obstacles</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Low obstacles</td><td>73%</td><td>74%</td><td>75%</td><td>71%</td><td>73%</td></tr>
<tr><td>High obstacles</td><td>27%</td><td>26%</td><td>25%</td><td>29%</td><td>27%</td></tr>
</table>
</td>
<td>result”) followed by refutation of the objection and the message noting the benefits of testing.

Intervention 3: a two-sided message involving a more substantial objection (e.g. “Some people do not get tested for HIV because they are afraid that they will find out that they have HIV infection”) to testing followed by refutation of the objection and the message noting the benefits of testing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full citation
Kurth, Ann E., Severynen, Anneleen, Spielberg, Freya, Addressing unmet need for HIV testing in emergency care settings: a role for computer-facilitated rapid HIV testing?, AIDS education and prevention : official publication of the International Society for AIDS Education, 25, 287-301, 2013

Quality score
+

Study type
A cross-sectional</td>
<td>Inclusion criteria
Eligibility criteria included being age 18 or older, clinically stable, English-speaking, HIV-negative or status unknown, and able to understand the consent process.

Exclusion criteria
Not reported</td>
<td>Number of participants
Number randomised=517
CARE group=258
Control=259

Number analysed=489
CARE group=244
Control=245

Participant characteristics
<table>
<tr><th></th><th>CARE group (N=244) N (%)</th><th>Standard clinic visit (Chart data) (N=245) N (%)</th></tr>
<tr><td>Gender</td><td></td><td></td></tr>
<tr><td>Male</td><td>143 (59)</td><td>152 (62)</td></tr>
<tr><td>Age (years)</td><td></td><td></td></tr>
<tr><td><20</td><td>7 (3)</td><td>16 (6)</td></tr>
<tr><td>20-29</td><td>74 (31)</td><td>64 (26)</td></tr>
<tr><td>30-39</td><td>61 (25)</td><td>58 (24)</td></tr>
</table>
</td>
<td>Intervention / Comparison

Intervention:
the Computer Assessment and Risk reduction Education (CARE) tool provides risk assessment, a rapid HIV test video, HIV test consent, personalised feedback based on user risks, tailored behavioural skill-building videos, and development of a specific HIV risk reduction plan; and rapid HIV testing before standard visit emergency department</td>
<td>Primary outcomes

Uptake of HIV testing (% agreeing to test and receiving test results prior to discharge from the ED)
<table>
<tr><th></th><th>No. of participants</th><th>Total</th><th>%</th></tr>
<tr><td>CARE group</td><td>251</td><td>258</td><td>97%</td></tr>
<tr><td>Control</td><td>1</td><td>245</td><td>0.41%</td></tr>
</table>

The results of the study indicated that computer-facilitated rapid HIV testing in an ED setting resulted in high HIV testing and results uptake. In contrast only 1 HIV test was undertake in the standard care group.</td>
<td>Limitations identified by author
The study compared patient self-report data to chart notes from clinicians. Participants may be more willing to disclose sensitive risk information on an anonymous computer tool than to a clinician (reporting and social desirability bias). Clinicians may not have charted all HIV/STI risk presented by participants or referrals made for HIV testing.

The patient population may not be generalisable to other</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>study in which participants were randomly assigned to one of two arms.

Aim of the study
To evaluate an interactive computer tool aimed at facilitating rapid HIV testing in an urban emergency department.

Location and setting
An urban, trauma centre emergency department, USA

Length of follow up
N/A

Source of funding
The study was funded by NIH</td>
<td></td>
<td>
<table>
<tr><td>≥40</td><td>100 (41)</td><td>109 (44)</td></tr>
<tr><td>Mean (SD)</td><td>36.69 (11.022)</td><td>36.86 (11.435)</td></tr>
<tr><td>Race ethnicity</td><td>N=241</td><td>N=245</td></tr>
<tr><td>African American</td><td>93 (39)</td><td>93 (38)</td></tr>
<tr><td>Asian/Pacific Islander</td><td>2 (1)</td><td>6 (2)</td></tr>
<tr><td>Latino</td><td>3 (1)</td><td>13 (5)</td></tr>
<tr><td>Native American</td><td>6 (2)</td><td>8 (3)</td></tr>
<tr><td>White</td><td>106 (44)</td><td>109 (44)</td></tr>
<tr><td>Multiple/other</td><td>31 (13)</td><td>Not available</td></tr>
<tr><td>Unknown</td><td>-</td><td>16 (7)</td></tr>
<tr><td>Homeless</td><td>52/240 (22)</td><td>Not available</td></tr>
<tr><td>Unprotected sex in past 2 months, any</td><td>132/225 (59)</td><td>3/230 (1)</td></tr>
<tr><td>Injection drug use (IDU), ever</td><td>62/242 (26)</td><td>5/230 (2)</td></tr>
</table>
</td>
<td>visit. Intervention participants provided a urine sample for STI testing and an oral swab for the rapid HIV test, then took the computer intervention. If the participant was safe to test and consented to test the research assistant delivered the rapid HIV test result to the participant. If participants did not complete the consent process the specimen was discarded and the test result not read or reported.

Control: Standard emergency department visit and chart review to assess risk behaviours (HIV/STI test referrals noted).</td>
<td></td>
<td>ED populations.

There was initial data loss due to technical problems.

Limitations identified by review team
At the time of the study, the ED did not provide HIV testing for patients other than those being treated for an occupational blood exposure or for clinical indication. Therefore they were unable to conduct the study as a randomised comparison of computer versus ED staff-delivered HIV testing. In the current study, all participants in the intervention group were tested for HIV prior to completing the intervention. The proportion consenting t o and receiving test results prior to discharge from the ED was then measured. In contrast, the control group received only the standard ED visit. Chart review was used to assess risk behaviours and HIV/STI test referrals noted.</td>
</tr>
<tr><th>Full citation</th><th>Inclusion criteria</th><th>Number of participants</th><th>Intervention / Comparison</th><th>Primary outcomes</th><th>Limitations identified by author</th></tr>
<tr><td>Merchant, R. C.,</td><td>18 to 64 years old;</td><td>Enrolled in study=571</td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Clark, M. A., Langan, Iv Tj, Mayer, K. H., Seage, Iii Gr, Degruttola, V. G., Can computer-based feedback improve emergency department patient uptake of rapid HIV screening?, Annals of emergency medicine, 58, S114-s119, 2011

Quality score
-

Study type
Randomised controlled trial

Aim of the study
To assess the effect of an audiocomputer-assisted, interview system–delivered, tailored feedback intervention on increasing uptake of opt-in, nontargeted (universal), rapid HIV screening among adult ED patients.

Location and setting
An urban, academic, not-for-profit, adult emergency department in New England, USA.

Length of follow up
N/A</td>
<td>English speaking; not critically ill or injured; not prison inmates, under arrest, or undergoing home confinement; not presenting for a psychiatric illness; not known to be HIV infected; not participating in an HIV vaccine trial; not intoxicated; and not with a physical disability or mental impairment that prevented them from providing consent for participating in the study.

Exclusion criteria
Not reported</td>
<td>Intervention=286 (Dropped out=3)
No intervention=285 (Dropped out=2)
Completed trial=566

Participant characteristics
Not reported in the current paper. Paper states that Participants in the 2 study arms were similar in terms of demographic characteristics, history of HIV testing, distribution of reported HIV risk behaviour scores, and changes in self-perceived HIV risk.</td>
<td>Participants were randomly assigned to:

Intervention: audiocomputer-assisted interview system–based feedback

Control: no feedback about their risk for having or acquiring an HIV infection according to their reported HIV risk behaviours.

All participants were offered a fingerstick rapid HIV test.</td>
<td>Uptake of HIV screening
<table>
<tr><th></th><th>Intervention %</th><th>Control %</th><th>Difference</th></tr>
<tr><td>All participants</td><td>54.1</td><td>55.5</td><td>-0.01 (95% CI -0.09-0.07)</td></tr>
<tr><td>Female participants</td><td>56.6</td><td>53.4</td><td>-0.03 (95% CI -0.07-0.14)</td></tr>
<tr><td>Male participants</td><td>50.0</td><td>59.0</td><td>-0.09 (95% CI -0.22-0.04)</td></tr>
</table>
The results show that uptake of HIV testing was similar between the intervention and control groups. Overall, the feedback intervention did not improve uptake of rapid HIV testing in the ED.</td>
<td>Despite efforts taken to obtain a representative sample, the study findings might not be applicable to other EDs with different distributions of patient demographic characteristics, HIV testing histories, and HIV risk or to patients who do not speak English.

Willingness to participate might have been related to self-perceived HIV risk and the value of HIV screening, which in turn might have affected HIV screening uptake.

Although the study instrument was rigorously developed, it has not yet been demonstrated to predict HIV infection, and therefore the HIV risk behaviour score cannot be interpreted to represent actual risk.

Lack of blinding of the research assistant and patient to the study arm assignment could have affected the results.</td>
</tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Inclusion / Exclusion criteria</th>
<th>Population</th>
<th>Intervention / Comparison</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>Source of funding
The study was supported by a grant from the National Institute for Allergy and Infectious Diseases.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Although patients were not informed that they would be offered an HIV test at the conclusion of the study, some patients might have suspected or anticipated this offer and declined the study. As such, the participants included in the study and the uptake of testing might not reflect true testing uptake in the absence of a research study.</td>
</tr>
<tr>
<td>Full citation
Merchant, Roland C., Baird, Janette R., Liu, Tao, Taylor, Lynn E., Montague, Brian T., Nirenberg, Ted D., Brief intervention to increase emergency department uptake of combined rapid human immunodeficiency virus and hepatitis C screening among a drug misusing population, Academic emergency medicine : official journal of the Society for Academic Emergency Medicine, 21, 752-67, 2014

Quality score
++

Study type</td>
<td>Inclusion criteria
Patients were study eligible if they used or misused any type of drug within the prior 3 months (per the modified ASSIST survey); were 18 to 64 years old; English- or Spanish-speaking; not critically ill or injured; not prison inmates, under arrest, or undergoing home confinement; not presenting for acute psychiatric illness; not intoxicated; not known to have previous reactive HIV or hepatitis C virus (HCV) tests (per self-report or ED EMR mention of these infections); and not having a physical</td>
<td>Number of participants
Total=395
Intervention=198
Control=197

Participant characteristics
<table>
<tr><th></th><th>No intervention n=197</th><th>Intervention n=198</th></tr>
<tr><td>Median age, years (IQR)</td><td>27.0 (23.0-35.0)</td><td>28.0 (22.0-39.0)</td></tr>
<tr><td>Female</td><td>55.8</td><td>54.5</td></tr>
<tr><td>Male</td><td>44.2</td><td>45.5</td></tr>
<tr><td>White, non-Hispanic</td><td>62.9</td><td>69.2</td></tr>
<tr><td>White, Hispanic</td><td>7.6</td><td>6.1</td></tr>
<tr><td>Black or African American, non-Hispanic</td><td>20.3</td><td>15.7</td></tr>
<tr><td>Black or African American, Hispanic</td><td>4.6</td><td>8.1</td></tr>
<tr><td>Other</td><td>4.6</td><td>1.0</td></tr>
<tr><td>Currently homeless</td><td>7.6</td><td>11.1</td></tr>
<tr><td>Past 12 months homeless</td><td>2.0</td><td>5.1</td></tr>
</table></td>
<td>Intervention / Comparison

Between February 2011 and March 2012 participants were randomly assigned to one of two study arms:

Intervention: A Brief intervention aimed at motivating participants to consent to rapid testing for HIV and HCV, plus HIV/HCV risk assessment

Control: HIV/HCV risk assessment alone (control arm)

After enrolment, participants in both arms completed the study questionnaires (the value of</td>
<td>Primary outcomes

Uptake of combined rapid HIV/HCV testing
<table>
<tr><th></th><th>Intervention (%)</th><th>Control (%)</th><th>Mean difference (95%CD)</th></tr>
<tr><td>Uptake of HIV/HCV screening</td><td>65.2</td><td>64.5</td><td>-0.7 (-10.1 to 8.7)</td></tr>
</table>
The results show that uptake of combined rapid HIV/HCV testing was nearly identical between both groups. Overall the results suggest that the addition of a brief intervention to a self-administered HIV/HCV risk assessment did not increase uptake of testing relative to the risk assessment alone.</td>
<td>Limitations identified by author
Those who were excluded from the study might have different drug misuse profiles and responses to the risk assessment and brief intervention. The preponderance of marijuana-only users, who might have a lower risk profile for HIV/HCV, might have affected screening uptake and the effect of the brief intervention as well as the observed HIV and HCV prevalence.

Subgroup analyses by substance use category were not possible under the limits of the sample of this study.</td>
</tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Randomised controlled trial **Aim of the study** The study assess the impact of a brief intervention about HIV and hepatitis C virus (HCV) risk-taking behaviours and drug use and misuse in addition to a self-administered risk assessment, as compared to a self-administered risk assessment alone, on uptake of combined testing for HIV and HCV. **Location and setting** Two urban emergency departments, Rhode Island, USA. **Length of follow up** N/A **Source of funding** The study was supported by grants from the National Institute on Drug Abuse, the Lifespan/Tufts/Brown Centers for AIDS Research, the Gilead Foundation and by an unrestricted donation of rapid hepatitis C	disability or mental impairment that prevented providing consent. **Exclusion criteria** Not reported	<table><tr><td>Never/not homeless past 12 months</td><td>90.4</td><td>83.8</td></tr><tr><td>Employed</td><td>45.7</td><td>42.9</td></tr><tr><td>Disability</td><td>15.7</td><td>17.7</td></tr><tr><td>Student</td><td>11.7</td><td>13.1</td></tr><tr><td>Unemployed</td><td>26.9</td><td>26.3</td></tr></table>	combined HIV/HCV screening, self-perception of HIV/HCV risk, and opinions regarding ED-based HIV/HCV screening questionnaires followed by the HIV/HCV risk assessment. Participants randomly assigned to the control study arm then repeated the study questionnaires. Those assigned to the intervention arm underwent the brief intervention and then completed the same post questionnaires as the control group. Following completion of the study questionnaires, participants in both study arms were offered free rapid HIV and HCV screening.		The study cannot claim to represent the diversity of patients at all EDs, or those with dissimilar patient populations. The brief intervention itself might not have been appropriate to the needs of these participants, even though it was theoretically grounded and its components were relevant to the topics discussed. The study also cannot measure what effect on the outcomes would have occurred if ED rather than research staff had administered the brief intervention.

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>test kits from OraSure Technologies, Inc.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr>
<td>Full citation
Outlaw, Angulique Y., Naar-King, Sylvie, Parsons, Jeffrey T., Green-Jones, Monique, Janisse, Heather, Secord, Elizabeth, Using motivational interviewing in HIV field outreach with young African American men who have sex with men: a randomized clinical trial, American journal of public health, 100 Suppl 1, S146-51, 2010

Quality score
++

Study type
Randomised controlled trial

Aim of the study
To assess whether field outreach with motivational interviewing, as compared with traditional field outreach, leads to increases in HIV counselling and testing and rates of return for test results among young African American MSM.</td>
<td>Inclusion criteria
To be eligible, young people were required to self-identify as African American and men who have sex with men (MSM), to not currently be aware of their HIV status (i.e., no HIV testing or results within 3 months prior to enrolment), and to be aged between 16 and 24 years.

Exclusion criteria
Young men with an active psychiatric disorder (e.g., bipolar disorder, depression with psychotic features, or schizophrenia) were excluded.</td>
<td>Number of participants
Total=188
Field outreach with motivational interviewing=96
Traditional field outreach=92

Participant characteristics
<table>
<tr><th></th><th>Field outreach plus motivational interviewing</th><th>Traditional field outreach</th></tr>
<tr><td>Age, y mean (SD)</td><td>19.71 (2.3)</td><td>19.88 (2.2)</td></tr>
<tr><td>Risk behaviours in past 90 d, % (No.)</td><td></td><td></td></tr>
<tr><td>Alcohol use</td><td>89 (71)</td><td>88 (64)</td></tr>
<tr><td>Marijuana use</td><td>50 (40)</td><td>46 (37)</td></tr>
<tr><td>Other drug use</td><td>8 (8)</td><td>1* (1)</td></tr>
<tr><td>Insertive anal intercourse without a condom</td><td>36 (28)</td><td>24 (19)</td></tr>
<tr><td>Receptive anal intercourse without a condom</td><td>30 (24)</td><td>25 (20)</td></tr>
<tr><td>Vaginal intercourse without a condom</td><td>9 (7)</td><td>11 (9)</td></tr>
</table>
*p<0.05 versus field outreach plus motivational interviewing condition.</td>
<td>Intervention / Comparison
Participants were randomised to receive:
• Intervention: a 30-minute field outreach session based on motivational interviewing
• Control: a 30-minute traditional field outreach session.

All participants were offered HIV testing after the intervention; if they accepted the offer, they received HIV counselling and testing.</td>
<td>Primary outcomes

Receipt of HIV counselling and testing
<table>
<tr><th></th><th>HIV counselling/testing, %</th></tr>
<tr><td>Field Outreach Plus Motivational Interviewing</td><td>49</td></tr>
<tr><td>Traditional Field Outreach</td><td>20</td></tr>
</table>
Significantly more participants in the intervention group received HIV counselling and testing after the intervention compared with the control group (x^2_1=17.94; P=.000).

Return for test results
<table>
<tr><th></th><th>Return for results, %</th></tr>
<tr><td>Field Outreach Plus Motivational Interviewing</td><td>98</td></tr>
<tr><td>Traditional Field Outreach</td><td>72</td></tr>
</table>
Participants in the intervention group were significantly more likely than those the control group to return for test results (x^2_1=10.22; P=.001).

Overall, the results suggest that the addition of motivational interviewing to field outreach is effective at increasing HIV counselling and testing and rates of return for test results among African American MSM.</td>
<td>Limitations identified by author
The results may not be generalisable to all groups of young African American MSM as participants who did not patronise the targeted community venues were less likely to be recruited to the study.

The population for the study was an urban sample therefore the results may not translate to rural areas.

Risk reduction in the context of HIV counselling and testing was not formally addressed during the brief intervention.

Only motivational interviewing sessions were audio recorded and coded for treatment fidelity. Audio recording of both intervention and control group sessions would have allowed for detailed assessments of between-condition</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>Location and setting
Outreach venues, Michigan, USA

Length of follow up
N/A

Source of funding
The study was funded by the Health Resources and Services Administration (Special Projects of National Significance grant H97HA03785).</td><td></td><td></td><td></td><td></td><td>similarities and differences.

Further studies are needed to determine how replicable the results are.</td></tr>
<tr><td>Full citation
Rhodes, Scott D., Vissman, Aaron T., Stowers, Jason, Miller, Cindy, McCoy, Thomas P., Hergenrather, Kenneth C., Wilkin, Aimee M., Reece, Michael, Bachmann, Laura H., Ore, Addison, Ross, Michael W., Hendrix, Ellen, Eng, Eugenia. A CBPR partnership increases HIV testing among men who have sex with men (MSM): Outcome findings from a pilot test of the CyBER/testing internet intervention, Health Education & Behavior, 38, 311-320, 2011</td><td>Inclusion criteria
Not reported

Exclusion criteria
Not reported</td><td>Number of participants
Total participants in each cross-sectional sample=661
Pre-test=346
Post-test=315

Participant characteristics<table><tr><td></td><td>Pre-test (n=346)</td><td>Post-test (n=315)</td></tr><tr><td>Mean age in years</td><td>37.2 (±11.3); range 17–65</td><td>36.9 (±11.8); range 18–65</td></tr><tr><td>Sex</td><td></td><td></td></tr><tr><td>With men</td><td>272 (78.6%)</td><td>255 (81.0%)</td></tr><tr><td>With men and women</td><td>74 (21.4%)</td><td>60 (19.0%)</td></tr></table></td><td>Intervention / Comparison
The intervention was delivered typically between 9AM-5PM Monday-Friday in a chat room that facilitated social and sexual networking among local MSM. A trained interventionist entered the chat room and every 30 minutes posted various standardised triggers about HIV testing and his availability to provide information and answer questions about testing within the public chat room. In both the public chat room and through private</td><td>Primary outcomes

HIV testing between participants in each cross-sectional sample<table><tr><td></td><td>Pretest (n=346)</td><td>Post-test (n=315)</td><td>OR (95% CI)</td><td>p value</td></tr><tr><td>Tested for HIV during the past 12 months</td><td>154 (44.5%)</td><td>187 (59.4%)</td><td>1.8 (1.4, 2.5)</td><td><0.001</td></tr><tr><td>Among chatters reporting only male partners</td><td>141 (51.8%)</td><td>154 (60.4%)</td><td>1.4 (1.1, 2.0)</td><td>0.04</td></tr><tr><td>Among chatters reporting male and female partners</td><td>13 (17.6%)</td><td>33 (55.0%)</td><td>5.7 (2.6, 12.6)</td><td><0.001</td></tr></table>Post hoc analyses indicated that those who reported having seen and those who reported having chatted with the interventionist online were more likely to report being tested at post-</td><td>Limitations identified by author
The study design was cross sectional and findings should therefore be interpreted with caution.

The intervention did not reach African American chatters. Further research is needed to determine whether African American MSM are in the chat room at other times or whether these MSM are using other site hosts. Research is also needed to explore how to utilise e-mail communications for intervention implementation while being culturally</td></tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Inclusion / Exclusion criteria</th>
<th>Population</th>
<th>Intervention / Comparison</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>Quality score
-

Study type
Cross sectional before and after study

Aim of the study
To evaluate the effects of the CyBER/testing intervention to increase HIV testing rates among MSM within existing Internet chat rooms.

Location and setting
Internet chat room providing social and sexual networking for MSM in North Carolina, USA.

Length of follow up
N/A

Source of funding
Not reported</td>
<td></td>
<td></td>
<td>instant-messaging, the interventionist built trust with chatters through ongoing dialogue that was related to HIV testing; answered questions about testing locations and the processes of testing; referred chatters to other resources; explained HIV infection, acute infection, and asymptomatic infection; and engaged in discussions about the importance of knowing one’s HIV serostatus, resources for those who are seropositive, personal responsibility, and HIV-related stigma. The interventionist also referred chatters to an online video that highlighted diverse HIV testing experiences through vicarious learning.

The intervention was implemented over a 6 month period.</td>
<td>test than those who did not report having seen or chatted with the interventionist (p<.001).

Overall, the results suggest that the intervention significantly increased self-reported HIV testing among chatters.</td>
<td>congruent and not targeting individual chatters with unwelcomed messages.

The intervention was implemented during limited hours. Further exploration is needed to determine whether the intervention missed some chatters.

Limitations identified by review team
The key outcome of HIV testing in the last 12 months was assessed using an online assessment. Participants were not required to complete the assessment and it was self-reported therefore their responses may not be representative. In addition, there is potential that any increase in HIV testing was not as a result of the intervention.</td>
</tr>
<tr>
<td>Full citation
Richens, J., Copas, A., Sadiq, S. T., Kingori, P., McCarthy, O., Jones, V., Hay, P., Miles, K., Gilson, R., Imrie, J.,</td>
<td>Inclusion criteria
Male and female patients over the age of 16 years attending with a new clinical episode.</td>
<td>Number of participants
n= 2,351, allocated to three branches:
• CASI=801
• CAPI=763
• PAPI=787

Participant characteristics</td>
<td>Intervention / Comparison

1. Computer-assisted interview (CASI), using a tablet computer in</td>
<td>Secondary outcomes
<table>
<tr><th></th><th colspan="2">PAPI</th><th colspan="2">CAPI</th><th colspan="2">CASI</th></tr>
<tr><td></td><td>N (%)</td><td>OR (95% CI)</td><td>N (%)</td><td>OR* (95% CI)</td><td>N (%)</td><td>OR* (95% CI)</td></tr>
<tr><td>HIV test</td><td>540</td><td>1</td><td>512</td><td>0.98</td><td>498</td><td>0.73</td></tr>
</table></td>
<td>Limitations identified by author
Different formats for electronic interviews are possible for gathering the same dataset. Response</td>
</tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Inclusion / Exclusion criteria</th>
<th>Population</th>
<th>Intervention / Comparison</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>Pakianathan, M., A randomised controlled trial of computer-assisted interviewing in sexual health clinics, Sexually transmitted infections, 86, 310-4, 2010

Quality score
++

Study type
Randomised controlled trial

Aim of the study
To investigate the impact of computer-assisted interviewing on STI diagnostic testing.

Location and setting
Two sexual health clinics, London.

Length of follow up
N/A

Source of funding
The study was funded by the Medical Research Council and Camden Primary Care Trust.</td>
<td>Exclusion criteria
Patients were excluded if they had insufficient English or literacy to understand the recruitment process.</td>
<td>
<table>
<tr><th></th><th>Mortimer market centre n=1079</th><th>Courtyard clinic n=1239</th></tr>
<tr><td>Male</td><td>48.6%</td><td>48.8%</td></tr>
<tr><td>Non-UK origin</td><td>44.3%</td><td>32.3%</td></tr>
<tr><td>Same-sex partner</td><td>27.5%</td><td>5.7%</td></tr>
<tr><td>Age</td><td></td><td></td></tr>
<tr><td><25 years</td><td>28.9%</td><td>35.9%</td></tr>
<tr><td>25-34 years</td><td>45.3%</td><td>46.1%</td></tr>
<tr><td>>35 years</td><td>25.7%</td><td>17.9%</td></tr>
</table>
</td>
<td>private.
The electronic interview followed the format of the clinical proforma used by clinicians at each clinic for standard care. The patient would then be assessed by a clinician provided with a print-out generated from the interview.

2. Computer-assisted personal interview (CAPI), patient and clinician viewing the screen together, using the same interview as in CASI, but with data input by the clinician. On completion of the interview the clinician generated a print-out to place in the clinic notes.

3. Pen and paper interview (PAPI) with a clinician following the normal clinic practice of completing a proforma with the patient (usual care arm). The data from the clinic notes</td>
<td>
<table>
<tr><td>uptake</td><td>(69.3)</td><td></td><td>(68.8)</td><td>(0.78 to 1.21)</td><td>(62.6)</td><td>(0.59 to 0.90)</td></tr>
</table>

*Adjusted for patient gender and recruitment clinic.

The results show that HIV testing was significantly lower among CASI patients relative to PAPI. There was no difference in HIV testing between CAPI and PAPI. Overall, the results indicate that CASI and CAPI are not effective at increasing HIV test uptake relative to PAPI.
</td>
<td>rates are likely to vary with different electronic questionnaire formats.

Clinicians seeing patients recruited into the CASI and CAPI arms of the study were required to conduct consultations in a way that was new and different. Had the study been conducted in an environment where these new approaches were more familiar and established, it is likely that more evolved working practices might have produced different results.

Limitations identified by review team
Demographic features were reported by centre and not by intervention group. It was therefore unclear if there were any differences between the groups in terms of baseline characteristics which may impact on study outcomes.</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td></td><td></td><td></td><td>were subsequently transferred into same electronic format as the CASI and CAPI interviews by research staff.</td><td></td><td></td></tr>
<tr><td>Full citation
Rogstad, K. E., Bramham, L., Lowbury, R., Kinghorn, G. R., Use of a leaflet to replace verbal pretest discussion for HIV: effects and acceptability, Sexually transmitted infections, 79, 243-5, 2003

Quality score
-

Study type
Before and after

Aim of the study
To assess the effect of a leaflet instead of a formal pretest discussion on the number of patients offered an HIV test and the number of patients tested.

Location and setting
An STI clinic in a large
teaching hospital in Sheffield, United Kingdom.</td><td>Inclusion criteria
All new attenders at the routine STI clinics at the hospital during the study period.

Exclusion criteria
Not reported</td><td>Number of participants
6 weeks before the introduction of the leaflet=1004
4 weeks following the introduction of the leaflet=397

Participant characteristics
Not described but results provided for males/females:

6 weeks before the introduction of the leaflet
Males=500
Females=504

4 weeks following the introduction of the leaflet
Males=233
Females=164</td><td>Intervention / Comparison
All new attenders at the routine
STI clinics were given a leaflet when they booked in
which explained all tests that were routinely performed in the clinic, including the HIV test, as well as the window period between infection and seroconversion, and insurance
issues. During the consultation medical staff obtained verbal consent from the patient for an HIV test to be performed after eliciting that they had read the
leaflet. Those who required further information or were from high risk groups were offered further discussion with either the doctor or a health adviser. Those who had not read the leaflet or where there were special
issues were given additional information.</td><td>Primary outcomes

Offer of HIV test<table><tr><td></td><td>No. of participants</td><td>Total</td><td>%</td><td></td></tr><tr><td>6 weeks before the introduction of the leaflet</td><td>654</td><td>1004</td><td>65</td><td></td></tr><tr><td>Males</td><td>342</td><td>500</td><td>68</td><td></td></tr><tr><td>Females</td><td>312</td><td>504</td><td>62</td><td></td></tr><tr><td>4 weeks following the introduction of the leaflet</td><td>371</td><td>397</td><td>94</td><td>p<0.001</td></tr><tr><td>Males</td><td>217</td><td>233</td><td>93</td><td></td></tr><tr><td>Females</td><td>154</td><td>164</td><td>94</td><td></td></tr></table>Tested for HIV<table><tr><td></td><td>No. of participants</td><td>Total</td><td>%</td><td></td></tr><tr><td>6 weeks before the introduction of the leaflet</td><td>325</td><td>1004</td><td>32</td><td></td></tr><tr><td>Males</td><td>164</td><td>500</td><td>33</td><td></td></tr><tr><td>Females</td><td>161</td><td>504</td><td>32</td><td></td></tr><tr><td>4 weeks following the introduction of the leaflet</td><td>210</td><td>397</td><td>53</td><td>p<0.001</td></tr><tr><td>Males</td><td>139</td><td>233</td><td>60</td><td></td></tr><tr><td>Females</td><td>71</td><td>164</td><td>43</td><td></td></tr></table>The use of the leaflet increased both the number of patients offered an HIV test and the number of</td><td>Limitations identified by author
Not reported

Limitations identified by review team
The study was an uncontrolled before and after study, baseline characteristics were not assessed, and outcomes were elicited through case note review which could be prone to error. As a result it is difficult to assess whether the results of the study are a true reflection of the effect of the intervention.</td></tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Inclusion / Exclusion criteria</th>
<th>Population</th>
<th>Intervention / Comparison</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>Length of follow up
N/A

Source of funding
None</td>
<td></td>
<td></td>
<td></td>
<td>people tested. Men were more likely to be offered an HIV test than women at baseline (p=0.036) but after the intervention there was no longer a difference. The number of men accepting a test increased more than the number of women (p <0.005). Overall, the results suggest that use of a leaflet to replace pretest discussion was effective at increasing the proportion of patients undergoing HIV testing.</td>
<td></td>
</tr>
<tr>
<td>Full citation
Saifu, Hemen N., Impact of a kiosk educational module on HIV screening rates and patient knowledge, Journal of telemedicine and telecare, 17, 2011

Quality score
-

Study type
Non-randomised controlled study

Aim of the study
To assess the effect of a brief, kiosk-based educational module on HIV testing rates and patient knowledge.

Location and setting
A medical walk-in centre, Los Angeles

Length of follow up
N/A

Source of funding
Not reported</td>
<td>Inclusion criteria
Patients flagged at the triage desk for rapid HIV screening and triaged to the walk-in care clinic.

Exclusion criteria
Patients requiring care in the emergency department.</td>
<td>Number of participants
Total=150
Kiosk group=71
Standard care=79

Participant characteristics
<table>
<tr><td></td><td>Kiosk (n=71)</td><td>Control (n=79)</td></tr>
<tr><td>Mean age, years (SD)</td><td>63 (14)</td><td>58 (13)</td></tr>
<tr><td>Males, %</td><td>97</td><td>99</td></tr>
<tr><td>Race</td><td></td><td></td></tr>
<tr><td>White, %</td><td>34</td><td>33</td></tr>
<tr><td>Black, %</td><td>51</td><td>44</td></tr>
<tr><td>Hispanic, %</td><td>4</td><td>12</td></tr>
<tr><td>Other, %</td><td>11</td><td>11</td></tr>
</table></td>
<td>Intervention / Comparison
The study was undertaken in alternating 2 weeks blocks over a 7 month period.

All patients offered HIV oral rapid testing by a walk-in clinical nurse received an educational pamphlet about HIV testing. During alternating 2 week periods, patients were then referred to one of the following:

Intervention: a 2 minute kiosk-based, educational module about rapid oral HIV screening prior to receiving usual care. Patients had the option to view additional video clips on themes including HIV risk factors and privacy.

Control: the kiosk module was turned off and no changes were</td>
<td>Primary outcomes

HIV Testing Rate
<table>
<tr><td></td><td>Kiosk (n=71)</td><td>Control (n=79)</td><td>P value</td></tr>
<tr><td>HIV testing rate, %</td><td>37</td><td>44</td><td>0.3</td></tr>
</table>
The kiosk was not associated with increased likelihood of HIV testing compared to control (OR 0.7, 95% CI 0.4 to 1.4).

Secondary outcomes
During the last month of the study, flagged patients in both groups were asked to complete an HIV knowledge questionnaire assessing patient's knowledge of risk factors and oral rapid HIV tests. 44/97 (45%) eligible patients completed the knowledge questionnaire. The results showed a significant difference (p=0.001) in knowledge scores between the kiosk (median score 9; IQR 8-9) and control periods (median score 7; IQR 6-8).</td>
<td>Limitations identified by author
The authors gave the following potential explanations for the lack of an observed effect of the intervention on HIV testing rates:

The overall HIV testing rate was high compared with unselected patients in emergency department settings, and there may be a ceiling effect in attempts in increase testing rates.

Less than half of eligible patients viewed the kiosk module and any effect may have been diluted in the intention-to-treat analysis.

Not all patients were offered HIV testing due to nursing availability.

Patient-level</td>
</tr>
</table>

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td></td><td></td><td></td><td>made to usual care processes.</td><td></td><td>randomisation was not feasible but may have contributed to imbalances between the study arms.

The study population included mainly older, male and minority Veterans and therefore the findings may not be generalisable to other settings.

Limitations identified by review team
Only a limited number of HIV tests were offered to patients per day which potentially leads to bias in the results.

Only 46% of patients in the kiosk-intervention periods actually viewed the educational module.</td></tr>
<tr><td>Full citation
Uhrig, J. D., Davis, K. C., Fraze, J., Goetz, J., Rupert, D., Efficacy of an HIV testing campaign's messages for African American women, Health marketing quarterly, 29, 117-29, 2012

Quality score
+</td><td>Inclusion criteria
English-speaking, single, African American women aged 18 to 34 with fewer than 4 years of college education were eligible to participate in the study.

Exclusion criteria
Not reported</td><td>Number of participants
Baseline=1,567
2-week follow-up survey=814
6-week follow-up survey=439
Numbers were not reported for each of the intervention and control groups.

Participant characteristics
Not reported</td><td>Intervention / Comparison
Participants were randomised to:

Intervention:
Exposure to TCTT messages and materials consisting of two 1-minute radio advertisements, an image of a billboard advertisement, and an e-mail link to an information booklet</td><td>Primary outcomes<table><tr><th></th><th>2-week change Exposure (adjusted OR)</th><th>6-week change Exposure (adjusted OR)</th></tr><tr><td>Knowledge of where to get a free HIV test</td><td>1.11 [0.66, 1.88] (N=366)</td><td>2.56** [1.32, 4.98] (N=207)</td></tr><tr><td>Intention to have a test for HIV in the next 12 months</td><td>1.54 [0.97, 2.43] (N=371)</td><td>1.54 [0.82, 2.90] (N=201)</td></tr><tr><td>Intention to have a test for HIV in the next 6 months</td><td>1.53* [1.04, 2.26] (N=519)</td><td>0.87 [0.51, 1.48] (N=276)</td></tr><tr><td>HIV test since baseline survey</td><td>1.40 [0.76, 2.57] (N=812)</td><td>0.57 [0.31, 1.06] (N=438)</td></tr></table></td><td>Limitations identified by author
The authors acknowledged that external validity of the findings may be limited for several reasons:

The study sample was not a random sample of African American women. Rather, the participants were actively recruited and compensated</td></tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Inclusion / Exclusion criteria</th>
<th>Population</th>
<th>Intervention / Comparison</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>Study type
Randomised controlled trial

Aim of the study
To test the efficacy of the ‘‘Take Charge. Take the Test.’’ (TCTT) campaign messages on HIV testing knowledge, attitudes, beliefs, intentions, and behaviours.

Location and setting
Online, USA

Length of follow up
Participants completed a follow-up survey at 2- and 6-weeks postbaseline.

Source of funding
This study was supported by contract 200-2006-F-18532 from the Centers for Disease Control and Prevention (CDC).</td>
<td></td>
<td></td>
<td>on HIV testing

Control: No exposure. All participants completed a baseline survey.</td>
<td>*p<.05. **p<.01. [95% confidence interval].

At 6 weeks post-baseline, participants in the exposure group were significantly more likely than the control group to demonstrate increased knowledge of where to get a free HIV test and to report increased intentions to be tested for HIV in the next 6 months at the 2-week follow-up. However, the exposure intervention was not associated with increased intention to be tested for HIV in the next 6 months at the 6 week follow-up, or in the next 12 months at both the 2 and 6-week follow-ups. There was also no evidence of a link between exposure and follow-up HIV testing.</td>
<td>for their participation.

The study experienced high levels of attrition.

Participants in the exposure condition were deliberately exposed to the campaign materials as part of the study design via their computer, increasing the chances that they received, read, and considered the information. As the study design eliminated problems related to distribution or dissemination of the message, it provided a better indication of the effect of the information on the individuals who are exposed to it than of the overall effectiveness of the materials in the field.</td>
</tr>
<tr>
<td>Full citation
Young, S. D., Cumberland, W. G., Lee, S. J., Jaganath, D., Szekeres, G., Coates, T., Social networking technologies as an emerging tool for HIV</td>
<td>Inclusion criteria
African American or Latino men, age 18 years or older, has a Facebook account, self-reported living in the Los Angeles area, and had sex with a man in the</td>
<td>Number of participants
Total=112
Intervention=57
Control=55

Participant characteristics
<table>
<tr><td></td><td>Control group (n=55)</td><td>Intervention group (n=57)</td></tr>
<tr><td>Mean age (SD), y</td><td>31.8 (9.8)</td><td>31.2 (10.6)</td></tr>
</table>
</td>
<td>Intervention / Comparison
Facebook was used to create closed groups for the control and intervention groups. During the 12 week period, peer leaders attempted to</td>
<td>Primary outcomes

Requested HIV testing kit
<table>
<tr><td></td><td>No. of participants</td><td>Total</td><td>%</td></tr>
<tr><td>Intervention group</td><td>25</td><td>57</td><td>44%</td></tr>
<tr><td>Control group</td><td>11</td><td>55</td><td>20%</td></tr>
</table>
</td>
<td>Limitations identified by author
The study was limited to only 2 Facebook communities per group.

Participants’ location was self-reported.</td>
</tr>
</table>

<table>
<tr>
<th>Study details</th>
<th>Inclusion / Exclusion criteria</th>
<th>Population</th>
<th>Intervention / Comparison</th>
<th>Results</th>
<th>Notes</th>
</tr>
<tr>
<td>prevention, Annals of internal medicine, 159, 318-24, 2013

Quality score
+

Study type
Cluster randomised controlled trial

Aim of the study
To assess whether peer-delivered information via social networking communities can increase HIV testing among African American and Latino men who have sex with men.

Location and setting
USA, Online social networking community (Facebook)

Length of follow up
N/A

Source of funding
The work was supported by the National Institute of Mental Health; UCLA Center for HIV Intervention, Prevention and Treatment Services; and the UCLA AIDS Institute.</td>
<td>past 12 months.

Exclusion criteria
Not reported.</td>
<td>
<table>
<tr><td>Race, n (%)</td><td></td><td></td></tr>
<tr><td>African American</td><td>14 (25.5)</td><td>17 (29.8)</td></tr>
<tr><td>Latino</td><td>33 (60.0)</td><td>34 (59.7)</td></tr>
<tr><td>White</td><td>7 (12.7)</td><td>5 (8.8)</td></tr>
<tr><td>Asian</td><td>1 (1.8)</td><td>1 (1.8)</td></tr>
<tr><td>Self-described sexual orientation, n (%)</td><td></td><td></td></tr>
<tr><td>Gay</td><td>43 (78.2)</td><td>42 (73.7)</td></tr>
<tr><td>Bisexual</td><td>11 (20.0)</td><td>10 (17.5)</td></tr>
<tr><td>Heterosexual / questioning /do not know</td><td>1 (1.8)</td><td>5 (8.8)</td></tr>
</table>
</td>
<td>communicate with their assigned participants.

Intervention: In addition to general conversation, peer leaders in the intervention group were instructed to communicate about HIV prevention and testing.

Control: Peer leaders communicated about the importance of exercising, healthy eating and maintaining a low-stress lifestyle.

Every 4 weeks, participants in both groups were told that they could request a free, home-based testing kit. Each participant was able to receive 1 kit during the 12 week study period.</td>
<td>More intervention participants requested an HIV testing kit than control participants (mean difference = 24 percentage points [95% CI 8-41 percentage points]).

Returned HIV test
<table>
<tr><td></td><td>No. of participants</td><td>Total</td><td>%</td></tr>
<tr><td>Intervention group</td><td>9</td><td>57</td><td>15.8%</td></tr>
<tr><td>Control group</td><td>2</td><td>55</td><td>3.6%</td></tr>
</table>
Followed up for test results
<table>
<tr><td></td><td>No. of participants</td><td>Total</td><td>%</td></tr>
<tr><td>Intervention group</td><td>8</td><td>57</td><td>14.0%</td></tr>
<tr><td>Control group</td><td>0</td><td>55</td><td>0%</td></tr>
</table>
Statistical analyses of returned tests and follow-up for test results were not presented due to sparse data.

Overall, the intervention was more effective than the control at increasing home-based HIV testing, including return of testing kits and follow-up for results.</td>
<td>A control social networking group focusing on peer-delivered communication about general health was used instead of an offline control intervention.

No established best practice exists for HIV communication using social networking therefore peer-leader communication style and content varied on the basis of guidance from the trainers.

Limitations identified by review team
The study sample size was originally set assuming 7 clusters per condition, with 25 participants per cluster providing 80% power to detect a between-group difference in HIV testing of 16 percentage points or more. Participant numbers were significantly lower therefore there is potential that the study was underpowered to detect a difference.

Peer leaders were required to deliver tailored messages to their groups in</td>
</tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
					response to feedback and engagement - there is potential for bias in the messages that were given and their impact on test uptake. The study was unable to perform statistical analyses on returned tests and follow-up for test results due to sparse data.

5.2 What interventions to increase opportunity for, and uptake of, HIV testing are the most effective?

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Full citation Anaya, Henry D., Hoang, Tuyen, Golden, Joya F., Goetz, Matthew Bidwell, Gifford, Allen, Bowman, Candice, Osborn, Teresa, Owens, Douglas K., Sanders, Gillian D., Asch, Steven M., Improving HIV screening and receipt of results by nurse-initiated streamlined counseling and rapid testing, Journal of general internal medicine, 23, 800-7, 2008 **Quality score** + **Study type** RCT **Aim of the study** To compare three models of HIV testing. **Location and setting** Two primary care clinics within the US Department of Veterans Affairs Healthcare System in Southern	**Inclusion criteria** Age 18 - 65 Unaware of HIV status No HIV test in past year Appointment in target clinic that day English proficiency Competence to consent **Exclusion criteria** N/A	**Number of participants** 2,384 patients approached 406 agreed to participate (17% recruitment rate) 155 excluded for non-eligibility and 251 enrolled **Participant characteristics** Mean age 49 years (SD +10) 32% white, 43% African American, 17% Hispanic, 8% others 5% <high school education, 23% high school graduate, 49% some college, 23% college graduate. 35% employed. 32% income <USD10K, 30% 10-29K, 12% 30-49K, 6% 50-80K (remaining 20% missing data) 32% homeless 50% mental illness 29% drug users 92% heterosexual. There were no significant differences in the distribution of demographic characteristics, comorbidities, risk factors, baseline sexual risk, and baseline HIV knowledge across models.	**Intervention / Comparison** Patients were randomised to 1 of 3 models of routine HIV testing: **Model A: Traditional HIV counselling /testing** Control arm, study recruiters advised patients to discuss their need for an HIV test with their physician. Physicians were then responsible for ensuring patients received a test. Testing was administered through usual clinical laboratory mechanisms. This 'traditional' method of HIV testing requires a 2-visit process, the first for blood draw and the second to inform patients of results. **Model B: Nurse-initiated screening + traditional counselling/testing** In this arm, nurses initiated an HIV screening protocol.. Rather than awaiting physician orders, nurses entered HIV testing orders into a patient's electronic medical record and directed patients to the laboratory for venipuncture. Patients had to return for results. **Model C: Nurse-initiated screening + streamlined counseling/rapid testing** As in model B, nurses entered test orders into the computerized record, initiated streamlined counseling and administered rapid testing. The nurses, who had been previously trained in	**Primary outcomes** 83 people randomised to model A, 84 people randomised to model B, 84 people randomised to model C Unadjusted testing rates were 40.2% (model A), 84.5% (model B), and 89.3% (model C; p=<.01). Test result receipt rates were 14.6% (model A), 31.0% (model B), 79.8% (model C; all p=<.01). Adjusted risk ratios show model B patients were more likely to be tested compared to model A patients (RR=2.14; CI=1.62–2.82) as were those in model C (RR=2.26; 1.7–3.0) when compared to A. There was no significant difference in testing rate between models B and C (RR=1.07; 0.95–1.21). We found no significant associations between demographics, risk factors, comorbidities, and HIV testing. Model B patients were more likely to receive test results than those in model A (RR=2.06; 1.1–3.7). This effect was more pronounced in patients assigned to model C as compared to model A (RR=5.2; 3.1–8.9) and model B (RR=2.55; 1.82–3.58) **Secondary outcomes** Sexual risk reduction and knowledge improvement did not differ significantly between counselling methods. 191 (76%) patients completed post-intervention surveys (58 patients—model A; 65—model B; 68—model C). Unadjusted percentages of those whose HIV risk knowledge improved or remained the same were 24.1% (model A), 29.2% (model B), and 27.9% (model C) (chi-square test, p=.81). Unadjusted percentages of patients whose sexual risk decreased post-intervention were 36.2% (model A), 55.4% (model B), and 48.5% (model C; chi-square test, p=.10). There were no significant differences between the interventional models on these outcomes.	**Limitations identified by author** Low acceptance rate across all study arms limits generalisability. VA patients are more likely to be minorities, poorer, and older, although some of these subpopulations are perhaps the most important targets for routinizing HIV screening efforts. **Limitations identified by review team** Very specific client group - US veterans. Presumably all male though this is not stated anywhere. Poor acceptance rate leads to small sample for 3 arm RCT.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
California. **Length of follow up** N/A **Source of funding** Department of Veterans Affairs, Veterans Health Administration, Health Services Research and Development Service, Project number IIR 04–023			the use of rapid testing (OraQuick® rapid test; Orasure Technologies), obtained an oral swab and asked patients to return to the clinic testing area when the physician visit was completed. Results were available approximately 20 minutes later and transmitted to the patient with streamlined posttest counselling if negative. Indeterminate tests were treated as positives. Patients with positive results were immediately referred to the facility's HIV clinic for posttest counselling and confirmatory tests and given follow-up appointments.		
Full citation Antonio-Gaddy, M. S., Richardson-Moore, A., Burstein, G. R., Newman, D. R., Branson, B. M., Birkhead, G. S., Rapid HIV antibody testing in the New York State anonymous HIV counseling and testing program: Experience from the field, Journal of Acquired Immune Deficiency Syndromes, 43, 446-450, 2006 **Quality score** - **Study type** BA	**Inclusion criteria** None reported. Numbers refer to all people who presented for HIV testing at the included sites during the relevant periods. **Exclusion criteria** None	**Number of participants** 2002 testing period: 4520 2003 testing period: 6187 **Participant characteristics** N/A	**Intervention / Comparison** Staff were trained to offer rapid HIV testing In the 2003 period clients had a choice of a rapid fingerprick test or a conventional test (phlebotomy or oral fluid). This was compared with a 2002 period where rapid tests had not been offered.	**Primary outcomes** • In 2002, there were 4520 conventional HIV tests reported compared with a total of 6187 HIV tests in 2003 (a 36.9% increase [p<0.001]), of which 5771 (93.3%) were rapid tests. • In 2003, all 5771 people who took a rapid test received their result (100%). In 2002 during the same time period, 3807 (84.2%) of 4520 persons received their test results. • Of those persons testing negative in 2003, 6060 (99.0%) of 6122 persons (P<0.0001) received test results and 49 (75.4%) of 65 persons (P< 0.7) confirmed to be positive received a test result. In 2003, an increase in the receipt of test results was demonstrated in HIV-negative and HIV-positive clients. Of the 47 individuals who received a reactive rapid HIV test result, 38 (81.0%) returned for their confirmation test result. Of those testing positive with a conventional test in the 2002 observation period, 34 (72.3%) of 47 returned for a test result, and in the 2003 observation period, of those who had a conventional test, 10 (58.8%) of 17 returned for their test result. **Secondary outcomes** During the first month of rapid HIV testing at each testing	**Limitations identified by author** Less experienced staff may not achieve the same level of comfort and proficiency with rapid testing and the associated counselling. **Limitations identified by review team** Poorly reported BA study with wide variation in time periods reported. No demographic characteristics of participants. No control group. No discussion of possible confounders, e.g.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Aim of the study To assess rapid and conventional HIV test use, client satisfaction, and counsellors' comfort. **Location and setting** Sixty-one anonymous testing sites, including community sites, state prisons, and county jails in New York State **Length of follow up** N/A **Source of funding** None reported				site, 1301 (98.5%) of the 1321 clients who received counselling and testing completed a client preference survey; a total of 1294 (99.5%) surveys were linked to CTS data. Almost all (1249 [96.5%]) clients selected rapid testing; 28 (2.2%) elected oral fluid collection and 17 (1.3%) elected phlebotomy for conventional testing. All 40 counsellors who completed the training completed surveys before and after training and at 12 weeks of follow-up. Counsellors' knowledge, comfort, and confidence levels increased in all skill categories after training and increased further at the 12-week follow-up	changing demographic of clinic users.
Full citation Bourne, C., Knight, V., Guy, R., Wand, H., Lu, H., McNulty, A., Short message service reminder intervention doubles sexually transmitted infection/HIV re-testing rates among men who have sex with men, Sexually transmitted infections, 87, 229-31, 2011 **Quality score** -	**Inclusion criteria** MSM who presented for HIV/STI testing during the study period (1 Jan - 31 Aug 2009) **Exclusion criteria** MSM with HIV infection MSM living outside of New South Wales, or arriving within the last 12 months.	**Number of participants** 714 MSM in the SMS group 1,084 men in the comparison group 1,753 in the pre-SMS group **Participant characteristics** Men in the SMS group were significantly more likely to be new clients, younger, have less than 5 partners in the last 3 months, used condoms inconsistently in the last 3 months than men in either the comparison group or the pre-SMS group	**Intervention / Comparison** The evaluation compared HIV negative MSM who had an STI/HIV test and received an SMS reminder with those tested in the same period (comparison group) and a similar period before the SMS system was introduced (pre-SMS), neither of whom received SMS reminders. The reminder stated "You are due for your next screening. Please call SSHC on 93827440 to make an appointment". No other types of testing reminders were sent during the study period. SMS reminders were sent on average 4 months after the	**Primary outcomes** HIV/STI re-testing was significantly higher in the SMS (64%) than the comparison group (30%, p<0.001) and the pre-SMS group (31%, p<0.001). THE OR associated with HIV/STI re-testing in the SMS group was 4.3 (95% CI 3.5 to 5.2; p<0.001) compared to the comparison group and 3.0 (95% CI 2.4 to 3.7; p<0.001) compared to the pre-SMS group. After adjusting for differences in baseline characteristics, the OR in the SMS group was 4.4 (95% CI 3.5 to 5.5; p<0.001) compared to the comparison group and 3.1 (95% CI 2.5 to 3.8; p<0.001) compared to the pre-SMS group.	**Limitations identified by author** The study was not randomised and therefore could have been biased by patient and external factors. Unable to establish is MSM re-tested elsewhere. **Limitations identified by review team** No details of selection - it is unclear how people were allocated to

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Study type non randomised experimental study **Aim of the study** To evaluate the effectiveness of an SMS message reminder on STI and HIV retesting rates among MSM. **Location and setting** Sydney Sexual Health Centre, Sydney, AUS **Length of follow up** The SMS group included MSM who underwent HIV/STI testing between 1 January 2009 and 31 August 2009. SMS reminders were sent on average 4 months after the baseline test. **Source of funding** None.			baseline test, and the recommended retest period is 3-6 monthly for MSM.		SMS or no SMS groups.
Full citation Brooks, L., Rietmeijer, C. A., McEwen, D., Subiadur, J. A., Mettenbrink, C. J., Normalizing HIV testing in a busy urban sexually transmitted	**Inclusion criteria** All patients attending the Denver Metro Health Clinic	**Number of participants** 33,772 **Participant characteristics** Not reported	**Intervention / Comparison** HIV/RPR ratio and the HIV positivity rate for patients presenting for evaluation of a new problem during 4 time frames. **Period 1**: 11 months before introduction of optional rapid HIV testing; **Period 2**: 6 months during	**Primary outcomes** Across all 4 periods, 33,772 visits occurred at which an RPR test was obtained. At these visits, 30,405 (90%) HIV tests were performed. The HIV/RPR ratio increased as follows: **Period 1** – 0.79 **Period 2** – 0.86 **Period 3** – 0.92 **Period 4** – 0.96	**Limitations identified by author** None reported **Limitations identified by review team** Short paper with little methodological detail. Research design not

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>infections clinic, Sexually transmitted diseases, 36, 127-128, 2009

Quality score
-

Study type
ITS

Aim of the study
To report on the effects of the introduction of opt out testing on HIV testing rates.

Location and setting
An STI clinic, Denver, USA

Length of follow up
N/A

Source of funding
None reported</td>
<td></td>
<td></td>
<td>which rapid testing was optional and standard ELISA testing slowly phased out;
Period 3: 10 months after discontinuation of ELISA and introduction of logistic changes to improve clinic flow
Period 4: 19 months following introduction of opt-out HIV consenting.
Comparator: RPR (rapid plasma regain) test for syphilis, which has almost 100% uptake.</td>
<td>HIV positivity varied from 0.5% in Period 1% to 0.8% in Period 2% to 0.6% in Period 3% to 0.7% in Period 4.
Patients obtaining their HIV test results increased from 66% in Period 1% to 99% in Period 4.</td>
<td>robust.</td>
</tr>
<tr>
<td>Full citation
Burton, Jessica, Brook, Gary, McSorley, John, Murphy, Siobhan, The utility of short message service (SMS) texts to remind patients at higher risk of STIs and HIV to reattend for testing: a controlled before and after study, Sexually transmitted</td>
<td>Inclusion criteria
Higher risk patients included patients diagnosed with chlamydia, gonorrhoea, acute viral hepatitis or syphilis and women receiving emergency contraception, commercial sex workers, MSM and those in the window period for HIV.</td>
<td>Number of participants
273 in intervention group
266 in control group

Participant characteristics
Gender: 45% male (control) 46% male (intervention).
Median age 24 (control) 23 (intervention)
Ethnicity (control/intervention):
Black 51%/56%
White 31%/28%
Other 18%/16%</td>
<td>Intervention / Comparison
Higher risk patients were booked into a SMS text reminder virtual clinic if the patient consented. A text was sent after 6 weeks in the majority (80%) with a range of 2–12 weeks. This was quick and easy to do using our electronic patient records. The text message was: ‘It is time for you to have a routine test. Walk-in during opening hours or ring xxxxxxx for an appointment. Do not text back. From CMH’.</td>
<td>Primary outcomes

Reattendance rates
<table>
<tr><th></th><th>Control group</th><th>Test group</th><th>p Value</th></tr>
<tr><td>Total reattendance</td><td>92/266 (35%, 29 to 40)</td><td>90/273 (33%, 28 to 39)</td><td>0.78</td></tr>
</table>
Reattendance rates were not statistically different between the text group and the control group.</td>
<td>Limitations identified by author
The group of patients identified was a mixture of several different risk groups. This was a retrospective before and after study and in such studies it cannot be proved that any changes that occurred were directly related to the change being</td>
</tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
infections, 90, 11-3, 2014 **Quality score** - **Study type** CBA **Aim of the study** To measure the impact of short message service (SMS) text reminders on the reattendance rates of patients who require repeat STI testing. **Location and setting** Sexual health clinic in London, UK **Length of follow up** 4 months **Source of funding** No funding					measured. **Other comments** This study is not specific to HIV.
Full citation Christopoulos, Katerina A., Kaplan, Beth, Dowdy, David, Haller, Barbara, Nassos, Patricia, Roemer, Marguerite, Dowling, Teri, Jones, Diane, Hare, C. Bradley, Testing and linkage to care outcomes for a	**Inclusion criteria** • Aged over 13 • Clinical presentation consistent with HIV infection • Presence of HIV risk factors • Inpatient admission, regardless of presenting issue	**Number of participants** 4827 people with 5340 HIV tests. **Participant characteristics** **Age categories (years)** • 13–24 653 (13.5%) • 25–44 1791 (37.1%) • 45–64 1961 (40.7%) • >65 418 (8.7%) **Gender**	**Intervention / Comparison** Expanded clinician initiated HIV testing programme in an Emergency Department. Clinicians were encouraged to test everyone with: • Clinical presentation consistent with HIV infection • Presence of HIV risk factors • Inpatient admission, regardless of presenting issue	**Primary outcomes** After the expanded testing launch on December 1, 2008, the number of tests increased from a median of 114 tests per month to 273 tests per month, p = 0.004 **Secondary outcomes** Of the 65 patients with newly diagnosed HIV infection, 58 patients received results at the time of testing and 49 patients were eligible for linkage to outpatient care. Forty-six patients (93.9%, 95% CI: 83.1, 98.7%) were successfully linked to care, with 73% linked by 7 days, 84% linked by 30 days, and 90% by 90 days.	**Limitations identified by author** None **Limitations identified by review team** Results poorly reported. No comparative information given other than median increase in number of

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
clinician-initiated rapid HIV testing program in an urban emergency department, AIDS patient care and STDs, 25, 439-44, 2011 **Quality score** - **Study type** Retrospective BA **Aim of the study** To evaluate the increase in the number of tests and new HIV diagnoses resulting from the addition of targeted testing to clinician-initiated diagnostic testing. **Location and setting** San Francisco, US **Length of follow up** 90 days **Source of funding** The San Francisco General Hospital HIV testing program was supported by CDC grant PS07-768 ‘‘Expanded and Integrated Human Immunodeficiency Virus (HIV) Testing for		• Male 3014 (62.4%) • Female 1813 (37.6%) **Race/ethnicity** • White 1692 (35.0%) • Black 1348 (27.9%) • Latino 988 (20.5%) • Asian/Pacific Islander 597 (12.4%) • Other/unknown 202 (4.2%)	• Nurses drew blood and samples were analysed in the hospital laboratory.		tests per month. No comparative demographic details given.

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>Populations Disproportionately Affected by HIV, Primarily African-Americans.'' This study was made possible by grant number UL1 RR024131 from the National Center for Research Resources (NCRR), a component of the National Institutes of Health (NIH) and the NIH Roadmap for Medical Research.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Full citation
Conners, E. E., Hagedorn, H. J., Butler, J. N., Felmet, K., Hoang, T., Wilson, P., Klima, G., Sudzina, E., Anaya, H. D., Evaluating the implementation of nurse-initiated HIV rapid testing in three Veterans Health Administration substance use disorder clinics, International journal of STD & AIDS, 23, 799-805, 2012

Quality score
-

Study type
BA</td><td>Inclusion criteria
None reported

Exclusion criteria
Patients with documentation of an HIV test in the past 12 months or an existing HIV-positive diagnosis or under 18 years of age.</td><td>Number of participants
During the six-month intervention period, there were 835 patients seen in the SUD sub-clinics at site1, 80 patients at site 2 and 623 patients at site 3.

Participant characteristics
In regard to patient demographics, all sites were similar in patient age and gender, but differed in the distributions of patients' marital status, race, HIV risk factors and medical problems. Of note, the percentage of patients who had a history of being homeless was 86% at site 1 as compared with approximately 48% at sites 2 and 3 (P value< 0.05). The most prevalent medical problem at all sites was depression (76–87%).</td><td>Intervention / Comparison
The authors implemented and evaluated a nurse-initiated HIV oral rapid testing (NRT) strategy at three Veterans Health Administration SUD clinics. Implementation of NRT includes streamlined nurse training and a computerized clinical reminder. The reminder served as a trigger for routine testing offer and, in the event of a preliminary positive, the documentation template automatically ordered a confirmatory Western blot, CD4 count and viral load and submitted a referral to the infectious disease clinic. In instances that the clinical reminder was not triggered, but a patient requested a test, nurses could also access the HIV RT documentation template directly. Throughout the</td><td>Primary outcomes
Rapid testing (RT) increased during the intervention from baseline at all three sites. Although RT rates decreased during the post-intervention period, the rates at two of the three sites remained significantly higher than baseline – from 2.0 to 5.0% at site 1 (p< 0.05), from 1.2% to 1.1% at site 2 (P< 0.05) and from 0 to 24.0% at site 3 (P<0.05). The total number of HIV tests (both rapid and blood) increased and remained higher than baseline six-month post-intervention at site 3 (21.7 to 32.2%, P< 0.05). At site 2 they decreased in the post-intervention period from 20.9% to 11.1% (P< 0.05) and at site 1 there was no meaningful increase in testing from 23.5 to 26.9% (P< 0.05).

<table>
<tr><th></th><th colspan="3">Site 1</th><th colspan="3">Site 2</th><th colspan="3">Site 3</th></tr>
<tr><th>Testing method</th><th>Pre-n=685</th><th>Inter-n=540</th><th>Post-n=320</th><th>Pre-n=86</th><th>Inter-n=66</th><th>Post-n=90</th><th>Pre-n=520</th><th>Inter-n=540</th><th>Post-n=462</th></tr>
<tr><td>Rapid tests (n, %)</td><td>14, 2.0%</td><td>67, 12.4%</td><td>16, 5.0%</td><td>1, 1.2%</td><td>6, 9.1%</td><td>1, 1.1%</td><td>0, 0%</td><td>153, 28.3%</td><td>111, 24.0%</td></tr>
</table>
</td><td>Limitations identified by author
This pilot study was limited by the small sample sizes for both nurses and patients and may not be generalisable to clinics outside of the hospital setting or Veteran Health or that greatly differ in structure from the ones studied.

Limitations identified by review team
Not randomised or controlled.
Sites are different enough that it could confound results.</td></tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Aim of the study To evaluate a nurse-initiated HIV oral rapid testing strategy at Veterans Health Administration substance use disorder clinics. **Location and setting** Seven substance use disorder sub-clinics at three urban VHA medical centres across the US **Length of follow up** The total study period was 1.5 years in duration. **Source of funding** This research was funded by VA Quality Enhancement Research Initiative (QUERI) grant RRP09-122			intervention, testing rates were captured from local laboratory databases and by self-report from clinical staff at participating SUD clinics. Results were compared pre-during and post- intervention period.	<table><tr><td>Blood tests (n,%</td><td>147, 21.5 %</td><td>123, 22.8 %</td><td>70, 21.9 %</td><td>18, 20.9 %</td><td>14, 21.2 %</td><td>10, 11.1 %</td><td>113, 21.7 %</td><td>51, 9.4 %</td><td>38, 8.2 %</td></tr><tr><td>Total tests (n, %)</td><td>161, 23.5 %</td><td>190, 35.2 %</td><td>86, 26.9 %</td><td>19, 22.1 %</td><td>20, 30.3 %</td><td>11, 12.2 %</td><td>113, 21.7 %</td><td>204, 37.8 %</td><td>149, 32.2 %</td></tr></table> (n=the number of unique patients with at least one SUD visit during the time period indicated, who had not been HIV tested nor had HIV infection in the previous timeperiods). **Secondary outcomes** [Qualitative results presented in review 2]	
Full citation Donnell-Fink, Laurel A., Arbelaez, Christian, Collins, Jamie E., Novais, Anna, Case, Amy, Pisculli, Mary L., Reichmann, William M., Katz, Jeffrey N., Losina, Elena,	**Inclusion criteria** 1. 18-74 years old 2. fluent in English or Spanish 3. not engaged in pre-natal care 4. not self-reportedly known to be HIV-infected	**Number of participants** 5,612 people screened and 2,012 were eligible for inclusion. 1,651 agreed to participate (82%). Among those 1,651 patients who agreed to enrolment, 830 were randomised to the fingerstick arm and 821 to	**Intervention / Comparison** After providing informed consent for trial participation, subjects were randomised to one of the two test modality arms: 1) fingerstick whole-blood HIV testing, or 2) oral fluid HIV testing.	**Primary outcomes** Among subjects randomised to rapid HIV testing, the test acceptance did not differ meaningfully between arms, 67% (553/830) in the fingerstick arm compared to 69% (565/821) in the oral fluid arm (p=0.34). Frequencies of test acceptance did not differ by race, gender or education. The proportion of HIV tests completed – the proportion of subjects who were tested among those who were randomised – was 66% (549/830) in the fingerstick arm and 69% (563/821) in the oral fluid arm (p=0.29). More	**Limitations identified by author** Because the USHER-Phase II trial was a single site study with findings that are applicable to rapid HIV screening using fingerstick or oral collection

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr>
<td>Walensky, Rochelle P., Acceptability of fingerstick versus oral fluid rapid HIV testing: results from the universal screening for HIV infection in the emergency room (USHER Phase II) randomized controlled trial, Journal of acquired immune deficiency syndromes (1999), 61, 588-92, 2012

Quality score
+

Study type
RCT

Aim of the study
To compare HIV test acceptance rates among patients routinely offered fingerstick compared to those routinely offered oral fluid screening in an urban hospital emergency department

Location and setting
An urban academic emergency department in Boston, MA, USA

Length of follow</td>
<td>5. not enrolled in the USHER trial in the previous three months
6. had an Emergency Severity Index (ESI) score of 3-5 (indicating lower clinical severity)16-18 or an ESI score of 1 or 2 (potentially higher clinical severity), with signed approval from the ED attending physician indicating participant's clinical stability and clear mental status.</td>
<td>the oral fluid arm.

Participant characteristics
Trial arms were balanced in their demographic distribution; mean age was 33 years (SD 13), 65% were female, 24% were white, 24% African-American, and 38% were Hispanic</td>
<td></td>
<td>than 99% of those who accepted an HIV test received the test in both arms.

<table>
<tr><th></th><th>Fingerstick (n=830)</th><th>Oral Fluid (n=821)</th><th>Difference (95% CI)</th><th>P value</th></tr>
<tr><td>HIV test offered</td><td>778 (94%)</td><td>765 (93%)</td><td>0.6% (-1.8%, 2.9%)</td><td>0.65</td></tr>
<tr><td>HIV test accepted among those randomised</td><td>553 (67%</td><td>565 (69%)</td><td>-2.2% (-6.7%, 2.3%)</td><td>0.34</td></tr>
<tr><td>HIV test completed among those randomised</td><td>549 (66%)</td><td>563 (69%)</td><td>-2.4% (-7.0%, 2.1%)</td><td>0.29</td></tr>
</table>

Secondary outcomes
Among the 1,111 study participants who had a valid rapid HIV test result, five tests were reactive. Three of these subjects consented to confirmatory testing. Two new cases of HIV infection were identified (one fingerstick and one oral) – a yield of new case identification of 0.2% (95% CI: 0.0-0.6%). One fingerstick test was a false positive. No harm was reported in this trial.</td>
<td>modality, some of our results may not be generalizable to other settings or test kits. No collection of preference data and therefore not able to fully characterize trade-offs considered in the decision for oral testing given its ease of administration versus the decision for fingerstick testing given its reported superior test characteristics. The frequency of test offers as well as test acceptance may be lower in EDs that do not utilize ancillary testing personnel. Several other factors may also influence acceptance of HIV testing and were not measured in the study. These include system-level factors such as location convenience, confidentiality, consent processes, cost, counselling opportunities, and results disclosure.

Limitations identified by review team
The study was limited by enrolment times</td>
</tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
up N/A **Source of funding** National Institute of Mental Health (R01 MH073445, R01 MH65869) and the Doris Duke Charitable Foundation, Clinical Scientist Development Award					(8am to 12am) which may have introduced some selection bias.
Full citation Goetz, Matthew Bidwell, Hoang, Tuyen, Bowman, Candice, Knapp, Herschel, Rossman, Barbara, Smith, Robert, Anaya, Henry, Osborn, Teresa, Gifford, Allen L., Asch, Steven M., The, Queri- H. I. V. Hepatitis Program, Aberg, Anaya Anonymous Asch Austin Berwick Bodenheimer Bodenheimer Branson Chou Collins Gandhi Goetz Hulscher Jamtvedt Jamtvedt Jha Kawamoto Kendrick Lefebvre Lomas Marks Marks Owens Palella Paltiel Paltiel Patterson Patterson Perlin Perry Quinn Renders Robson	**Inclusion criteria** N/A **Exclusion criteria** N/A	**Number of participants** 2 of the 5 administratively independent, geographically separate major regional health care systems (health care systems [HCS] A and B) located in southern Nevada or California, received the intervention compared to the other 3. The 2 interventions HCS had a total of 18 facilities and the controls had 19 facilities.	**Intervention / Comparison** 4 components of intervention: **Decision support** - a real time, electronic clinical reminder to identify patients at increased risk and to encourage offer of a test. **Audit feedback** - an audit-feedback system to inform health care providers of clinic-level performance in regards to HIV evaluation and testing rates in at-risk patients. **Provider activation** - The provider activation program included academic detailing, social marketing, and provider and patient educational materials **Organisational factors** - written informed consent and pretest HIV counselling are required for all HIV tests in VA. To expedite this process, nurse-based rather physician-based pretest counselling was set up along with the use of a streamlined HIV counselling process that, together with the VHA HIV Consent form, covers all the required elements of HIV	**Primary outcomes** **Adjusted testing rates** (%) (95% CI) • Intervention facility A - Pre intervention 4.8 (4.2, 5.4); Post intervention 10.8 (9.8, 11.8) (p<0.001) • Intervention facility B - Pre 5.5 (4.7, 6.6); post 12.8 (11.5, 14.4) (p<0.001) • Control facility C - Pre 4.4 (3.8, 5.0); post 4.2 (3.5, 5.2) • Control facility D - Pre 2.3 (1.8, 2.9); post 2.1 (1.6, 2.7) • Control facility E - Pre (3.6, 5.7); post 5.0 (4.2, 5.9)	**Limitations identified by author** The intervention facilities were selected for convenience and not randomly, this may have biased the results. In this regard, it is relevant that there were little difference in the distribution of patient, provide, subfacility and facility-level factors between the intervention and control facilities.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Saleem Sanders Shea Solomon Spielberg Stetler Stone Thomson O'Brien Thomson O'Brien Tsu Yeni, A system-wide intervention to improve HIV testing in the Veterans Health Administration, Journal of general internal medicine, 23, 1200-1207, 2008 **Quality score** - **Study type** CBA **Aim of the study** To evaluate whether a multi-component intervention increases the rate of HIV diagnostic testing. **Location and setting** 5 geographically separate regional health care systems in southern Nevada and California, USA **Length of follow up** **Source of funding** This project was supported by a research from the			pretest counselling and documents consent in 2–3 minutes. The logistical challenges of posttest HIV counselling were reduced by encouraging telephone notification and brief posttest counselling after negative HIV test results.		

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>Veterans Health Administration Health Services Research & Development Service (SDP 06–001).</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Full citation
Goetz, Matthew Bidwell, Hoang, Tuyen, Knapp, Herschel, Henry, S. Randal, Anaya, Henry, Chou, Ann F., Gifford, Allen L., Asch, Steven M., Hiv Hcv Queri Program, Exportability of an intervention to increase HIV testing in the Veterans Health Administration, Joint Commission journal on quality and patient safety / Joint Commission Resources, 37, 553-9, 2011

Quality score
-

Study type
Controlled before and after study

Aim of the study
To evaluate the exportability of a multi-component intervention to increase the rate of</td><td>Inclusion criteria
Not reported

Exclusion criteria
Not reported</td><td>Number of participants
Not reported</td><td>Intervention / Comparison
There were 4 components to the intervention:
1. A Real time, electronic clinical reminder which identified patients at increased risk for HIV infection who had no records of previous HIV testing and encouraged providers to offer testing to those individuals.
2. Quarterly audit feedback system which informed providers of clinic-level performance regarding HIV evaluation and testing rates.
3. Removal of organisational barriers to encourage nurse rather than physician-based retest counselling and use of a streamlined counselling process that included telephone rather than in-person post-test counselling after negative results.
4. A provider activation program consisting of academic detailing, social marketing and dissemination of provider and patient educational materials.

The intervention was previously</td><td>Primary outcomes

Comparison of Pre- versus post-intervention ratios of HIV testing<table><tr><th></th><th>Adjusted Odds Ratio of HIV testing</th></tr><tr><td>Site A</td><td>2.8 (2.6, 3.0)</td></tr><tr><td>Site B</td><td>3.1 (2.8, 3.4)</td></tr><tr><td>Site C</td><td>2.2 (2.0, 2.4)</td></tr><tr><td>Site E</td><td>3.9 (3.5, 4.3)</td></tr></table></td><td>Limitations identified by author
None reported</td></tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
HIV diagnostic testing. **Location and setting** 4 veterans health care sites in southern Nevada and California, USA. **Length of follow up** **Source of funding** The project was supported by a research grant from the Veterans Health Administration Health Services Research & Development Service (SDP 06-001).			implemented in 2 sites (A and B) and compared with 3 control sites (C, D and E) in a previous study. In this study the intervention was rolled out to sites C and E. Site D remained a control facility throughout the study period.		
Full citation Gordon, M. S., Kinlock, T. W., McKenzie, M., Wilson, M. E., Rich, J. D., Rapid HIV testing for individuals on probation/parole: outcomes of an intervention trial, AIDS and behavior, 17, 2022-30, 2013 **Quality score** + **Study type** RCT	**Inclusion criteria** • Adult probationer/ parolee • Not known to be HIV positive **Exclusion criteria** Unable or unwilling to give informed consent.	**Number of participants** 697 randomised into two groups • 349 onsite group • 348 offsite group **Participant characteristics** The participants had a mean age of 38.7 (SD=11.4); • 54.1% were African American, 25.1% were Caucasian, and 20.8% were other ethnicity. • 81.3% male • 58% never married • 16% were legitimately employed • 44% reported having no health insurance	**Intervention / Comparison** **Arm 1 -On-site rapid HIV testing**—offered immediate, free rapid oral swab HIV testing on site with results in approximately 20 minutes. If a participant chose not to wait for results, the RA requested contact information from the participant in order to follow-up in the case of a reactive test result. Participants received $20 for completing baseline assessments. **Arm 2 - Off-Site Rapid HIV Testing**—participants received a card with the relevant clinic information and detailed directions to reach the community testing site.	**Primary outcomes** **Undergoing HIV testing -** Participants were significantly more likely to be tested on-site (City1; n =165/174, 94.8 %; City 2; n = 153/175, 87.4%) at a probation and parole office versus off-site (City1; n = 32/176, 18.2 %; City2; n = 14/172; 8.1%) at an HIV testing clinic (X^2 = 272.47; p< .001). When controlling for city, there was a difference in terms of being tested off-site as City1 participants were more likely to be tested off-site compared to City 2 (X^2=12.85; p < .001). **Receipt of HIV testing results**—There was no difference in terms of receiving their rapid results by site X^2 =.00; p > .05) or by city X^2 = 3.71; p > .05). Regardless of on-site (City 1, 154/165; 93.3%; City 2, 150/153; 98.0%) or off-site testing (City 1, 32/32; 100%; City 2, 14/14, 100%) almost everyone stayed to receive their rapid results.	**Limitations identified by author** It is possible that some participants may have undergone testing off-site and the results were not captured. More probationers/parolees passed through the community corrections offices in which we worked than were approached by research staff. This introduced the possibility of selection bias. In addition,

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Aim of the study To determine whether individuals recruited from community corrections are more likely to undergo rapid HIV testing on site at a probation and parole office rather than off-site in the community. **Location and setting** Baltimore, MD and Providence and Pawtucket, RI, USA **Length of follow up** N/A **Source of funding** This study was funded by the National Institute on Drug Abuse, Grant R01 DA 16237. This work was also supported by grants R01DA030771 and K24DA022112 from the National Institute on Drug Abuse and P30AI042853 from the National Institute Of Allergy And Infectious Diseases.		• 14.8% considered themselves homeless. • 94.3% reported ever having received an HIV test, 67.6% reported ever receiving a Hepatitis C (HCV) test; and 49.2% ever receiving a Hepatitis B (HBV) test. 43.3% reported heroin use and 50.8% cocaine use. Of those reporting drug use, 22.4% reported lifetime injection drug use (IDU). Those reporting use of any drugs used on average 11.5 (SD = 22.4) of the past 90 days.	Participants received $20 for completing baseline assessments. At each community clinic staff collected study cards which indicated that the client was a study participant. Study staff and clinic staff maintained regular communications in which the list of participants who completed testing and their results were shared. **Testing refusal**—the RA requested that s/he complete a brief, two item questionnaire describing why they refused and provided information regarding community testing sites for future use. Participants received $20 for completing baseline assessments.		participants were offered $20 for interviews only and not testing, so this may have increased the likelihood of testing, although they were not paid for testing. Although probationers and parolees were randomly assigned to corrections office vs. community testing, the overall sample may or may not be representative of the overall community corrections population.
Full citation Hack, Clare M.,	**Inclusion criteria** Age 13 - 20	**Number of participants** 300 (11%) of 2,645 were offered	**Intervention / Comparison** Routine non-targeted HIV	**Primary outcomes**	**Limitations identified by author**

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Scarfi, Catherine A., Sivitz, Adam B., Rosen, Michael D., Implementing routine HIV screening in an urban pediatric emergency department, Pediatric emergency care, 29, 319-23, 2013 **Quality score** - **Study type** Retrospective chart review **Aim of the study** To describe the results of implementing routine, non-targeted opt-in HIV screening for people aged 13-20 in a paediatric ED in a high HIV prevalence city. **Location and setting** Urban paediatric ED in New Jersey, US. **Length of follow up** N/A **Source of funding** None reported.	**Exclusion criteria** • Mental illness • Critical illness • HIV test in last 3 months	screening during the period under review. 224 (74%) accepted testing, of whom 11 were not tested. 39 patients were tested during the same period the previous year. **Participant characteristics** 89% of the patients offered screening were African American. There was no significant difference ($p<0.05$) between test acceptance by gender, however acceptance increased with age ($p<0.05$).	screening was made available in the ED, 24 hours a day, 7 days a week. The first three months post implementation was compared with the same 3 months the previous year.	<table><tr><th></th><th>Period 1: Oct - Dec 2008</th><th>Period 2: Oct - Dec 2009</th><th>% increase</th></tr><tr><td>Number of HIV tests performed</td><td>39</td><td>213</td><td>446%</td></tr></table> No new cases of HIV were identified.	• May not be generalisable to higher socioeconomic areas • No data about parental influence on testing decisions, including parental presence. • Implementing new protocol into already busy workplace meant that 89% of patients were missed and not offered HIV test. **Limitations identified by review team** Retrospective 'audit' style of the study limits its validity, as does the small number of offers of test.
Full citation	**Inclusion criteria**	**Number of participants**	**Intervention / Comparison**	**Primary outcomes**	**Limitations**

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Haukoos, Jason S., Witt, Mallory D., Coil, Clinton J., Lewis, Roger J., The effect of financial incentives on adherence with outpatient human immunodeficiency virus testing referrals from the emergency department, Academic emergency medicine : official journal of the Society for Academic Emergency Medicine, 12, 617-21, 2005 **Quality score** + **Study type** Prospective controlled clinical study **Aim of the study** To evaluate the effect of a financial incentive on the proportion of referred ED patients who completed outpatient HIV counseling and testing. **Location and setting**	Patients identified as being at increased risk for HIV infection by emergency physicians using CDC-based guidelines. **Exclusion criteria** None reported	372 patients were referred from ED for outpatient HIV testing: • Period 1 (cont) - 126 • Period 2 (int) - 120 • Period 3 (cont) 126 **Participant characteristics** The median patient age was 32 years (interquartile range, 25–40 years). Of 352 patients in which documentation was complete, 231 (66%) were male; of 351 patients in which race or ethnicity documentation was complete, 139 (40%) were Hispanic, 112 (32%) were African American, 58 (16%) were white, 17 (5%) were Asian, and 26 (7%) were of another racial or ethnic origin. No significant difference occurred between the intervention group and the control group with respect to patient age or the reason for referral. There was, however, a statistically significant difference between the two groups with respect to race and ethnicity	This study was performed over three consecutive approximate six-month time periods. During the first and third time periods, no financial incentive was offered for completing HIV counselling and testing. During the second time period, a financial incentive of $25 was offered for completing HIV counselling and testing. During the intervention period, patients received standard verbal and written follow-up instructions that included receiving a $25 financial incentive if counselling and testing were completed. The third period was used to control for secular trends.	During the control periods, 20 (8%) of 252 patients completed HIV counselling and testing; during the intervention period, 27 (23%) of 120 patients completed HIV counselling and testing (OR, 3.4; 95% CI = 1.8 to 6.3). Of the 47 patients who completed HIV counselling and testing, none (0%; 95% CI = 0% to 8%) tested positive for HIV infection. After controlling for race or ethnicity using a multivariate logistic regression model, the independent effect of the financial incentive remained significant (OR, 3.4; 95% CI = 1.8 to 6.6). **Secondary outcomes** African American patients had a decreased likelihood of completing HIV counseling and testing while controlling for the use of the incentive (OR, 0.2; 95% CI = 0.1 to 0.5).	**identified by author** This study was not a randomised trial, and although the quasi-experimental design with before-and-after control periods was used to approximate randomization and to control for secular trends, it is possible that a form of referral bias occurred, possibly demonstrated by the differences in racial and ethnic distributions between the intervention and control groups. This potential bias was, however, addressed using a multivariate logistic regression model. Additionally, we did not control for possible clustering by physicians in order to account for their individual effects on referral and adherence rates. A single fixed-amount incentive was offered to each patient upon completing HIV counselling and testing. We specifically did not power this study to evaluate differing amounts of financial incentives in order

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Rrban county teaching hospital in Los Angeles, USA **Length of follow up** N/A **Source of funding** Supported in part by an Individual National Research Service Award from the Agency for Healthcare Research and Quality (F32 HS11509) and a research training grant from SAEM					to evaluate an amount response.
Full citation Kavasery, R., Maru, D. S. R., Cornman-Homonoff, J., Sylla, L. N., Smith, D., Altice, F. L., Routine opt-out HIV testing strategies in a female jail setting: A prospective controlled trial, PloS one, 4, e7648, 2009 **Quality score** + **Study type** Prospective controlled trial **Aim of the study** To evaluate new CDC guidelines for routine opt-out HIV testing and examine	**Inclusion criteria** Demonstration of competency by: 1. clinician-confirmed ability to demonstrate knowledge of the risks, benefits, and consequences of HIV testing 2. no self-reported suicidal ideation or evidence of mental instability. **Exclusion criteria** Those who self-identified as being HIV-infected	**Number of participants** During the study period, 323 newly incarcerated women were sequentially assigned to the following testing groups: • 'immediate' (N =108, the night of admission), • 'early' (N = 108, the following evening), • 'delayed' (N = 107, 7 days later). **Participant characteristics** The three study groups did not differ significantly with respect to any of the social and demographic characteristics assessed. Mean age 33.6 (SD 9.8) Ethnicity: 51% white/other, 32% black, 16% Hispanic 62% high school graduate	**Intervention / Comparison** For each testing group, the inmate was approached with the following scripted statement: ''As part of your regular medical care, HIV testing can now be done using an oral swab that you swipe across your gums. You can receive your results after 20 minutes. Would you like to be tested at this time?'' If the inmate responded affirmatively, she was instructed to self-administer the oral HIV test by the clinical staff in the 'immediate' and 'early' test groups as part of routine clinical activities in order to simulate how routine opt-out HIV testing would be performed if not embedded within a complicated research study. On day 7, research personnel oversaw the verbal	**Primary outcomes** 192 (59%) of 323 inmates assigned to testing groups provided verbal consent to be swabbed for HIV testing. 79 (73%) of those offered 'early' testing, received an HIV test, compared to 59 (55%) assigned to the 'immediate' and 54 (50%) assigned to the 'delayed' testing groups (Figure 2). The early testing group was significantly more likely to be tested than both the immediate group (OR= 2.3; 95% CI = 1.3–4.0; p = 0.007) and the delayed group (OR= 2.7; 95% CI =1.5–4.7; p = 0.0007).	**Limitations identified by author** This study was restricted to a single, female correctional facility, the findings may not be generalisable to all jail settings. Not all jails provide routine clinical assessments the day following admission, and others may not provide any routine healthcare services at all. Furthermore, large, metropolitan correctional facilities experiencing many-fold higher daily admissions may face additional logistical challenges

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
the optimal time to implement routine opt-out HIV testing among newly incarcerated women . **Location and setting** York Correctional Institution in Niantic, Connecticut (women's prison) **Length of follow up** N/A **Source of funding** National Institutes on Drug Abuse (K24 DA017072), the Infectious Diseases Society of America and the Health Services Resources Agency Special Projects of National Significance (H97 HA 08541).	were not swabbed.		consent and self-administration procedures using the same process. All subjects were instructed that HIV results require minimal waiting. Anyone not wanting to know HIV test results was not swabbed.		in implementing testing as part of intake procedures. Finally, gender differences may also result in markedly different uptake rates of HIV testing among male inmates compared to females.
Full citation Kavasery, R., Maru, D. S. R., Sylla, L. N., Smith, D., Altice, F. L., A prospective controlled trial of routine opt-out HIV testing in a men's jail, PloS one, 4, e8056, 2009 **Quality score** +	**Inclusion criteria** Demonstration of competency by: 1. clinician-confirmed ability to demonstrate knowledge of the risks, benefits, and consequences of HIV testing 2. no self-reported	**Number of participants** 298 newly incarcerated men sequentially assigned to the following testing groups: • 'immediate' (N = 103, the night of admission) • 'early' (N= 98, the following evening) • 'delayed' (N =97, 7 days later). **Participant characteristics** • Mean age 35 (SD=11) • 46% white/other, 35%	**Intervention / Comparison** For each testing group, the inmate was approached with the following scripted statement: ''As part of your regular medical care, HIV testing can now be done using an oral swab that you swipe across your gums. You can receive your results after 20 minutes. Would you like to be tested at this time?'' If the inmate responded affirmatively, she was instructed to self-administer the oral HIV	**Primary outcomes** 130 (44%) of 298 inmates assigned to testing groups provided verbal consent to be swabbed for routine opt-out HIV testing. Among those assigned to early testing, 52 (53%) accepted HIV testing versus 46 (45%) in the immediate and 32 (33%) for 7 days post-entry groups. Compared to the delayed testing group, the early (OR = 2.6; 95% CI =1.5 to 4.7; p =0.001) and immediate (OR =2.3; 95% CI = 1.3 to 4.0; p =0.01) testing groups were significantly more likely to be swabbed for HIV testing. The immediate and early testing groups did not differ with regard to the primary outcome (p =0.67).	**Limitations identified by author** Owing to logistical difficulties, we could not undertake a true randomised trial. This makes it possible that confounders, such as cohort effects from particular peer leaders' influence on testing uptake, biased our results

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Study type Prospective controlled trial **Aim of the study** To evaluate the optimal time to routinely HIV test newly incarcerated jail detainees using an opt-out strategy. **Location and setting** New Haven Community Correctional Center (men's prison), New Haven, Connecticut. **Length of follow up** N/A **Source of funding** Infectious Diseases Society of America and the Health Services Resources Agency Special Projects of National Significance (H97 HA 08541). Career development awards were provided by the National Institutes on Drug Abuse (K24 DA017072, Altice) and National Institutes of Health (GM07205, Maru).	suicidal ideation or evidence of mental instability.	black, 19% Hispanic • 65% high school graduates The three study groups did not differ significantly with respect to any of the social and demographic characteristics assessed.	test by the clinical staff in the 'immediate' and 'early' test groups as part of routine clinical activities in order to simulate how routine opt-out HIV testing would be performed if not embedded within a complicated research study. On day 7, research personnel oversaw the verbal consent and self-administration procedures using the same process. All subjects were instructed that HIV results require minimal waiting. Anyone not wanting to know HIV test results was not swabbed.		(internal validity). Our large sample size and final effect size suggests, however, that the differences detected here were real. Additionally, since our trial was conducted at only one men's jail, its external validity will itself have to be assessed by studies from other sites. **Other comments** Methods are listed as being identical with Kavasery 2009a so much of the detail in this evidence table is copied from that study.
Full citation Kinsler, Janni J.,	**Inclusion criteria** • Accepted HIV	**Number of participants** 220 'undeserved minority'	**Intervention / Comparison** Opt out screening offered by a	**Primary outcomes** 77% of patients agreed to testing using opt-out screening.	**Limitations identified by author**

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Sayles, Jennifer N., Cunningham, William E., Mahajan, Anish, Preference for physician vs. nurse-initiated opt-out screening on HIV test acceptance, AIDS care, 25, 1442-5, 2013 **Quality score** - **Study type** Comparative study **Aim of the study** To compare patient acceptability of provider-initiated opt-out HIV screening with nurse initiated opt-out HIV screening **Location and setting** Publically funded "safety-net" outpatient clinics in Los Angeles County **Length of follow up** N/A **Source of funding** Gilead Sciences, Inc. (grant # 20083013), California HIV/AIDS Research Program, Robert	testing using either nurse or physician initiated opt-out screening • Completed the survey	patients between the ages of 18 and 64 from publicly funded "safety net" outpatient clinics. **Participant characteristics** **Gender n(%)** Male 106 (48) Female 114 (52) **Race/ethnicity** African-American 82 (37) Latino 122 (56) Other 15 (7) **Age** 18–34 51 (23) 35–54 130 (59) 55+ 39 (18) **Education** Less than high school 84 (38) High school 115 (52) Greater than high school 21 (10)	nurse and opt out screening offered by a physician.	Those with a higher odds of accepting an HIV test included: • individuals who accepted the test using the physician initiated opt-out model compared to those using the nurse initiated opt-out model (aOR = 2.92; 95% CI = 1.37–6.22) (p<0.01) • those with health insurance compared to those without health insurance (aOR = 6.56; 95% CI = 2.66–16.18) (p<0.001) Those with a lower odds of accepting an HIV test included individuals who were not born in the U.S. compared with those who were born in the U.S. (aOR = 0.23; 95% CI = 0.05–0.94) (p<0.05).	These findings are opposite those of the other two published studies we are aware of that examined differences in test acceptance rate by comparing nurse initiated screening with physician initiated screening. A potential explanation for our finding is that LVN's were hired specifically for this study while the physician's were permanent staff members at the clinics. It is possible that patients in our study had an ongoing relationship with their provider, trusted their provider, and thus felt more comfortable accepting an HIV test from their provider; whereas the LVN's in our study were new staff members and patients may not have been familiar with them, thus there may have been some reluctance in accepting an HIV test from them. All measures were based on self-reported data and may be subject to reporting and recall biases. Also, this

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Wood Johnson Foundation Clinical Scholars Program, and the Centers for Disease Control and Prevention Expanded Testing Initiative Grant (# 07768). Dr. Cunningham received grants from NIDA (R01 DA030781), NIMH (R34 MH089719, NCMHD (P20MD000182) and NIA (P30AG021684).					study was limited to an underserved minority population in LAC; thus, while these are important populations to study in the HIV epidemic, generalisability of our findings to broader populations is uncertain. **Other comments** Very sketchy methodological detail makes this study hard to assess.
Full citation Klein, Pamela W., Messer, Lynne C., Myers, Evan R., Weber, David J., Leone, Peter A., Miller, William C., Impact of a routine, opt-out HIV testing program on HIV testing and case detection in North Carolina sexually transmitted disease clinics, Sexually transmitted diseases, 41, 395-402, 2014 **Quality score** - **Study type** BA **Aim of the study**	**Inclusion criteria** All patients aged 18 to 64 years who were tested for HIV in North Carolina's 102 county-level STD clinics from July 1, 2005, through June 30, 2011. **Exclusion criteria** Non North Carolina residents and patients lacking an HIV test result were excluded from analysis.	**Number of participants** 402,774. 128,029 pre-intervention 274,745 post-intervention **Participant characteristics** More than half of the tested patients were female, although more female patients were tested in the post intervention phase (51.8% vs. 54.9%). The proportion of non-Hispanic black patients increased from 53.18% to 58.40%, whereas the proportion of non-Hispanic white, Hispanic, and other race/ethnicity decreased. No changes in the age distribution of patients receiving an HIV test or in clinic-level characteristics were observed between the pre-intervention and post intervention periods.	**Intervention / Comparison** Routine, opt-out HIV testing in clinical settings, regardless of patient risk profile or HIV testing history. The opt-out, routine HIV testing intervention was disseminated and sustained through webinars, lectures, notices to health departments, contract addendums, and statewide conferences attended by STD clinic and health department employees. In the pre-intervention period, opt-in, risk-based HIV testing was performed, with a focus on patients with sexual exposure to HIV, men who had sex with men, or no recent history of HIV testing.	**Primary outcomes** Number of HIV tests performed: Pre-intervention, HIV testing increased by 55 tests per month (95% confidence interval [CI], 41-72), and 34 tests per month (95%CI, 26-42) post intervention. Increases in HIV testing rates were most pronounced in women and non-Hispanic whites. A slight pre-intervention decline in case detection was mitigated by the intervention (mean difference, 0.01; 95% CI, 0.02 to 0.05). Increases in case detection rates were observed among women and non-Hispanic blacks. New HIV Cases: Pre-intervention, 426 new HIV-infected cases were identified from 128,029 tests (0.33%), whereas 816 new HIV-infected cases were found from 274,745 tests post intervention (0.30%).	**Limitations identified by author** None given **Limitations identified by review team** Not true experimental design, therefore may be biased by external factors.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
The objective of this study was to estimate the impact of an expanded, routine HIV testing program in North Carolina sexually transmitted disease (STD) clinics on HIV testing and case detection. **Location and setting** 102 county level sexual health clinics in North Carolina, US **Length of follow up** N/A **Source of funding** This project was supported, in part, by an NRSA predoctoral training grant (T32-AI070114) from the National Institute of Allergy and Infectious Diseases, an NRSA postdoctoral training grant (T32-MH19985) from the National Institute of Mental Health, and Centers for Disease Control and Prevention PS 12-1201 (Comprehensive HIV Prevention					

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Programs for Health Departments).					
Full citation Lyons, Michael S., Lindsell, Christopher J., Ruffner, Andrew H., Wayne, D. Beth, Hart, Kimberly W., Sperling, Matthew I., Trott, Alexander T., Fichtenbaum, Carl J., Randomized comparison of universal and targeted HIV screening in the emergency department, Journal of acquired immune deficiency syndromes (1999), 64, 315-23, 2013 **Quality score** + **Study type** cluster RCT **Aim of the study** To investigate whether targeted HIV screening, when fully implemented and using maximally broad risk criteria, could detect nearly as many cases as universal screening with many fewer tests.	**Inclusion criteria** Aged 18 - 64 **Exclusion criteria** • Known HIV infection • Previous approach for HIV testing in the ED that day.	**Number of participants** In the **universal screening** arm, 1,915/ 4,692 (40.8%, CI95 39.4%–42.2%) consented. When **targeting**, 1,813/4,880 (37.2%, CI95 35.8%–38.5%) had no apparent testing indication. The remaining 3,067 were offered testing. There were 1,454/3,067 targeted patients who consented to testing (47.4%, CI95 45.6%–49.2%). For the patient-based **seroprevalence estimate**, 1,934 were eligible for enrollment, of the 1,034 who consented, 24 (2.3%) were already diagnosed with HIV and 37 (3.3%) would have been duplicate enrollments. There was insufficient sample to determine serostatus in 45 (4.6%) who did not have a subsequent negative test documented in the medical record. Two were inadvertently assigned the same sample identification number and were excluded. For the sample-based seroprevalence estimate, there were 1,083 samples collected for patients aged 18 to 64 years. **Participant characteristics** Screening groups were of similar demographics and self-reported prior testing history. Patients in the targeted arm self-reported risk behavior with greater frequency.	**Intervention / Comparison** Patients randomised to: **Universal Arm**: Counsellors approached every patient not known to meet exclusion criteria. They could encourage participation by discussing the importance of testing generally, but did not use individualised risk information to motivate testing. **Targeted Arm:** Counsellors reviewed triage notes and medical records to target patients, or acted on staff referral. Patients for whom no risk was readily apparent were asked directly if they had 1) ever injected drugs, exchanged sex for drugs or money, had sex with a man (if male), or had sex with a partner with or at-risk for HIV, or 2) in the past two years used cocaine or methamphetamine, had sex while using drugs or alcohol, been diagnosed with a STD, or had more than one sex partner. Counsellors could use risk information to encourage testing. In all cases, counsellors recorded the reasons prompting the test offer. Inability to complete the testing offer was counted as a failed approach, separate from declined offers. Counsellors were necessarily unblinded, though separation of study arms was enforced	**Primary outcomes** Universal arm - 1,911 patients tested, 6 were newly diagnosed (0.31%, CI95 0.13%–0.65%). Targeted - 1,451 tested, 3 were newly diagnosed (0.22%, CI95 0.06%–0.55%). In the combined seroprevalence study, 7/1,948 (0.36%, CI95 0.16%–0.70%) were found to be HIV antibody positive and not previously known to be diagnosed (4/926 in the patient-based component and 3/1,022 in the remnant-based component). **Secondary outcomes** • More patients consented when approached on a targeted basis than a universal basis (1,454/3,067 (47.4%) v. 1,915/4,692 (40.8%); p<0.002). However, the proportion of all ED patients who were approached and tested was greater for the universal than the targeted arm (1,911/4,692 (40.7%) v. 1,454/3,067 (29.7%); p<0.002). • When compared with patients who declined testing in the universal arm, patients who declined testing in the targeted arm more often reported their reason as prior negative testing (59.8% v. 48.9%; p<0.001) and less often that they were not at risk (23.1% v. 28.8%; p<0.001). • Of the 3,369 HIV tests conducted, 142 (4%) were for patients that had been previously tested in the study (83 universal; 59 targeted). The median duration of time between repeat tests was 267 days (range 7–1,024 days). Overall, 3,107 (96%) were tested once, 103 (3%) were tested twice, and 17 (0.5%) were tested 3 or more times. Sensitivity analysis including only the first or the last encounter had no effect on results.	**Limitations identified by author** • Results may not be generalisable to centers with different epidemiology. • Overall results were necessarily influenced by our screening model, which is only one of many. • Targeting criteria were not used as an instrument to systematically assess risk. • Analysis does not consider the relative costs of the two patient selection strategies. • Prospective seroprevalence sampling was biased by the consent requirement.

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Location and setting This study was conducted in the Emergency Department of a Midwestern (Cincinnati), urban, 450-bed, teaching hospital with 90,000 annual ED patient encounters. **Length of follow up** N/A **Source of funding** The counseling and testing program described in this report was supported by the Ohio Department of Health via the Cincinnati health Department and also by Ryan White funding provided by the Cincinnati Health Network. The research component was supported in part by NIAID K23 AI068453, in part by an investigator-initiated research award from Gilead Sciences, Inc., and in part by an Institutional Clinical and Translational Science Award, NIH/NCRR Grant			through training, oversight, and color-coding of study forms. Patients may have been aware of indications for testing but not that these varied systematically. An additional data capture was used to determine the background prevalence of HIV in the hospital population: **Patient-Based Seroprevalence**: Study personnel consecutively approached every eligible patient, to invite anonymous participation in a "study of diseases of public health importance". Patients received $10 for a blood sample and $5 a health history. **Remnant-Based Seroprevalence**: Discarded blood samples were obtained from the hospital laboratory for ED patients one week after receiving care during one of seventeen 24-hour periods. Periods were purposively selected to provide data for one or two days each month and all days of the week.		

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Number 5UL1RR026314-03.					
Full citation Metsch, Lisa R., Feaster, Daniel J., Gooden, Lauren, Matheson, Tim, Mandler, Raul N., Haynes, Louise, Tross, Susan, Kyle, Tiffany, Gallup, Dianne, Kosinski, Andrzej S., Douaihy, Antoine, Schackman, Bruce R., Das, Moupali, Lindblad, Robert, Erickson, Sarah, Korthuis, P. Todd, Martino, Steve, Sorensen, James L., Szapocznik, Jose, Walensky, Rochelle, Branson, Bernard, Colfax, Grant N., Implementing rapid HIV testing with or without risk-reduction counseling in drug treatment centers: results of a randomized trial, American journal of public health, 102, 1160-7, 2012 **Quality score** ++ **Study type** RCT	**Inclusion criteria** Participants needed to be: • self-reported HIV-negative (or status unknown) • aged 18 years or older • seeking or receiving drug treatment services at the site • had not received results of an HIV test done within the past 12 months. Potential participants had to communicate in English, provide contact information, and sign a medical records release.	**Number of participants** Study staff had 4417 screening contacts with potential participants in the course of recruitment. Of the 2473 people screened, 1281 were randomised and 1192 (48.2%) were excluded. Of those excluded, 1160 (46.9%) were ineligible and 32 (1.3%) eligible people were not randomised. All participants received the intervention to which they were randomised with the exception of 6 participants randomised to counseling, who received no intervention. Ten participants were lost to follow-up at 1 month (99.2% retention rate) and an additional 71 were lost to follow-up at 6 months (93.7% retention rate). The distribution of lost-to-follow-up and missing data did not differ by arm. **Participant characteristics** Demographic characteristics and baseline values of the outcome and control variables were comparable across the 3 randomised arms. **Female** 504 (39.3%) **Age range** • 18–29 309 (24.1%) • 30–39 313 (24.4%) • 40–49 414 (32.3%) • 50–59 212 (16.5%)	**Intervention / Comparison** Participants were randomised to: • Referral for off-site HIV testing ('normal care') • Brief, participant-tailored risk reduction counselling with the offer of an onsite rapid HIV test • Information only (description of the testing procedure) with the offer of an on-site rapid HIV test	**Primary outcomes** **HIV Testing** There was a significant difference in testing and receipt of results across the 3 treatment groups (P = .003); • 18.4% off-site • 79.7% on-site with risk-reduction counselling • 84.8% on-site with information only There was not a significant site-by-treatment interaction across the 3 treatment groups (P =0.19). Participants randomised to on-site rapid testing were significantly more likely to complete and receive the results of an HIV test compared with participants randomised to the off-site referral arm (P <0.001; aRR = 4.52; 97.5% CI 3.57 to 5.72). Although fewer people in the risk reduction counselling arm than the information arm received HIV testing, the difference was not statistically significant to the a priori level of P ≤0.025 (79.7% vs 84.8%; P =0.043). Three participants received reactive HIV test results, 2 in the on-site test with risk-reduction counselling arm and 1 in the on-site test with information-only arm. These reactive tests were confirmed by Western blot.	**Limitations identified by author** • Results may not be generalisable to other populations or other settings, including those with higher HIV prevalence such as STI clinics. • It is possible that the baseline survey increased participants' awareness of their risk behaviours, so the reported reductions in risk behaviours may not generalise to participants who are not assessed. However, such an effect would operate in each intervention arm. • The study did not assess the use of non-condom-based strategies to reduce risk (such as monogamy or serosorting). • The participating community drug treatment sites are members of a specific network

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Aim of the study To examine the effectiveness of risk reduction counseling and the role of on-site HIV testing in drug treatment. **Location and setting** 12 community treatment programs for drug or alcohol abuse in: Tucson, Arizona; Plainville and Danbury, Connecticut; Baltimore, Maryland; Cape Girardeau, Missouri; Salisbury, North Carolina; Santa Fe, New Mexico; Portland, Oregon; Pittsburgh, Pennsylvania; Columbia and West Columbia, South Carolina; and Chesterfield, Virginia. Participating programs included outpatient psychosocial, intensive outpatient, outpatient narcotic replacement, and residential programs. **Length of follow**		• > 60 33 (2.6%) **Race/ethnicity** • White 759 (59.3%) • Black 285 (22.2%) • Hispanic 147 (11.5%) • Other 90 (7.0%)			with research experience; they are not necessarily representative of all community drug treatment providers.

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up 6 months **Source of funding** Funding for this study and analysis was provided by the National Drug Abuse Treatment Clinical Trials Network under the following cooperative agreements, awards, and contracts: U10DA013720, U10DA13720-09S, U10DA020036, U10DA15815, U10DA13034, U10DA013038, U10DA013732, U10DA13036, U10DA13727, U10DA015833, HHSN27120052208 1C, and HHSN27120052207 1C.					
Full citation Myers, Janet J., Modica, Cheryl, Dufour, Mi-Suk Kang, Bernstein, Caryn, McNamara, Kathleen, Routine rapid HIV screening in six community health centers serving populations at risk, Journal of general internal medicine, 24, 1269-	**Inclusion criteria** Aged 13 - 64 **Exclusion criteria** None reported	**Number of participants** Total number of patients seen=58619 Total number patients offered HIV testing=16,148 **Participant characteristics** Among men and women, patients offered testing aged 54 and younger—and especially those aged 18 to 34—were significantly more likely to test compared to those aged 55 and over. Among both men	**Intervention / Comparison** An HIV testing algorithm was developed by the NACHC trainer after consulting with participating health centers and was included in the overall written protocol used in each clinic. Trained clinical staff members drew blood samples using a finger stick method. Clinical staff reported negative results to patients as HIV-uninfected; positive results were reported as preliminary positive	**Primary outcomes**	**Limitations identified by author** Only able to obtain aggregate data for the reference populations, which may have precluded the discovery of additional variables influencing the offering of tests. Because of time and staff resource constraints, there

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74, 2009 **Quality score** - **Study type** BA **Aim of the study** To measure the impact of application of the guidelines for routine screening in health centers serving communities disproportionately affected by HIV in the southeastern US. **Location and setting** Community health centres in North Carolina, South Carolina and Mississippi. **Length of follow up** Study data was collected between 1 March 2007 to 31 March 2008 **Source of funding** Centers for Disease Control and Prevention (CDC) gave financial support for the NACHC testing initiative. Health		and women, patients who were not white – and particularly Latinos - were more likely to receive testing when it was offered. Regardless of the health centre where they were seen, age and insurance status, compared to white men, Latino men were more than twice as likely to receive testing when it was offered (OR=2.72; 95% CI=2.27, 3.25; p<0.0001). Latinas were over twice as likely to receive testing as their white counterparts (OR=2.18; 95% CI= 1.92, 2.47; p<0.0001). With regard to health insurance, after controlling for demographics and health centre, only privately insured men were slightly less likely to receive testing compared to uninsured men (OR=0.82; 95% CI=0.70, 0.97; p<0.0001).	and staff gave patients written information about the nature of the result. At that time, patients were offered confirmatory testing, which was done with a western blot. If the western blot was negative, clinic staff asked patients to return after three months for a repeat western blot.	<table><tr><th></th><th>1 March 2007 to 31 March 2008</th></tr><tr><td></td><td>Total N (%)</td></tr><tr><td>Unduplicated patients aged 13-64 seen at health centres</td><td>58619</td></tr><tr><td>Documented offer of HIV testing</td><td>16148 (28)</td></tr><tr><td>Received HIV testing (% of those offered)</td><td>10769 (67)</td></tr><tr><td>Preliminary positive rapid test result (% of tests)</td><td>39 (0.36)</td></tr><tr><td>Confirmed as newly diagnosed HIV-infected (% of tests)</td><td>17 (0.16)</td></tr></table> **Number and Percentage of Persons Tested for Human Immunodeficiency Virus (HIV) in Community Health Centres – March 1, 2007 to March 31, 2008** **Frequency of HIV tests performed** Compared to the year prior to the study, when 3,078 tests were performed (approximately 3% of patients), there was an almost three-fold increase in the number of tests performed. **Identification of New HIV Cases and Linkage to Care.** Health centres reported that 14 of the 17 confirmed cases were offered referral to HIV specialty care with 12 accepting that referral. Five (29% of preliminary positive results) were determined to be false positives with either two western blot tests or RNA testing. Eleven additional patients received only one confirmatory western blot test and all tested negative. One individual did not receive confirmatory testing.	is not reliable information about why patients did not test nor any understanding of why the variation across health centres was so great. It may be that factors related to the specific clinic or community influenced rates of offering and accepting tests. **Limitations identified by review team** In the absence of details about the testing protocol, it is not possible to assess how robustly the protocol was implemented and therefore why testing was offered to the people it was offered to. In addition, it was unclear from the paper what time period was used for comparison.

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Providers Direct made available the test kits free of charge. Gilead Sciences, Inc. helped support evaluation-related expenses.					
Full citation Pillay, Timesh D., Mullineux, Judith, Smith, Colette J., Matthews, Philippa, Unlocking the potential: longitudinal audit finds multifaceted education for general practice increases HIV testing and diagnosis, Sexually transmitted infections, 89, 191-6, 2013 **Quality score** - **Study type** Longitudinal **Aim of the study** To evaluate the impact of a multifaceted educational intervention (Sexual Health in Practice, SHIP) on general practice HIV testing rates in a high prevalence London area.	**Inclusion criteria** GPs and Practice Nurses working in Haringey PCT	**Number of participants** Total GPs=52 Total nurses=28 **Participant characteristics** N/A	**Intervention / Comparison** Training for GPs consisted of two afternoon sessions, the first addressing clinical and communication skills relevant to sexual health, and the second focusing on HIV. Practice Nurses attended three afternoon sessions so that sexual health promotion skills could also be taught. Training attendance data was collected from sign-in sheets at the training sessions, and time of departure of early leavers noted. For the sake of comparison, practices were defined as either 'untrained' practices (those practices with no clinical staff to complete all relevant sessions, even if some had attended one session) or 'trained' (any practice with at least one health professional who had attended all relevant sessions). Monthly, numbers of HIV tests by practice were requested from laboratory managers for 24 months retrospectively, then prospectively through 19 months of training, and 5 months post-training, totalling 48 months of data. Equivocal results were deleted on the assumption they were repeated. Laboratories were asked to	**Primary outcomes** Results of the linear regression model suggest that, during the 24-month pretraining period, the number of HIV tests performed in Haringey was slowly increasing at a non-significant rate, with an extra 0.1 tests performed per month (95% CI −0.3, +0.6; p=0.59). When considering the time period after the introduction of SHIP, the number of tests performed increased at an estimated extra 3.5 tests per month (95% CI +2.7, +4.4; p<0.0001). A formal test for interaction considering the entire follow-up period demonstrated that the introduction of SHIP was associated with a significant increase in the number of HIV tests performed in Haringey PCT (p=0.0004). The SHIP intervention produced a substantial effect. With the training of 27% of doctors and 22% of nurses in Haringey, SHIP was associated with an increase in HIV testing rates (p=0.0004) and a high rate of positives (16.7/1000).	**Limitations identified by author** The effect of the training intervention was assessed by longitudinal clinical audit rather than a randomised control trial (RCT). However, this was the best method available within the timescales and funding of this commissioned intervention. The 'first-come-first-served' system of enrolment for SHIP training attracted staff from practices with a slightly higher baseline testing rate, meaning untrained practices were not necessarily compara ble and could not, therefore, act as a control group.

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Location and setting Haringey, NE London **Length of follow up** Numbers of GP HIV tests for 24 months prior, 19 months during and 5 months after training. **Source of funding** SHIP training in Haringey was funded by Haringey PCT. SHIP Birmingham funded data collection for this evaluation and funded training of the Haringey peer-educators			identify repeat positives (ie, with identical patient ID) which were removed.		
Full citation Read, T. R., Hocking, J. S., Bradshaw, C. S., Morrow, A., Grulich, A. E., Fairley, C. K., Chen, M. Y., Provision of rapid HIV tests within a health service and frequency of HIV testing among men who have sex with men: randomised controlled trial, BMJ (Clinical research ed.), 347, f5086, 2013	**Inclusion criteria** Men aged ≥18 attending for clinical care who reported having sex with a man within the previous year and who had had a negative HIV test result within the previous two years. To increase the likelihood that men would retest within the study period, only men who had been tested for HIV within the previous two years were	**Number of participants** 445 men were referred, 400 were eligible (26 declined, 19 were ineligible). 200 were randomised to rapid testing and 200 to control. **Participant characteristics** Rapid HIV test (n=200)/Conventional HIV test (n=200) Age (years): 30/29 Time since last HIV test (months): 6/6 No (%) university educated: 114 (57)/99 (50) No of male sex partners in previous year: 10/8	**Intervention / Comparison** Men were randomised to either: 1. Ongoing access at the health service to rapid tests for HIV (intervention arm) - men were tested at enrolment with whole blood obtained from finger pricks. These men were informed that they could attend the clinic at any time over the subsequent 18 months to be tested for HIV with a rapid test. Men received their result 20 minutes after the finger prick. 2. Conventional HIV testing	**Primary outcomes** Unconfirmed reactive tests, representing false positive results, were more common with rapid tests than with conventional serology (9/596, 1.5% (95% confidence interval 0.6% to 2.8%) v 1/534, 0.2% (0% to 1.0%); P=0.02). Of 417 tests performed in the study clinic after enrolment in the rapid test arm, 396 (95%) were rapid tests and 21 (5%) were conventional tests. At the baseline visit, men in the intervention arm were asked about their preference for HIV testing after they had experienced the finger prick test. Most men (167/190, 88%, 95% confidence interval 82% to 92%) said they preferred rapid tests over conventional HIV testing. **Secondary outcomes** The final study questionnaire was completed by 270/390 (69%) of the men who remained HIV negative throughout the study: 142/195 (73%) in the rapid test arm and 128/195 (66%) in the conventional serology arm (P=0.10).	**Limitations identified by author** Several aspects of this study need to be considered in the interpretation of the results and their relevance to other settings. Firstly, rapid tests had to be performed in the clinic after a clinical consultation, which kept participants in the clinic longer than would have been necessary for rapid testing alone. The time required for

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Quality score ++ **Study type** RCT **Aim of the study** To determine if the provision of rapid HIV testing to men who have sex with men attending a health service would increase their frequency of HIV testing over time. **Location and setting** Public sexual health service in Australia (Melbourne Sexual Health Centre) **Length of follow up** 18 months **Source of funding** The study was funded by National Health and Medical Research Council of Australia program grant No 568971.	recruited. **Exclusion criteria** Men seeking post-exposure prophylaxis for HIV were excluded from the study as were those planning to live outside Victoria for more than six months.	No of male anal sex partners in previous year: 5/5 No (%) reporting any unprotected anal sex with casual partners in previous year: 89 (46)/80 (42)	(control) - men randomised to the control arm were offered the clinic's standard HIV test (venepuncture with serum forwarded to the Laboratory for testing by third generation enzyme immunoassay). Men were required to return to the clinic one week after the test so they could be given the HIV result in person. Men in both arms of the study were sent text messages at months three, nine, and 15 of the study recommending regular HIV testing and offering either an "HIV test" or a "rapid HIV test" at the study clinic, according to their allocated arm. Men in both arms received email messages at months six, 12, and 18 containing a link to an online study questionnaire. A $A20 (£12, €14, $18) voucher was offered to participants who completed all questionnaires.	Compared with men randomised to rapid tests, men with access only to conventional serology were more likely to feel that the wait for the test result was too long (75/128 (59%) v 13/142 (9%), P<0.001), to report anxiety because of the wait (81/128 (63%) v 63/142 (44%), P=0.002), and to report delaying their next test because of anxiety over the wait (30/127 (24%) v 19/142 (13%), P=0.03). More men randomised to rapid tests reported that obtaining their HIV test result was convenient (105/141 (74%) v 52/128 (41%), P<0.001).	this process could have deterred more frequent testing in the rapid test arm. Secondly, the study enrolled men who had been tested for HIV within the past two years and were therefore predisposed to testing. Rapid testing might have a greater effect on the testing frequency of men who have never had HIV tests or who test less frequently than the men in this study. Furthermore, men undergoing conventional HIV testing were required to return to the clinic for their results. This could have discouraged more frequent testing in the conventional HIV testing arm and increased the apparent effect of the intervention. The intervention might have had less effect in a health service that did not require a return visit for test results. Finally, the study was powered to detect a six week reduction in the mean interval between HIV tests,

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					which the authors determined would probably only deliver a marginal public health benefit for men who have sex with men in Australia.
Full citation Roy,Anjana, Anaraki,Sudy, Hardelid,Pia, Catchpole,Mike, Rodrigues,Laura C., Lipman,Marc, Perkins,Samantha, Roche,Anita, Stagg,Helen R., Figueroa,Jose, Abubakar,Ibrahim, Universal HIV testing in London tuberculosis clinics: a cluster randomised controlled trial, The European respiratory journalEur Respir J, 41, 627-634, 2013 **Quality score** ++ **Study type** Cluster RCT **Aim of the study** To assess whether implementation of a combination of interventions in London tuberculosis clinics raised the	**Inclusion criteria** All TB clinics (n=31) in London were invited to participate in the study. Four clinics declined. The intervention was introduced in 27 TB clinics; two clinics subsequently merged and two dropped out. Therefore the trial was completed in 24 centres Eligible participants included all patients seen and diagnosed with TB in participating centres between September 2009 and March 2010 who were not already known to be HIV infected. Participants seen at each clinic prior to the intervention served as the control group; once the interventions were implemented, participants were considered to be the intervention group.	**Number of participants** A total of 1,315 participants, 963 patients from 18 group A clinics and 352 patients in six group B clinics, were included in this study. **Participant characteristics** The two groups were similar in terms of age, sex and country of birth.	**Intervention / Comparison** The trial was designed to evaluate a complex intervention. Two types of centres were eligible for participation: **group A** consisted of clinics using a selective HIV testing policy, and **group B** comprised clinics where universal testing had already been initiated. The intervention consisted of three elements for group A: 1. a change in HIV testing from a risk-based selective approach to a universal offer of testing without detailed pre-test discussion (opt-out); 2. training of TB clinic staff; and 3. the provision of tailor made information material for patients and healthcare workers in English, Farsi, French, Polish, Gujarati, Hindi, Punjabi, Somali, Tamil, Turkish and Urdu. The languages for translation were chosen based on a survey of the ethnic background of patients attending the participating clinics. Group B implemented the latter two measures only.	**Primary outcomes** Overall, at baseline, group A test acceptance was 84% (183 out of 217 patients), offer 76% (235 out of 308 patients) and coverage 72% (221 out of 308 patients). Following the intervention these increased to 86% (462 out of 534 patients), 87% (568 out of 655 patients) and 81% (534 out of 655 patients), respectively. Group B acceptance was 81% (91 out of 112 patients), offer 89% (125 out of 141 patients) and coverage 76% (107 out of 141 patients). Following the intervention these increased to 87% (172 out of 197 patients), 96% (202 out of 211 patients) and 85% (180 out of 211 patients) respectively. **Secondary outcomes** **Acceptance of testing** **Group A** Age group and country of birth were significantly associated with acceptance of HIV tests (Chi-squared test p,0.001 and p=0.03, respectively). Acceptance of HIV tests was 73% in those aged >=65 yrs and 100% in patients aged <16 yrs. Non-UK-born patients had a higher acceptance rate compared to those born in the UK. Receiving the intervention did not appear to be significantly associated with a higher acceptance of HIV tests in the multivariable analysis (adjusted OR 1.53, 95% CI 0.84–2.81; Chi-squared test p=0.76). **Group B** No covariates were significantly associated with the outcome. There was no increase in the acceptance of HIV tests with the intervention (adjusted OR 1.40, 95% CI 0.67–2.91; Chi-squared test p=0.4). **Offer of testing** **Group A** Age group was the only covariate that was	**Limitations identified by author** • Allocation of the intervention at a cluster level potentially provided a chance of contamination between centres. The effect is likely to be small due to minimal movement of patients between centres. • high baseline level of offer and acceptance of testing limits the power of the study to detect the effect of the intervention. • not able to mask allocation to staff members or patients due to the nature of the intervention. • changes in centres, patient population group and staff numbers over time may also affect the results of this study. Characteristics of the clinics

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levels of HIV test offers, acceptance and coverage. **Location and setting** TB clinics in London UK. **Length of follow up** N/A **Source of funding** UK Health Protection Agency. 2 authors were funded by the UK National Institute for Health Research.	**Exclusion criteria** Individuals subsequently found not to have TB, patients diagnosed with TB at post mortem, those admitted to hospital at the time of the study (study included TB clinics only) and those managed by non-TB units were excluded from the study		Identical information materials were used in all centres. Participants seen at each clinic prior to the intervention served as the control group.	significantly associated (Chi-squared test p<0.001) with an offer of a test. 53% of patients aged <16 yrs were offered the test, compared with 81% of those aged >= 65rs. The intervention significantly increased the number of tests offered (OR 1.67, 95% CI 1.07–2.60; Chi-squared test p=0.002). **Group B** After univariate analysis, three variables were considered significantly associated with offer of HIV test; these were age group (Chi-squared test p<0.001), patient load (Chi-squared test p<0.008) and whether a joint TB–HIV clinic was held (Chi squared test p=0.01). The two clinic-level variables were co-linear. Due to the small number of units (n=6), the adjusted odds ratio was estimated with only age and intervention effects as covariates and cluster as a fixed effect. In this group there was evidence of an association between the intervention and the offer of an HIV test (OR 3.76, 95% CI 1.31–12.25; Chi squared test p=0.02) **Coverage of testing** **Group A** Younger (<16 yrs) and older (>=65 yrs) age groups, when compared with young adults (25–34 yrs), and UK-born individuals (compared to non-UK-born), were less likely to be tested. The adjusted odds ratio for testing was 1.83 (95% CI 1.3–2.71; Wald test p=0.004). In the fully adjusted model younger patients (aged <16 yrs) and older patients (aged >=65 yrs) were significantly less likely to be tested compared to those aged 25–34 yrs, while the association with being born in the UK was no longer significant. **Group B** For consistency, the model included age group and country of birth as linear predictors. This gave an odds ratio for coverage in the intervention compared to the control group of 1.84 (95% CI 1.03–3.29; Wald test p=0.04).	assessed over the study period suggest that these were relatively stable. • the study investigated whether coverage of HIV testing could be increased; it did not determine whether that had an impact on HIV diagnosis.
Full citation Schnall, R., Liu, N., Sperling, J., Green, R., Clark, S., Vawdrey, D., An electronic alert for HIV screening in the emergency department	**Inclusion criteria** N/A **Exclusion criteria** Being admitted to hospital from the ED.	**Number of participants** N=79,786 **Participant characteristics** Male: 43.2% Mean age: 39.1 years (S.D. = 12.7)	**Intervention / Comparison** All three sites deployed an electronic “HIV Testing” order set and an electronic alert to ensure that an HIV test was offered to every patient discharged from the ED. Two study periods: 1. pre-intervention, HIV Testing	**Primary outcomes** **Overall HIV testing rate** Pre-intervention period: 29,993 visits. Clinicians completed the HIV Testing order set for 32.2% of patients. Six-month post-intervention period: 49,793 patient visits were analysed. 100% of patients were offered the test because clinicians had no choice but to complete the order set if they wanted to proceed with discharging the patient.	**Limitations identified by author** • Factors such as staffing level or provider type information were not available for the analysis and this may have an

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
increases screening but not the diagnosis of HIV, Applied clinical informatics, 5, 299-312, 2014 **Quality score** - **Study type** BA **Aim of the study** To assess the impact of the electronic alert on HIV testing rates and diagnosis of HIV positive individuals. **Location and setting** Three Emergency Departments in NYC, US **Length of follow up** N/A **Source of funding** National Center for Advancing Translational Sciences, National Institutes of Health, through Grant Number KL2 TR000081, formerly the National Center for Research Resources, Grant Number			order set available without an electronic alert; and 2. post-intervention, HIV Testing order set available and electronic alert enabled. During the pre-intervention period, clinicians could access the HIV Testing order set, but there was no electronic alert. The HIV Testing order set included three options: 1. order a rapid HIV test, 2. document that HIV testing was offered but declined by the patient, and 3. document that HIV testing was not offered (a reason was required if option 3 was selected – for example, "Patient is known HIV-positive"). The time period when the HIV Testing order set was live, but no alert occurred, was defined as the pre-intervention period. During the post-intervention period, the electronic alert was implemented to enforce the HIV testing policy. An electronic alert was added to ensure that providers offered HIV testing to patients and completed the HIV Testing order set. The alert prevented the clinician from continuing with the discharge order until the HIV Testing order set was completed.	Across all three sites, patients in the post-intervention group were tested for HIV at a significantly higher rate than patients in the pre-intervention group (OR = 1.66; 95% CI, 1.57–1.77; p<0.001). **Detection of HIV-positive patients** There were a total of 30 patients who tested positive for HIV during the entire study period, 9 patients in the pre-intervention group and 21 patients in the post-intervention group. Of the 30 patients who tested positive, 20 were male. The percentage of patients-testing-positive per total-patients-tested was lower in the post-intervention group than the pre-intervention group (0.48% vs. 0.55%) p = 0.89. The number of patients testing- positive per total-patient-visits was higher in the post-intervention group (0.04% than the pre-intervention group (0.03%), p = 0.50. The percentages are very similar in the pre-intervention and post-intervention groups and the differences are not significant. **Secondary outcomes** Clinicians were more likely to order an HIV test during the post-intervention period compared to the pre-intervention period (OR = 1.41; 95% CI, 1.33–1.49; p<0.001). Patients at site 1 (OR = 1.18; 95% CI, 1.09–1.28; p<0.001) and site 2 (OR = 1.92; 95% CI, 1.79–2.05; p<0.001) were more likely to agree to be tested for HIV than patients at site 3. ESI (a measure of the severiuty of the presenting condition) was a significant covariate in the analysis (p<0.001), and lower-severity patients were more likely to be tested for HIV. Younger age had a small effect on testing rates (OR = 0.98; 95% CI, 0.97–0.98; p<0.001). Patients who had other blood work during their ED visit were more likely to be tested for HIV (OR = 1.45; 95% CI, 1.36–1.54; p<0.001). Patient sex was not a significant covariate in this model. Among patients who were tested for HIV, there was no significant difference in detection of HIV positive patients between the pre- and post-intervention periods (p = 0.549). Site (p = 0.183), age (p = 0.716), ESI (p = 0.666) and other blood work (p = 0.202) were not significant covariates in this analysis. Sex was a significant covariate; of the patients who were tested, males were more likely to be HIV-positive than females (OR = 2.63; 95% CI, 1.22–5.68; p = 0.014).	effect on testing rates. • The number of patient visits differed considerably between sites. • The geographic setting limits the generalisability of the findings – the study was conducted in three busy urban EDs which may vary greatly from rural and less-congested environments. • The unit of analysis was the patient visit and so there may be patients in the sample that had repeat visits to the same ED.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
KL2 RR024157.					
Full citation Seewald, Randy, Bruce, R. Douglas, Elam, Rashiah, Tio, Ruy, Lorenz, Sara, Friedmann, Patricia, Rabin, David, Garger, Yana B., Bonilla, Valentin, Jr., Perlman, David C., Effectiveness and feasibility study of routine HIV rapid testing in an urban methadone maintenance treatment program, The American journal of drug and alcohol abuse, 39, 247-51, 2013 **Quality score** - **Study type** Comparative retrospective study **Aim of the study** This study examined the feasibility and effectiveness of routine HIV rapid testing implemented in a large Methadone Maintenance Treatment Program. **Location and setting**	**Inclusion criteria** N/A **Exclusion criteria** N/A	**Number of participants** In the 12 months of **targeted** HIV rapid testing, 1559 rapid HIV tests were performed. Of these, 438 (28%) were duplicates In the 12 months after **routine** HIV rapid testing was implemented, 2810 HIV tests were administered with only 110 (4%) duplicates. **Participant characteristics** Not reported	**Intervention / Comparison** In the 12-month **targeted** testing period, HIV rapid testing was done by referral to certified HIV counsellors, either when a patient was identified as at risk or by patient request. An appointment was scheduled on-site with the HIV counsellor, who obtained a signed informed consent. The counsellor performed the HIV rapid test with pre- and post-test HIV counselling and provided a $4 transportation card as an incentive. In the 12-month **routine** testing period, HIV rapid testing was offered by a medical provider (physician or physician assistant) on admission to the programme, at the mandatory annual physical, and if high-risk behaviour was identified in patients of unknown-HIV status or who had previously tested HIV-negative. Patients were able to continue to request HIV testing at their own discretion. HIV counselling was not required, though literature was provided and patient questions were answered. Incentives for HIV testing were not provided during the routine testing period.	**Primary outcomes** In the 12 months of targeted HIV rapid testing, 1559 rapid HIV tests were performed. Of these, 438 (28%) were duplicates (i.e. the same individuals were identified and tested two or more times in the same year). The remaining 1121 patients represented 14% of the total 7875 patients on methadone during this 12-month period. Three of the 1121 (0.27%; 95% CI: 0.13, 0.52) were newly diagnosed with HIV. Although all HIV-positive patients received their rapid test results, only one patient received his confirmatory blood test, and none adhered to their first HIV medical appointment. In the 12 months after routine HIV rapid testing was implemented, 2810 HIV tests were administered with only 110 (4%) duplicates. The 2700 patients tested represent 34% of the 7870 distinct MMTP patients in the 12 months during routine HIV testing. Eight of the patients (0.29%) were newly identified as HIV-positive. All eight newly HIV-diagnosed patients received their confirmatory blood test result and five adhered to their first HIV medical appointment. Significantly more patients were tested for HIV after implementation of routine rapid testing compared with the targeted testing ($p < 0.0001$, OR: 3.2: 95% CI: 2.9–3.4). This increase occurred despite the removal of incentives (specifically, transportation vouchers), but was linked to fewer duplicate tests. Increased uptake of the HIV rapid test among MMTP patients in all age groups, all races/ ethnicities and both genders occurred.	**Limitations identified by author** As a retrospective, non-randomised study, it is difficult to ascertain some of the factors that affected the uptake of HIV testing during the time period under investigation. For example, only one-third of the patients were tested, and it is unclear whether some patients refused because they did not perceive themselves to be at risk, whether some were tested elsewhere, whether others simply did not want the methadone program to be involved in testing them or whether providers did not offer testing for various reasons. Second, the actual denominator of individuals offered testing during the period in question is unknown. Third, because the study compares one time period of testing to another time period, it is clearly possible that other temporal factors that are not accounted for in

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Methadone treatment programme - New York City, US **Length of follow up** N/A **Source of funding** Beth Israel Medical Center (BIMC), the New York State Office of Alcohol and Substance Abuse Services (OASAS), the New York State Department of Health/AIDS Institute and the New York City Department of Health and Mental Hygiene.					the analysis could have influenced the uptake of HIV testing among patients and providers. this sample focuses on an urban methadone population in NYC and may not be generalisable to other methadone or addiction treatment settings.
Full citation Smith, H., Parry, J. V., Singleton, G., Dean, G., Fisher, M., Richardson, D., Perry, N., Phillips, A., Ison, C., Alexander, S., Parry, J., Bloom, G., Llewellyn, C., Wayal, S., Home sampling for sexually transmitted infections and HIV in men who have sex with men: A prospective observational study, PloS one, 10, 2015	**Inclusion criteria** Eligible individuals were HIV negative (by self–report) MSM attending in person or contacting the GUM clinic via telephone requesting an STI screen (group 1), MSM with HIV infection attending the HIV outpatient clinic for routine outpatient follow-up (group 2), and MSM attending a rapid HIV testing service provided	**Number of participants** A total of 574 eligible MSM were offered a HSK in the study period, of whom 433 (75%) accepted. **Participant characteristics** The median age of participants was 42 years (IQR: 34–48), 87% were white British. The majority of men self-identified as gay (98%), were educated beyond secondary school (87%) and 66% were employed. The majority had been sexually active in the last 3 months (94%). Approximately 14% of men in group 1 and 27% of men in group 2 reported	**Intervention / Comparison** MSM attending in person or contacting the GUM clinic via telephone requesting an STI screen (group 1), MSM with HIV infection attending the HIV outpatient clinic for routine outpatient follow-up (group 2) were offered a home sampling kit to obtain self collected specimens for STI and HIV (Group 1) and for STI (group 2) as an alternative to testing in the GU clinic. MSM attending a rapid HIV testing service provided by the GUM clinic in a community-based organisation and (group 3) were offered a home sampling kit for	**Primary outcomes** There was a greater acceptance of HSK (62.5% (95% CI: 53.5–70.9)) compared to conventional GUM clinic-based testing (37.5% (95% CI: 29.1–46.5)) among men in group 1 ($p = 0.0004$). The uptake of HIV testing amongst these HSK users was 81% (n = 50/62) with the median interval since last HIV test being 9 months (range: 1–186). There were no new HIV diagnoses among MSM in group 1 (compared to one new diagnosis among men who opted for conventional GUM clinic-based testing). **Secondary outcomes** The overall STI testing rate in the MSM HIV outpatient clinic cohort increased from 13% (139/1086) in the same calendar period in the previous year to 19% (220/1164; 131 from HSK returners) during the study period ($\chi 2$ 12.3; $p<0.001$). The STI testing rates in the MSM cohort attending the community based organisation was unchanged between the two study periods, 17% (21 of 126)	**Limitations identified by author** Failure to reach the initial planned sample size in the HIV clinic and community based organisation as the HSK return rate in these settings was lower than originally anticipated. This was a prospective observational study and not a randomised controlled study (randomising potential GUM clinic

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Quality score - **Study type** Prospective observational **Aim of the study** To determine uptake of home sampling kit (HSK) for STI/HIV compared to clinic-based testing, whether the availability of HSK would increase STI testing rates amongst HIV infected MSM, and those attending a community-based HIV testing clinic compared to historical control. **Location and setting** Three facilities providing STI/HIV testing services in Brighton, UK **Length of follow up** N/A **Source of funding** Medical Research Council (MRC) Sexual Health and HIV Research Strategy Committee, UK	by the GUM clinic in a community-based organisation and (group 3). Participants were required to have no symptomatology consistent with STI, be 18 years or over, and were known to be immune to hepatitis A and B [previously vaccinated or with documented evidence of natural immunity] (group 1), and were attending for routine HIV follow-up (group 2) or community HIV testing (group 3).	engaging in unprotected insertive or receptive anal sex in the last three months. Over a third (37%) had not tested for a STI in the last year.	STI only if their HIV test was negative. The authors maintained a prospective record of the total number of eligible men attending the study sites during the study period. Data on the effect of HSK on STI testing rates during the historic control period (the same calendar period as the study period in the previous year, i.e. February-September 2007) for the HIV clinic cohort were extracted from the HIV clinic database which includes data on STI screening, and self-reported STI testing rates in the community cohort were extracted from the clinic records by the clinic staff. The clinic procedures for STI/HIV testing were unchanged between study and historic control periods. HSK decliners in Group 1 completed a brief questionnaire about socio-demographics and preferences regarding STI testing services and men in other groups were asked to give their reasons for declining a HSK.	in the control period and 18% (15 out of 84) in the study period; 9 of whom were HSK returners ($\chi 2$ 1.665; p = 0.19). Based on data collected from 30 of the 48 (63%) decliners in the GUM clinic (group 1) the authors found no significant differences between men who accepted or declined an HSK in age (median 33 years vs. 35; p = 0.75), STI testing in last year (62% vs. 62.5%; p = 1.00), willingness to wait one day for a clinic appointment (8.6% vs. 8.3%; p = 0.93), or importance of accuracy of test results (95% vs. 98%; p = 0.95). Men in the HIV outpatient clinic declined an HSK because of being in a monogamous relationship (13%), not being sexually active since last STI screen (54%), and/or recent STI screen (40%). Men in the community based organisation surprisingly expressed preference for conventional GUMclinic based STI testing (38%). The commonest reason for declining an HSK in this group was that eligible subjects considered they did not need an STI test (46%), this was either because they had tested for STI recently, or were in monogamous relationship but were testing for HIV because their partner was HIV positive.	attenders to the offer of an HSK or not) the authors are unable to conclude whether the availability of HSKs increase overall rates of STI testing, but can conclude that the offer is acceptable to the majority of MSM seeking STI tests This study was conceived at a time when access to GUM services was relatively poor. By the time the study was implemented, a government target of 48-hour access to GUM services was in place and so motivation for opting for home sampling may have been lower than previously anticipated. A further limitation is that this study was conducted in a single geographical area where uptake of research in GUM/HIV clinics has been traditionally high.

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>programme grant (G03000706)</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Full citation
Snow, A. F., Cummings, R., Owen, L., El-Hyak, C., Hellard, M. E., Vodstrcil, L., Fairley, C. K., Chen, M. Y., Introduction of a sexual health practice nurse increases sti testing among MSM in general practice, Sexually transmitted infections, 87, A98, 2011

Quality score
-

Study type
Observational (case control)

Aim of the study
To investigate the effect of the introduction of a sexual health practice nurse on HIV and STI testing in a general practice that specialised in gay men’s health.

Location and setting
General practice specialising in gay men's health, Melbourne, Aus.</td><td>Inclusion criteria
MSM

Exclusion criteria
None specified</td><td>Number of participants
Not reported

Participant characteristics
Not reported</td><td>Intervention / Comparison
The study compared the proportion of men who were tested for HIV and key STIs at two clinics (A&B - both general practices specialising in sexual health and MSM) in the 24 months prior to the introduction of a specialist sexual health nurse at clinic A (Period 1: 1st October 2006 to 30th September 2007; and Period 2: 1st October 2007 to 30th September 2008) and the 12 months after (Period 3: 1st October 2008 to 30th September 2009). Clinic B did not have a specialist nurse.</td><td>Primary outcomes
HIV antibody testing during three one-year periods<table><tr><th>Clinic A (Nurse introduced in Period 3)</th><th>No. of MSM</th><th>No. tested (%)</th><th>95% CI</th><th>% Difference Period 1 to Period 2</th><th>% Difference Period 2 to Period 3</th></tr><tr><td>Period 1</td><td>1000</td><td>504 (50)</td><td>47-54</td><td rowspan="3">2 (p=0.39)</td><td rowspan="3">5 (p=0.026)</td></tr><tr><td>Period 2</td><td>1011</td><td>523 (52)</td><td>49-55</td></tr><tr><td>Period 3</td><td>1042</td><td>596 (57)</td><td>54-60</td></tr><tr><td>Clinic B (No nurse)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Period 1</td><td>3664</td><td>1429 (39)</td><td>37-41</td><td rowspan="3">4 (p<0.001)</td><td rowspan="3">-6 (p<0.001)</td></tr><tr><td>Period 2</td><td>3836</td><td>1643 (43)</td><td>41-45</td></tr><tr><td>Period 3</td><td>3870</td><td>1442 (37)</td><td>35-39</td></tr></table></td><td>Limitations identified by author
A limitation of this study is that changes in testing could have been affected by factors other than the introduction of the sexual health nurse.

Limitations identified by review team
Study poorly designed and therefore not reliable. No demographic details or behavioural details given, no comparison of the populations across the three periods or two clinics.</td></tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Length of follow up N/A **Source of funding** None declared					
Full citation Stopka, Thomas J., Marshall, Clark, Bluthenthal, Ricky N., Webb, David S., Truax, Steven R., HCV and HIV counseling and testing integration in California: an innovative approach to increase HIV counseling and testing rates, Public health reports (Washington, D.C. : 1974), 122 Suppl 2, 68-73, 2007 **Quality score** - **Study type** BA **Aim of the study** This study tested the hypothesis that offering HIV counseling and testing (C&T) concurrently with HCV C&T will increase HIV C&T rates among IDUs.	**Inclusion criteria** All outreach contacts with IDUs were documented. An IDU contact was defined as "a conversation with an IDU in which an HIV test was offered." An IDU was defined as an individual who reported injecting illicit substances during the past two years. **Exclusion criteria** Clients who indicated that they knew they were HIV-positive or who were recently tested for HIV were excluded.	**Number of participants** n=2,950 During the baseline phase, 1,645 IDUs were contacted by C&T staff across all five sites. During the intervention phase, 1,305 IDUs were contacted across all five sites. **Participant characteristics** Not reported	**Intervention / Comparison** During a 2 month baseline phase, staff members at the five participating sites conducted outreach in traditional locations on the streets; in local parks; adjacent to syringe exchange programs; and at public health vans, clinics, and drug and alcohol treatment centres. Outreach conducted during the baseline phase was identical to outreach typically conducted among IDUs. IDUs interested in receiving an HIV test were referred to HIV counsellors or, if recruited by a counsellor, were invited into the testing venue or scheduled for a later date. Clients were then tested using an oral testing device and were asked to return two weeks later to receive their HIV test results. One month after the baseline phase, the two-month intervention phase began. During this phase, IDUs were recruited in the same manner and at the same locales used during the baseline phase, but both HCV and HIV C&T were offered. Site staff members actively promoted HCV C&T during this phase, and HIV C&T was offered as an "add-	**Primary outcomes** Baseline phase: 1,645 IDUs were contacted by C&T staff across all five sites; 138 chose to be tested for HIV and 75 returned for their results. Intervention phase: 1,305 IDUs were contacted across all five sites; 354 chose to be tested for HIV and 254 returned for their results. Aggregate HIV C&T rates among IDUs more than tripled from baseline (8.4%) to intervention (27.1%) ($p<0.05$), and HIV test results disclosure rates increased from 54.3% at baseline to 71.8% at intervention ($p<0.05$). Multiple logistic regression analyses indicated that IDUs who opted for HIV tests during the intervention phase were twice as likely to return for HIV test results as IDUs who tested for HIV during the baseline phase (odds ratio 1.93; 95% confidence interval 1.27, 2.94). **Secondary outcomes** During the intervention stage, some HCV-positive IDUs chose to be tested for HIV and thus were offered this test alone. Among IDUs who tested for HIV alone during the intervention phase (n=588), only 59.1% (n=552) returned for their HIV test results. This test results disclosure rate, although slightly higher than the disclosure rate among IDUs during the baseline phase (54.3%), was not statistically significant. The disclosure rate was significantly higher among IDUs who accepted both HCV and HIV C&T (75.9%, $p<0.05$) than among IDUs who tested for HIV alone during the baseline phase.	**Limitations identified by author** No detail of people refused a test because they were already positive or had tested recently. No demographic data for people recruited but opted not to test. Baseline and intervention phases short and may be influenced by seasonal fluctuations. **Limitations identified by review team** No demographic detail given in paper even though the paper says it was collected.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Location and setting Five California (USA) local health jurisdictions. **Length of follow up** N/A **Source of funding** None reported			on." Clients who indicated they already knew they were HCV-positive were still offered an HIV test, whereas HIV-positive clients and those who were recently tested for HIV were not offered a test. HIV-positive clients who did not know their HCV status were given the opportunity to test for HCV but were excluded from the HIV C&T dataset. Clients were then tested using an oral testing device for HIV and a finger-stick test device for HCV. All testing IDUs were asked to return two weeks later to receive their HIV and HCV test results.		
Full citation Sundaram, V., Lazzeroni, L. C., Douglass, L. R., Sanders, G. D., Tempio, P., Owens, D. K., A randomized trial of computer-based reminders and audit and feedback to improve HIV screening in a primary care setting, International journal of STD & AIDS, 20, 527-33, 2009 **Quality score** + **Study type** RCT **Aim of the study** To determine whether an	**Inclusion criteria** All attending physicians and registered nurse practitioners from 5 VA general medicine clinics were eligible to participate.	**Number of participants** Number eligible to participate = 39 32 (82%) agreed to participate. Fifteen providers (47%) were randomised to the intervention group and 17 (53%) to the control group. **Participant characteristics** • 13 (41%) of participants were men • 26 (81%) were attending physicians There were no differences between the intervention and control groups with respect to gender or role (physician vs. nurse)	**Intervention / Comparison** All providers received an educational session discussing • the importance of HIV screening and testing • the policies and processes in place for obtaining informed consent • documenting pre- and post-test counselling. Intervention arm: Education plus one of two computer based reminders for each patient: 1. HIV risk assessment reminder (if a patient did not have a documented risk behaviour for HIV and had not been tested at a VA clinic in the previous year) 2. HIV test reminder (if a patient had a documented HIV risk behaviour and had not been tested at a VA facility in the previous year). Providers were required to	**Primary outcomes** **Change in screening rates** Rates of testing were low (<2%) in both intervention and control groups. There were no differences in the the change in testing rates between the intervention and control groups (0.29% versus 0.52%, p=0.75). There was substantial variation in the rates of HIV testing among both groups of providers.	**Limitations identified by author** • VA healthcare populations may differ substantially from other primary care settings. • VA has electronic patient records that are not available to all clinicians • Intervention was focussed on clinical reminders and did not include organisational changes or social marketing. **Other comments** A 'risk behaviour' was defined as a documented ICD-9 code for substance abuse, alcohol abuse, hepatitis or

<table>
<tr><th>Study details</th><th>Inclusion / Exclusion criteria</th><th>Population</th><th>Intervention / Comparison</th><th>Results</th><th>Notes</th></tr>
<tr><td>intervention with computer-based reminders and feedback would increase screening for HIV in a Department of Veterans Affairs health-care system.

Location and setting
Veterans Affairs Palo Alto Health Care System, CA

Length of follow up
N/A

Source of funding
Health Services Research and Development Service, Dept of Veterans Affairs HII-99047-1</td><td></td><td></td><td>complete an interactive dialogue box to resolve the reminders. The reminders were not mandatory and could be ignored, but the continued to appear each time the medical record was accessed until they were resolved. Providers received a detailed guide on how to use the reminders.
Control arm: Education session only.</td><td></td><td>STI</td></tr>
<tr><td>Full citation
Walensky, R. P., Reichmann, W. M., Arbelaez, C., Wright, E., Katz, J. N., Seage, Iii G. R., Safren, S. A., Hare, A. Q., Novais, A., Losina, E., Counselor-versus provider-based HIV screening in the emergency department: Results from the universal screening for HIV Infection in the</td><td>Inclusion criteria
1. aged 18 to 75 years
2. clear mental status and an Emergency Severity Index score of 3, 4, or 5 on a scale of 1 (most severe) to 5 (least severe)
3. fluent in English or Spanish
4. not engaged in prenatal care
5. not known to be</td><td>Number of participants
12,970 ED visitors seeking health care were screened for USHER trial eligibility according to initial Emergency Severity Index score alone. Among 8,187 eligible patients approached, 4,860 (59%) agreed to participate. More than 99% (4,855/4,860) of enrolled subjects were randomised: 2,446 to the counsellor arm and 2,409 to the provider arm.

Participant characteristics
The mean age of the study population was 37 years (SD</td><td>Intervention / Comparison
ED patients were screened and consented for trial enrolment by an USHER research assistant. Eligible subjects were randomised to rapid HIV testing (oral OraQuick) offered by a dedicated counsellor (counsellor arm) or by an ED provider (provider arm). In the counsellor arm, counsellors—without other clinical responsibilities—assumed nearly all testing-related activities (consent, counselling, delivery of test results). In the provider arm, trained ED emergency service</td><td>Primary outcomes

Rates of Overall Testing, Test Offer, and Acceptance<table><tr><th></th><th>Counsellor, No. (%) (N=2,446)</th><th>Provider, No. (%) (N=2,409)</th><th>Difference, % (95% CI)</th><th>P Value</th></tr><tr><td>Overall testing rate (HIV test completed among patients randomised)</td><td>1382 (57)</td><td>643 (27)</td><td>30 (27 to 32)</td><td><0.001</td></tr><tr><td>HIV test offered</td><td>1959 (80)</td><td>861 (36)</td><td>44 (42 to 47)</td><td><0.001</td></tr><tr><td>HIV test accepted among patients</td><td>1382 (71)</td><td>643 (75)</td><td>-4 (-8 to -1)</td><td>0.02</td></tr></table></td><td>Limitations identified by author
The USHER trial is a single-site study. Participants tested in the USHER trial were required to provide informed consent more than once for participation (one for trial, one for testing per Massachusetts state law, and one for confirmation of reactive results, if necessary). The</td></tr>
</table>

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Emergency Room (USHER) randomized controlled trial, Annals of emergency medicine, 58, S126-S132, 2011 **Quality score** ++ **Study type** RCT **Aim of the study** To compare rates of rapid HIV testing, test offer, and acceptance in an urban emergency department (ED) when conducted by dedicated HIV counselors versus current members of the ED staff. **Location and setting** The ED at Brigham and Women's Hospital, a tertiary academic medical center in Boston, MA. **Length of follow up** N/A **Source of funding** This research was funded by the National Institute of	6. HIV infected not enrolled in the USHER trial in the previous 3 months.	14), 65% of participants were women, 22% were black, and 29% were Hispanic	assistants (nursing assistants) consented and tested the participant in the context of other ED-related responsibilities. In this arm, ED house officers, physician assistants, or attending physicians provided HIV test results to trial participants. Outcome measures were rates of HIV testing and test offer among individuals consenting for study participation. Among individuals offered the test, test acceptance was also measured.	offered The effect of sex (P for interaction = 0.92), race/ethnicity (P for interaction = 0.18), Emergency Severity Index score (P for interaction = 0.11), and time of day (P for interaction = .28) on offer rates did not vary by study arm. The effect of age on offer rate did vary by study arm (P for interaction = 0.02). The offer rate was similar across all ages in the counsellor arm (79% to 83%), but the offer rate decreased with increasing age in the provider arm. For example, individuals older than 60 years were offered testing 25% of the time, whereas those aged 18 to 29 years were offered testing 39% of the time. **Secondary outcomes** **Test offer and acceptance by self reported risk** Among the 4,855 participants, 15% met criteria for high sexual risk, 8% met criteria for high drug-related risk, 15% met criteria for both, 26% self-reported no high-risk behaviour, and 37% had missing data. In the counsellor arm, there was no difference in rates of test offer by risk group (range 82% to 84% for individuals with identifiable risk group and 75% for those whose risk group was missing). In the provider arm, the offer rate among all risk groups was also similar (range 35% to 46% for individuals with identifiable risk group and 29% for those whose risk group was missing). The data did not provide evidence of targeted test offer or test acceptance in one arm compared with other; the P values corresponding to the formal test for interaction were 0.38 and 0.65, respectively.	lengthy consent process, though necessary to conduct a criterion standard randomised trial, may have affected participation and generalisability of the results. Although the intent was to offer routine HIV screening, only 80% of participants in the counsellor arm were reached. Failure to offer testing in the counsellor arm generally resulted from unexpectedly short ED visits, failure to anticipate the intensive ED care required, or inability to interrupt a clinical evaluation that was in process.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
Mental Health (R01 MH073445, R01 MH65869) and the Doris Duke Charitable Foundation, Clinical Scientist Development Award to Rochelle P. Walensky. Publication of this article was supported by Centers for Disease Control and Prevention, Atlanta, GA.					
Full citation White, Douglas A. E., Sadoun, Tania, Tran, Tony, Alter, Harrison J., Increased acceptance rates of HIV screening using opt-out consent methods in an urban emergency department, Journal of acquired immune deficiency syndromes (1999), 58, 277-82, 2011a **Quality score** + **Study type** Quasi-experimental - Experimental equivalent time sample. **Aim of the study**	**Inclusion criteria** • medically stable • English or Spanish speaking • >13 or <64 years • not HIV tested in past 6 months • not psychiatrically impaired.	**Number of participants** During the study period, 7197 patients were assessed for primary eligibility, of which 5630 (78%) were eligible. Of these, 2779 (49%) were approached by screening staff and assessed for secondary eligibility. There were a total of 2409 secondary eligible patients who were offered HIV screening, of which 1209 (50%) were seen on days designated for opt-in screening and 1200 (50%) were seen on days designated for opt-out screening. **Participant characteristics** The mean age of patients offered HIV screening was 40 years, 52% were male, 45% were Black, 28% were Hispanic, 15% were white, 19% were Spanish speaking, and 94% had an Emergency Severity Index score >=3. Characteristics	**Intervention / Comparison** Three supplemental HIV screening staff (1 full- and 2 part-time) performed HIV screening for a total of 80 hours per week of testing. The screening staff was fluent in English and Spanish and certified in HIV test counselling and rapid HIV testing. Following a standardised protocol, screening staff implemented non-targeted HIV screening using either opt-in or opt-out consent methods on alternating weeks. During opt-in weeks, HIV screening was offered in the following manner: “My name is Mrs. Gordon. Here at the Highland ER we offer HIV testing to all of our patients. Would you like to get an HIV test today?” During opt-out weeks, patients were notified that HIV screening was to be performed in the following	**Primary outcomes** Overall acceptance rates increased from 63% with opt-in consent methods (767 of 1209, 95% CI: 61% to 66%) to 78% with opt-out consent methods (931 of 1200, 95% CI: 75% to 80%), for an absolute difference of 14% (95% CI: 11% to 18%). All patients accepting HIV screening were tested. The acceptance rate of opt-out HIV screening remained greater after adjusting for patient demographics, admission status, acuity, treatment area, privacy of encounter, and screening staff identity (adjusted odds ratio: 2.0, 95% CI: 1.7 to 2.4).	**Limitations identified by author** Results are based on the outcomes of 3 screeners with experience in HIV testing and may not be generalisable to EDs that rely on existing staff to carry out HIV testing. Trained staff were not blinded to the study objectives and may have had biases, which could have impacted outcomes.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
To compare the acceptance rates of emergency department HIV screening when supplemental staff use opt-in and opt-out consent methods. **Location and setting** The ED at the Alameda County Medical Center-Highland Hospital, Oakland, CA, **Length of follow up** N/A **Source of funding** Grant (PS 07-768) from the Centers for Disease Control and Prevention.		of patients offered screening were similar between the opt-in and opt-out phases.	manner: “My name is Mrs. Gordon. Here at the Highland ER we test all of our patients for HIV. I am here to do your HIV test.” During the opt-out phase, assent was inferred unless the patient declined. HIV screening staff did not explicitly ask patients if they would like to decline screening.		
Full citation White, Douglas A. E., Scribner, Alicia N., Vahidnia, Farnaz, Dideum, Patrick J., Gordon, Danielle M., Frazee, Bradley W., Voetsch, Andrew C., Heffelfinger, James D., HIV screening in an urban emergency department: comparison of screening using an	**Inclusion criteria** Patients were eligible for HIV screening if they were aged 15 years or older, medically stable, and able to consent for HIV testing (opt-in phase) or complete the general consent for care (opt-out phase). Patients requiring immediate medical evaluation, according to triage	**Number of participants** There were 23,236 potentially eligible patients in opt in phase versus 26,757 in the opt out phase. **Participant characteristics** There were no differences by age, sex,or race/ ethnicity between patients offered or accepting screening in the opt-in and opt-out phases.	**Intervention / Comparison** Two sequential phases of testing: ***Opt-in phase*** Potentially eligible patients were referred by the triage nurse to the HIV tester. In the event that the HIV tester was occupied, patients were instructed to wait in chairs adjacent to the testing station. HIV testers determined eligibility and offered HIV screening by using the following opt-in script: “Would you like to have a rapid HIV test today?”	**Primary outcomes** For the opt-in versus the opt-out phase, results were as follows: there were 23,236 potentially eligible patients versus 26,757, screening offer rate was 27.9% versus 75.8% (P<.001), screening acceptance rate was 62.7% versus 30.9% (P<.001), test completion rate was 99.8% versus 74.6% (P<.001), and overall screening rate was 17.4% versus 17.5% (P< .90). There were no differences by age, sex, or race/ethnicity.	**Limitations identified by author** The 2 phases differed in several ways, aside from how consent was approached. These confounding differences include the following: the personnel who assessed eligibility and performed consent were different between the phases; the locations

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
opt-in versus an opt-out approach, Annals of emergency medicine, 58, S89-95, 2011 b **Quality score** - **Study type** Prospective observational **Aim of the study** To compare outcomes of opt-in and opt-out HIV screening approaches in an urban emergency departm ent. **Location and setting** Alameda County Medical Center ED Oakland, CA. **Length of follow up** N/A **Source of funding** This study was funded by cooperative agreem ents from the Centers for Disease Control and Prevention to Dr.White(U18PS000 321).	nurse evaluation, were deemed medically unstable and ineligible for HIV screening (opt-in phase). Registration staff could also classify patients as ineligible for screening if they appeared too ill (for example, patients in severe pain, actively vomiting, or in respiratory distress) (opt-out phase). Determination of a patient's inability to provide consent was at the discretion of the HIV tester (opt-in phase) or registration staff (opt-out phase) and included factors such as a language barrier, altered mental status, or acute psychiatric illness. **Exclusion criteria** Patients who bypassed triage and the HIV testing station (including those who arrived by ambulance, were trauma activations, or required immediate medical resuscitation) were excluded for eligibility assessment and		Patients opting in completed separate written consent, followed by immediate testing. ***Opt-out phase*** Consent for HIV testing was integrated into the general consent form for medical care in accordance with CDC guidelines. The general ED consent form was modified to include a statement that HIV testing may be performed during the ED visit unless the patient declined, as well as a specific signature box where patients could opt out. Registration staff determined eligibility and offered HIV screening by using the following opt-out script: "HIV testing may be performed during your emergency room visit. If you do not want to be HIV tested, sign here." Patients opted out by signing in the opt-out signature box. Registration staff electronically flagged the charts of patients not opting out and referred those patients to the triage testing station. For the subset of patients who received bedside registration and did not opt out, HIV testers were instructed to go to the patient's bedside to perform testing.		where consent was performed were different; in the opt-in phase eligibility assessment, consent and testing were all performed by 1 person; in the opt-out phase, eligibility assessment and consent were separate from testing. How these various factors might have influenced the outcomes, as opposed to the effect of opt-in versus opt-out consent, could not be quantified. Second, in the opt-in phase, the exact number of eligible patients was not known because the triage nurse referred only a small proportion of the ED census to the HIV tester.

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
	screening.				
Full citation White, Douglas A. E., Tran, Tony, Dideum, Patrick J., Vahidnia, Farnaz, Gordon, Danielle M., Ng, Valerie, Frazee, Bradley W., Physician-initiated rapid HIV testing in an urban emergency department: comparison of testing using a point-of-care versus a laboratory model, Annals of emergency medicine, 58, S53-9, 2011 c **Quality score** - **Study type** Retrospective cohort study **Aim of the study** To compare the outcomes of 2 models of physician-initiated rapid HIV testing in an emergency department (ED). **Location and setting** ED at Alameda County Medical Center in Oakland,	**Inclusion criteria** Patients were eligible for physician-initiated rapid HIV testing if they were aged 12 years or older, had not already undergone opt-out HIV screening during the visit, were not known to be HIV positive, and were competent to consent to HIV testing.	**Number of participants** For the point-of-care versus laboratory phase, there were 24,345 potentially eligible patients versus 26,363. **Participant characteristics** Patients completing point-of-care and laboratory physician-initiated rapid HIV testing were similar in terms of mean age, gender and race/ethnicity. Patients completing laboratory testing were more likely to be admitted to the hospital (37%versus 29%; *P* <.001) and more likely to have other laboratory tests performed (73% versus 61%; *P* <.001).	**Intervention / Comparison** Two models for physician-initiated rapid HIV testing were implemented sequentially in 6-month phases: point-of-care testing, followed by laboratory testing. The models were introduced as clinical policy. **Point of care phase** Physician-initiated rapid HIV tests were performed point-of- care by ED on oral fluid specimens. Test processing is in 20 minutes and interpretation is in a 20-minute window as negative, reactive, or indeterminate. Reactive results are confirmed with Western blot testing. Nurses received training and demonstrated proficiency in performing rapid HIV testing, as described previously. Nurses obtained oral fluid samples in patient rooms, processed tests in the ED point-of-care laboratory, documented results in the electronic medical record, and notified the ordering physician of reactive results. Additional blood was obtained for confirmatory Western blot testing. **Laboratory phase** Physician-initiated rapid HIV testing clinical protocol was changed. Rapid HIV test kits were removed from the ED point-of-care laboratory and posters were placed throughout the ED, instructing staff that physician- initiated rapid HIV testing were to be performed on whole- blood	**Primary outcomes** For the point-of-care versus laboratory phase, there were 24,345 potentially eligible patients versus 26,363. Order rate was 3.3% versus 2.4% (P<0.001), test completion rate was 75.3% versus 86.8% (P<0.001), and overall testing rate was 2.5% versus 2.1% (P=0.009). Similar proportions of patients completing point-of-care and laboratory physician-initiated rapid HIV testing also accepted opt-out HIV screening (133/599; 22.2% versus 125/557; 22.4%; P=0.92). However, none of these patients had screening tests completed in addition to a physician-initiated rapid HIV testing. Reasons why physician-initiated rapid HIV testing and screening tests were not completed were not recorded.	**Limitations identified by author** • The outcomes may be influenced by the presence of the coexisting opt-out HIV screening program. The screening program tested approximately 1,000 patients monthly (15% of monthly ED volume), many of whom might have undergone physician-initiated rapid HIV testing if screening were not in place. • Time data were not complete and may have been inaccurate. Although there were incomplete time data for some patients in both phases, a higher proportion of patients in the point-of-care phase had missing time data because paper test logs were used. • The results of this study may lack external

Study details	Inclusion / Exclusion criteria	Population	Intervention / Comparison	Results	Notes
CA. **Length of follow up** N/A **Source of funding** This study was funded by cooperative agreements from the Centers for Disease Control and Prevention to Dr. White (U18 PS000321).			specimens sent to the laboratory. An e-mail was also sent to all clinical staff, notifying them of the change. The electronic order for point-of-care rapid HIV testing was replaced with a laboratory rapid HIV test order. ED nurses obtained whole blood by venepuncture and sent specimens by pneumatic tube to the hospital's laboratory, where rapid testing was performed. Tests results were entered in the hospital laboratory reporting system, which interfaces with the ED electronic medical record. Laboratory personnel contacted the treating ED physician by telephone with all reactive test results. Standing orders were established for Western blot testing reactive specimens.		validity. Our results apply only to a higher-acuity ED setting and not to urgent care/ fast-track settings, in which visit times are short and few patients receive laboratory testing. • Results apply only to physician-initiated rapid HIV testing models and should not be extrapolated to HIV screening programs in which the volume of testing is higher.

7. Appendix 2 Quality of included studies

	Question									Score
	1	2	3	4	5	6	7	8	9	
Anaya et al., 2008	Unclear	Unclear	++	++	Unclear	Unclear	Unclear	++	++	+
Antonio-Gaddy et al., 2006	-	-	NA	-	++	Unclear	NA	Unclear	-	-
Bourne et al., 2011	-	-	NA	+	Unclear	-	Unclear	Unclear	-	-
Brooks et al., 2009	-	-	Unclear	-	Unclear	Unclear	NA	++	-	-
Burton et al., 2014	-	-	NA	+	NA	NA	NA	++	-	-
Calderon et al., 2007	++	++	NA	+	++	++	Unclear	++	-	+
Calderon et al., 2011	++	++	++	+	++	Unclear	++	++	++	++
Christopoulos et al., 2011	-	-	Unclear	Unclear	Unclear	-	Unclear	Unclear	-	-
Conners et al., 2012	-	-	NA	-	Unclear	-	Unclear	++	-	-
Das et al., 2004	NA	-	NA	-	Unclear	++	NA	++	-	-
Donnell-Fink et al., 2012	++	-	NA	++	++	-	-	++	-	+
Goetz et al., 2008	-	-	++	++	Unclear	Unclear	Unclear	++	-	-
Goetz et al., 2011	-	-	++	++	Unclear	Unclear	Unclear	++	-	-
Gordon et al., 2013	++	Unclear	NA	+	Unclear	NA	Unclear	++	Unclear	+
Hack et al., 2013	-	-	NA	Unclear	-	-	++	Unclear	-	-
Haukoos et al., 2005	-	NA	NA	++	++	-	-	++	-	+
Kasting et al., 2014	++	Unclear	NA	+	-	++	Unclear	++	++	+
Kavasery et al., 2009a	-	-	NA	++	NA	-	-	++	+	+

	Question									Score
	1	2	3	4	5	6	7	8	9	
Kavasery et al., 2009b	-	-	NA	++	NA	-	-	++	+	+
Kinsler et al., 2013	-	-	NA	Unclear	-	-	Unclear	Unclear	-	-
Klein et al., 2014	-	-	NA	+	+	-	NA	++	-	-
Kurth et al., 2013	++	Unclear	NA	+	++	++	-	++	-	+
Lyons et al., 2013	+	+	NA	+	Unclear	+	+	++	++	+
Merchant et al., 2011	Unclear	Unclear	Unclear	Unclear	++	-	++	++	-	-
Merchant et al., 2014	++	Unclear	NA	++	++	++	++	++	++	++
Metsch et al., 2012	++	++	NA	++	++	+	++	++	++	++
Myers et al., 2009	-	-	NA	Unclear	NA	NA	NA	-	Unclear	-
Outlaw et al., 2010	++	Unclear	NA	++	++	++	++	++	++	++
Pillay et al., 2013	-	-	Unclear	Unclear	NA	NA	NA	Unclear	-	-
Read et al., 2013	++	++	++	++	++	-	+	++	++	++
Rhodes et al., 2011	-	-	NA	++	NA	++	NA	++	-	-
Richens et al., 2010	++	++	NA	Unclear	+	++	++	++	++	++
Rogstad et al., 2003	NA	-	NA	-	++	++	NA	Unclear	-	-
Roy et al., 2013	++	++	++	++	Unclear	-	Unclear	++	++	++
Saifu et al., 2011	-	-	NA	+	+	NA	NA	++	-	-
Schnall et al., 2014	-	-	NA	Unclear	NA	-	-	++	-	-
Seewald et al., 2013	-	-	Unclear	Unclear	Unclear	-	-	-	-	-

	Question									Score
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Smith et al., 2015	-	-	NA	+	NA	-	-	-	-	-
Snow et al., 2011	-	NA	NA	Unclear	Unclear	-	-	Unclear	-	-
Stopka et al., 2007	-	-	NA	-	-	-	-	-	-	-
Sundaram et al., 2009	Unclear	Unclear	NA	++	+	Unclear	-	++	++	+
Uhrig et al., 2012	Unclear	Unclear	Unclear	++	++	Unclear	++	++	++	+
Walensky et al., 2011	++	-	NA	++	++	-	+	++	++	++
White et al., 2011a	-	+	NA	++	+	-	Unclear	+	-	+
White et al., 2011b	-	-	NA	++	+	-	+	+	-	-
White et al., 2011c	-	-	NA	+	-	NA	+	+	-	-
Young et al., 2013	++	Unclear	NA	+	++	++	+	++	-	+

Key to questions:

1. Was the allocation sequence adequately generated?
2. Was the allocation adequately concealed?
3. Were baseline outcome measurements similar?
4. Were baseline characteristics similar?
5. Were incomplete outcome data adequately addressed?
6. Was knowledge of the allocated interventions adequately prevented during the study?
7. Was the study adequately protected against contamination?
8. Was the study free from selective outcome reporting?
9. Was the study free from other risks of bias

8. Appendix 3 Quality Appraisal checklist

QA EPOC Checklist for RCTs, non-randomised controlled trials and controlled before-after studies: draft

Administrative details

Study name or author and year [Type study name, or author and year (include letter if more than 1 paper with the same author and year, e.g. 'Smith 2010a')]	**STAR ID** [Type STAR ID]
Citation [Include citation details – usually authors, title of study, journal details, year]	
Linked studies (study name or author, year, STAR ID) [Include study name or author, year and STAR ID of any related studies, or state 'None']	
Final study quality score [Click to choose the final quality score. See 'Calculation of final study quality score' below for details on how to complete this.]	
Date of QA [Click to choose the date the QA was completed]	**Reviewer(s) names** [Type name of the reviewer/reviewers completing the quality assessment]

Calculation of final study quality score (from box 6.1 on page 95 of the NICE Guidelines Manual)

++ All or most of the checklist criteria have been fulfilled, and where they have not been fulfilled the conclusions are very unlikely to alter.

+ Some of the checklist criteria have been fulfilled, and where they have not been fulfilled, or are not adequately described, the conclusions are unlikely to alter.

- Few or no checklist criteria have been fulfilled and the conclusions are likely or very likely to alter.

Quality Assessment

For all questions:

++	'Yes'	The study full meets the criterion.
+	'Partly'	The study largely meets the criterion but differs in some important respect.
-	'No'	The study deviates substantially from the criterion.
	'Unclear'	Report provides insufficient information to judge whether the study complies with the criterion.
	'NA (not applicable'	The criterion is not relevant in this particular instance.

Item	Decision	Comments
1. Was the allocation sequence adequately generated?	[Click here to choose a decision. ++ if a random component in the sequence generation process is described (e.g. a random number table), - if a non-random method is used (e.g. date of admission) or if study is a non-randomised controlled trial or controlled before-after study]	[State how the allocation sequence was generated.]
2. Was the allocation adequately concealed?	[Click here to choose a decision. ++ if allocation by institution, team or professional and allocation performed on all units at start of the study, or if the unit of allocation was by patient or episode of care and there was a centralised randomisation scheme (on-site computer system or sealed opaque envelopes). – if controlled before-after study.]	[State how the allocation was concealed.]
3. Were baseline outcome measurements similar?	[Click here to choose a decision.++ if performance or patient outcomes were measured prior to intervention and no important differences present across study groups. In RCTs score ++ if imbalanced but appropriate adjusted analysis was performed (e.g. analysis of covariance). Score - if important differences were present and not adjusted for in analysis.]	[State whether the baseline outcome measurements were similar.]
4. Were baseline characteristics similar?	[Click here to choose a decision. ++ if baseline characteristics of the study and control providers are reported and similar. Score - if there is no report of characteristics or if there are differences between control and intervention providers.]	[State whether the baseline characteristics were similar.]
5. Were incomplete outcome data adequately addressed?	[Click here to choose a decision. ++ if missing outcome measures were unlikely to bias the results (e.g. the proportion of missing data was similar	[State whether incomplete outcome data were adequately addressed.]

	in the intervention and control groups or the proportion of missing data was less than the effect size i.e. unlikely to overturn the study result). Score - if missing outcome data was likely to bias the results.]	
6. Was knowledge of the allocated interventions adequately prevented during the study?	[Click here to choose a decision. ++ if the authors state explicitly that primary outcome variables were assessed blindly, or outcomes are objective, e.g. length of hospital stay. Score - if primary outcomes were not assessed blindly.]	[State whether knowledge of the allocated interventions was adequately prevented during the study.]
7. Was the study adequately protected against contamination?	[Click here to choose a decision. ++ if allocation by community, institution or practice and it is unlikely that the control group received the intervention. Score - if it is likely that the control group received the intervention (e.g. if patients rather than professionals were randomised). Score “unclear” if professionals were allocated within a clinic or practice and it is possible that communication between intervention and control professionals could have occurred (e.g. physicians within practices were allocated to intervention or control).]	[State whether the study was adequately protected against contamination.]
8. Was the study free from selective outcome reporting?	[Click here to choose a decision. ++ if there is no evidence that outcomes were selectively reported (e.g. all relevant outcomes in the methods section are reported in the results section). Score - if some important outcomes are subsequently omitted from the results.]	[State whether the study was free from selective outcome reporting.]
9. Was the study free from other risks of bias?	[Click here to choose a decision. Score ++ if there is no evidence of other risk of biases.]	[State whether the study was free from other risks of bias.]

9. Appendix 4 Excluded studies

Study	Reason for Exclusion
Appendices to NAT's Practical Guide For Commissioners (Second Edition), 2013	No studies, only case studies of current practice
Aaron, Erika, Yates, Lucy, Criniti, Shannon, Agate, Beckley Billingsly Bolton Brown Carey Dixon Francis Francis Kennedy Lincoln Ross-Russell Schlaff Wells, A collaborative HIV prevention and education initiative in a faith-based setting, JANAC: Journal of the Association of Nurses in AIDS Care, 22, 150-157, 2011	Awareness raising outcomes not relevant
Adam, Barry D., Murray, James, Ross, Suzanne, Oliver, Jason, Lincoln, Stephen G., Rynard, Vicki, hivstigma.com, an innovative web-supported stigma reduction intervention for gay and bisexual men, Health education research, 26, 795-807, 2011	Not about HIV test uptake
Ades, A. E., Cliffe, S., Markov chain Monte Carlo estimation of a multiparameter decision model: consistency of evidence and the accurate assessment of uncertainty, Medical decision making : an international journal of the Society for Medical Decision Making, 22, 359-71, 2002	No outcomes reported relevant to review
Ades, A. E., Sculpher, M. J., Gibb, D. M., Gupta, R., Ratcliffe, J., Cost effectiveness analysis of antenatal HIV screening in United Kingdom, BMJ (Clinical research ed.), 319, 1230-4, 1999	Antenatal screening not covered by the review
Adhyaru, B., Cutro, S., Maalouf, S., Massoomi, M., Mudaliar, U., Nieva, R., Poole, J., Reddy, A., Sawaya, F., White, D., Doyle, J., Cosco, D., Ilksoy, N., Improving hiv screening rates in patients 18 to 64, Journal of Investigative Medicine, 59, 534, 2011	Conference abstract
Agate, Lisa L., Cato-Watson, D'Mrtri, Mullins, Jolene M., Scott, Gloria S., Rolle, Vanice, Markland, Donna, Roach, David L., Churches United to Stop HIV (CUSH): a faith-based HIV prevention initiative, Journal of the National Medical Association, 97, 60S-63S, 2005	Not a comparative study
Agate, Lisa L., Mullins, Jolene M., Prudent, Ella S., Liberti, Thomas M., Strategies for reaching retirement communities and aging social networks: HIV/AIDS prevention activities among seniors in South Florida, Journal of acquired immune deficiency syndromes (1999), 33 Suppl 2, S238-42, 2003	Not a comparative study
Ahmed, N., Herbert, S., Jungmann, E., Are SMS reminders useful to reduce DNA in routine gum clinics?, HIV medicine, 15, 22, 2014	Conference abstract
Albarracin, Dolores, Gillette, Jeffrey C., Earl, Allison N., Glasman, Laura R., Durantini, Marta R., Ho, Moon-Ho, A test of major assumptions about behavior change: a comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic, Psychological bulletin, 131, 856-97, 2005	Not about changes in test uptake - about condom use
Alemagno, Sonia A., Stephens, Richard C., Stephens, Peggy, Shaffer-King, Peggy, White, Patrick, Brief motivational intervention to reduce HIV risk and to increase HIV testing among offenders under community supervision, Journal of correctional health care : the official journal of the National Commission on Correctional Health Care, 15, 210-21, 2009	The study included participants who had already tested positive for AIDS
Alvarez-del Arco, Debora, HIV testing and counselling for migrant populations living in high-income countries : a systematic review, European journal of public health, 2013	Doesn't address qualitative barriers and facilitators.
Anagrius, C., Ruden, A. K., Sandstrom, E., HIV testing in Swedish STD clinic 1986-1994, International Journal of STD and AIDS, 9, 457-462, 1998	No intervention
Anaya, H., Bokhour, B., Feld, J., Golden, J., Qualitative assessment of implementing routine rapid HIV testing, Journal of the International Association of Physicians in AIDS Care, 9, 47-48, 2010	Conference abstract
Anaya, Henry D., Bokhour, Barbara, Feld, Jamie, Golden, Joya F., Asch, Steven M., Knapp, Herschel, Implementation of routine rapid HIV testing within the U.S. Department of Veterans Affairs Healthcare System,	Not UK qual

Journal for healthcare quality : official publication of the National Association for Healthcare Quality, 34, 7-14, 2012	
Anaya, Henry D., Chan, Kee, Karmarkar, Uday, Asch, Steven M., Bidwell Goetz, Matthew, Budget impact analysis of HIV testing in the VA healthcare system, Value in health : the journal of the International Society for Pharmacoeconomics and Outcomes Research, 15, 1022-8, 2012	Does not assess costs of a specific intervention
Andrews, Nancy, Rapid oral HIV screening tests, Dental assistant (Chicago, Ill. : 1994), 76, 27, 2007	Not a comparative study
Anim, Mamle, Markert, Ronald J., Okoye, Nkeiruka E., Sabbagh, Wissam, HIV screening of patients presenting for routine medical care in a primary care setting, Journal of primary care & community health, 4, 28-30, 2013	Not a before and after study
Anonymous,, Doctors' reactions mixed on routine HIV testing, AIDS policy & law, 21, 5, 2006	opinion/commentary
Anonymous,, Pilot study: an ED-based HIV screening program can be more productive when combined with a peer referral program, ED management : the monthly update on emergency department management, 25, 103-5, 2013	magazine article
Anselme-Tanguy, K., Daubert, H., Mendel, I., Budet, J. M., Goria, O., Colin, R., Czernichow, P., Evaluation of spontaneous screening for HCV and HIV before and after blood transfusion at the Rouen University Hospital, Transfusion Clinique et Biologique, 7, 479-484, 2000	Article not in English
Apoola, Ade, Brunt, Lynne, 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, 30, 101-3, 2011	Not about HIV test uptake
Arfai, N., Squires, K., Ezeala, Y., Carolfi, L., Moon, J., Lopez, B., Brigham, J., Demographics and risk factors of patients who decline opt-in hiv screenings in an urban emergency department, Annals of emergency medicine, 58, S200, 2011	research forum abstract only
Arnold, Emily A., Rebchook, Gregory M., Kegeles, Susan M., 'Triply cursed': racism, homophobia and HIV-related stigma are barriers to regular HIV testing, treatment adherence and disclosure among young Black gay men, Culture, health & sexuality, 16, 710-22, 2014	Not UK qual
Aronson, I. D., Rajan, S., Marsch, L. A., Bania, T. C., A close examination of increased HIV testing following a computer-based video intervention in the ed, Academic emergency medicine, 20, S78-S79, 2013	Conference abstract
Aronson, I. D., Rajan, S., Marsch, L. A., Koken, J., Bania, T., Comparative efficacy of a computer-based HIV testing video intervention in sites of varying HIV prevalence, Drug and alcohol dependence, 146, e210, 2015	Conference abstract
Aronson, Ian David, Marsch, Lisa A., Rajan, Sonali, Koken, Juline, Bania, Theodore C., Computer-Based Video to Increase HIV Testing Among Emergency Department Patients Who Decline, AIDS and behavior, 19, 516-522, 2015	Not a comparative study
Arrington-Sanders, R., Ellen, J., Leonard, L., The impact of HIV self-efficacy on attitudes toward routine HIV testing among sexually active adolescents, Journal of Adolescent Health, 44, S28, 2009	Conference abstract
Arriola, K. R., Braithwaite, R. L., Kennedy, S., Hammett, T., Tinsley, M., Wood, P., Arboleda, C., A collaborative effort to enhance HIV/STI screening in five county jails, Public health reports (Washington, D.C. : 1974), 116, 520-9, 2001	Audit
Arya, M., Zheng, M. Y., Amspoker, A. B., Kallen, M. A., Street, R. L., Viswanath, K., Giordano, T. P., In the routine HIV testing era, primary care physicians in community health centers remain unaware of HIV testing recommendations, Journal of the International Association of Providers of AIDS Care, 13, 296-299, 2014	Survey, no intervention
Arya, Monisha, Using the media to increase HIV knowledge and promote HIV testing, The American journal of the medical sciences, 340, 343-344, 2010	Letter
Arya, Monisha, Amspoker, Amber B., Lalani, Naina, Patuwo, Beverly, Kallen, Michael, Street, Richard, Viswanath, Kasisomayajula, Giordano, Thomas P., HIV testing beliefs in a predominantly Hispanic community health center during the routine HIV testing era: does English language ability matter?, AIDS patient care and STDs, 27, 38-44, 2013	Survey

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Lifson, Alan R., Rybicki, Sarah L., Hadsall, Candy, Dickinson, Stacy, Van Zyl, Alyssa, Carr, Peter, A training program for nurses and other health professionals in rural-based settings on screening and clinical management of HIV and other sexually transmitted infections, The Journal of the Association of Nurses in AIDS Care : JANAC, 20, 77-85, 2009	Not about hiv test uptake
Lima, Viviane D., Graf, Isabell, Beckwith, Curt G., Springer, Sandra, Altice, Frederick L., Coombs, Daniel, Kim, Brian, Messina, Lauren, Montaner, Julio S. G., Spaulding, Anne, The Impact of Implementing a Test, Treat and Retain HIV Prevention Strategy in Atlanta among Black Men Who Have Sex with Men with a History of Incarceration: A Mathematical Model, PloS one, 10, e0123482, 2015	Model
Lorenc, Theo, HIV testing among men who have sex with men (MSM): systematic review of qualitative evidence, Health education research, 26, 2011	SR
Lorenc, Theo, Marrero-Guillamon, Isaac, Aggleton, Peter, Cooper, Chris, Llewellyn, Alexis, Lehmann, Angela, Lindsay, Catriona, Promoting the uptake of HIV testing among men who have sex with men: systematic review of effectiveness and cost-effectiveness, Sexually transmitted infections, 87, 272-8, 2011	SR
MacQueen, Kathleen M., Chen, Mario, Jolly, David, Mueller, Monique P., Okumu, Eunice, Eley, Natalie T., Laws, Michelle, Isler, Malika Roman, Kalloo, Allison, Rogers, Randy C., HIV Testing Experience and Risk Behavior Among Sexually Active Black Young Adults: A CBPR-Based Study Using Respondent-Driven Sampling in Durham, North Carolina, American journal of community psychology, 55, 433-43, 2015	No discussion of barriers or facilitators.

Mahajan, A. P., Sayles, J. N., Kinsler, J., James, S., Rurangirwa, J., Manchanda, R., Makam, L., Shapiro, M., Toward universal HIV testing: Is the CDC recommendation of "opt-out" screening the answer?, Journal of general internal medicine, 26, S138, 2011	Presentation.
Manavi, K., Williams, G., Newton, R., The uptake of HIV and syphilis testing in a nurse-delivered service during Gay Pride events, International journal of STD & AIDS, 23, 887-9, 2012	Not a comparative study
Manirankunda, Lazare, Loos, Jasna, Alou, Therese Assebide, Colebunders, Robert, Nostlinger, Christiana, "It's better not to know": perceived barriers to HIV voluntary counseling and testing among sub-Saharan African migrants in Belgium, AIDS education and prevention : official publication of the International Society for AIDS Education, 21, 582-93, 2009	Not UK qual
Manirankunda, Lazare, Loos, Jasna, Debackaere, Pieterjan, Nostlinger, Christiana, "It is not easy": challenges for provider-initiated HIV testing and counseling in Flanders, Belgium, AIDS education and prevention : official publication of the International Society for AIDS Education, 24, 456-68, 2012	Not UK qual
Mao, Wen wen, Zhang, Ling lin, Xiao, Yan, Jiang, Bao fa, Zhu, Jun ling, Ma, Wei, Ruan, Yu hua, Jia, Yu jiang, Barriers and enabling factors of voluntary HIV counseling and testing among injection drug users and their attitudes towards peer opinion leader-led HIV testing through diffusion of positive AIDS care messages [J], Journal of Shandong University (Health Sciences), 1, 040, 2010	Not English language
McCarthy, J. J., Green, P., Malone, K., Mitts, B., Freeman, C., Giordano, T., Hoxhaj, S., Roberts, M., Kachalia, N., McNeese-Ward, M., A novel approach to emergency department HIV testing - conventional testing rapidly: 427 new positives and 55,529 tests in 16 months, Academic emergency medicine, 17, S58, 2010	Conference abstract
McCarty, Wendy L., A study of the effectiveness of a designed intervention on hiv testing rates of injecting drug users, Dissertation Abstracts International: Section B: The Sciences and Engineering, 64, 6041, 2004	Abstract of presentation.
McCoy, Sandra I., Miller, William C., MacDonald, Pia D. M., Hurt, Christopher B., Leone, Peter A., Eron, Joseph J., Strauss, Ronald P., Barriers and facilitators to HIV testing and linkage to primary care: narratives of people with advanced HIV in the Southeast, AIDS care, 21, 1313-20, 2009	Not UK qual
McCoy, Sandra I., Shiu, Karen, Martz, Tyler E., Smith, Carla Dillard, Mattox, Loris, Gluth, Dale R., Murgai, Neena, Martin, Marsha, Padian, Nancy S., Improving the efficiency of HIV testing with peer recruitment, financial incentives, and the involvement of persons living with HIV infection, Journal of acquired immune deficiency syndromes (1999), 63, e56-63, 2013	Outcomes not relevant to review
McDaid, Lisa M., Hart, Graham J., Increased HIV testing and reduced undiagnosed infection among gay men in Scotland, 2005-8: support for the opt-out testing policy?, Sexually transmitted infections, 87, 221-4, 2011	Not an intervention study
McGee, Warner L., Applying critical race theory to understand HIV testing experiences of Black men with same-sex attraction in the U.S, Dissertation Abstracts International: Section B: The Sciences and Engineering, 72, 7313, 2012	Not UK qual
McInnes, D. Keith, Solomon, Jeffrey L., Bokhour, Barbara G., Asch, Steven M., Ross, David, Nazi, Kim M., Gifford, Allen L., Use of electronic personal health record systems to encourage HIV screening: an exploratory study of patient and provider perspectives, BMC research notes, 4, 295, 2011	Not UK qual
McMullen, H., Griffiths, C., Leber, W., Hart, G., Anderson, J., The realities of rapid HIV testing in primary care: Initial qualitative findings from the RHIVA 2 trial, HIV medicine, 13, 63, 2012	Conference abstract
Medford-Davis, L. N., Yang, K., Pillow, M. T., Pasalar, S., Peacock, W., Giordano, T. P., Hoxhaj, S., Unintended adverse consequences of electronic health record introduction to a mature universal HIV screening program, Academic emergency medicine, 21, S86-S87, 2014	Conference abstract
Medina, Catherine K., Beyond routine HIV testing: beliefs, perceptions and experiences of low-income women of color, SCO does not import this, 8, 219-237, 2009	Not UK qual

Menacho, I., Sequeira, E., Muns, M., Barba, O., Leal, L., Clusa, T., Fernandez, E., Moreno, L., Raben, D., Lundgren, J., Gatell, J., Garcia, F., Cayuelas, L., Aragunde, V., Vergara, M., Catalan, M., Moreno, M., Hormigo, G., Siso, A., Herreras, Z., Sebastian, L., Benito, L., Picas, A., Hoyo, J., Giner, M., Cararach, D., Moles, E., Moro, M., Arrabal, P., Roca, D., Prego, S., Ferrer, X., Egido, A., Ventosa, C., Garcia, S., Munoz, S., Massana, A., Sole, J., Curiel, M., Heras, F., Leon, A., Comparison of two HIV testing strategies in primary care centres: Indicator-condition-guided testing vs. testing of those with non-indicator conditions, HIV medicine, 14, 33-37, 2013	No intervention to increase testing.
Merchant, R. C., Baird, J. R., Liu, T., Taylor, L. E., Montague, B., Nirenberg, T., Does a brief intervention increase HIV/HCV screening among drug-using emergency department patients?, Academic emergency medicine, 21, S305-s306, 2014	Conference abstract
Meyerson, B. E., Ryder, P. T., Von Hippel, C., Coy, K., More than just selling the test: Pharmacist opinion about the sale of over the counter HIV rapid tests, Sexually transmitted infections, 89, 2013	Poster abstract
Meyerson, Beth E., Ryder, Priscilla T., von Hippel, Christiana, Coy, Kelsey, We can do more than just sell the test: pharmacist perspectives about over-the-counter rapid HIV tests, AIDS and behavior, 17, 2109-13, 2013	Not UK qual
Millett, D., Creighton, S., Increasing GPs' understanding of HIV may affect their HIV testing rates, HIV medicine, 11, 112-113, 2010	Poster abstract
Millett, Danna, Standardised opt-out testing for HIV, Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association, 19, 14-8, 2011	Literature review
Minniear, Timothy D., Gilmore, Barry, Arnold, Sandra R., Flynn, Patricia M., Knapp, Katherine M., Gaur, Aditya H., Implementation of and barriers to routine HIV screening for adolescents, Pediatrics, 124, 1076-84, 2009	not a comparative study
Montoy, J. C., Chan, G. K., Mahadevan, S. V., Opt-in versus opt-out HIV screening in emergency departments: A randomized trial, Annals of emergency medicine, 60, S103, 2012	Research forum abstract only
Montoy, J. C., Kaplan, B. C., Dow, W. H., HIV screening in the emergency department: To test or not to test? It depends on the question, Annals of emergency medicine, 60, S74, 2012	Research forum abstract only
Montoy, J. C., Kaplan, B. C., Dow, W. H., Can a universal HIV screening policy accomplish targeted testing? Results from a trial of monetary incentives, Annals of emergency medicine, 60, S82, 2012	Research forum abstract only
Moon, J. C., Arfai, N., Carolfi, L., Cost-utility analysis of rapid hiv testing in an urban emergency department, Annals of emergency medicine, 58, S199, 2011	Research forum abstract only
Moore, D. R., Kulig, C. C., Harris, R. H., Keniston, A., Boyd, N. G., Simple outpatient reminders increase screening for HIV, but not hepatitis A and B vaccination in hepatitis C infection, Gastroenterology, 138, S840, 2010	Conference abstract
Myers, T., Muvva, R., Nganga-good, C., Ndirangu, H., Fields, N., Taking HIV testing to those at the highest risk: Testing in non-traditional venues through outreach in Baltimore, Maryland, Sexually transmitted diseases, 41, S12, 2014	Conference abstract
Nelson, Kimberly M., Thiede, Hanne, Hawes, Stephen E., Golden, Matthew R., Hutcheson, Rebecca, Carey, James W., Kurth, Ann, Jenkins, Richard A., Why the wait? Delayed HIV diagnosis among men who have sex with men, Journal of urban health : bulletin of the New York Academy of Medicine, 87, 642-55, 2010	Not UK qual
Nelson, Kimberly M., Thiede, Hanne, Jenkins, Richard A., Carey, James W., Hutcheson, Rebecca, Golden, Matthew R., Personal and contextual factors related to delayed HIV diagnosis among men who have sex with men, AIDS education and prevention : official publication of the International Society for AIDS Education, 26, 122-33, 2014	Not UK qual
Noble, H., Samba-Gomez, S., Fakoya, A., Kalema, C., Tawana, C., Poor uptake of an HIV testing service for men expecting a baby - The TOPAN experience, HIV medicine, 10, 40, 2009	Conference abstract
Nunn, Amy, Eng, Whitney, Cornwall, Alexandra, Beckwith, Curt, Dickman, Samuel, Flanigan, Timothy, Kwakwa, Helena, African American patient experiences with a rapid HIV testing program in an urban public clinic, Journal of	Not UK qual

the National Medical Association, 104, 5-13, 2012	
O'Byrne, Patrick, Watts, Jessica, Include, differentiate and manage: gay male youth, stigma and healthcare utilization, Nursing inquiry, 21, 20-9, 2014	Not UK qual
Ojo, Olumuyiwa, Verbeek Jos, H., Rasanen, Kimmo, Heikkinen, Jarmo, Isotalo Leena, K., Mngoma, Nomusa, Ruotsalainen, Eija, Interventions to reduce risky sexual behaviour for preventing HIV infection in workers in occupational settings, Cochrane Database of Systematic Reviews, 2011	Review
Osoti, A., John-Stewart, G., Kairie, J., Kinuthia, J., Richardson, B., Krakowiak, D., Farquhar, C., Home, Antenatal Clinic or VCT: Preferences of Pregnant Women and Their Partners for Male HIV Testing, Topics in antiviral medicine, 22, 462, 2014	Conference abstract
Paltiel, A. David, Walensky, Rochelle P., Schackman, Bruce R., Seage, George R., 3rd, Mercincavage, Lauren M., Weinstein, Milton C., Freedberg, Kenneth A., Expanded HIV screening in the United States: effect on clinical outcomes, HIV transmission, and costs, Annals of internal medicine, 145, 797-806, 2006	Looks at costs of population screening
Pedrana, A., Stoove, M., Bowring, A., Hellard, M., Guy, R., Easy access "community-based HIV testing services for gay men: A systematic review", Sexually transmitted infections, 87, A348-A349, 2011	Conference abstract
Pedrana, A., Stoove, M., Bowring, A., Hellard, M., Guy, R., Accepting the good with the bad: "Barriers and facilitators of community-based HIV testing services for gay men: A systematic review", Sexually transmitted infections, 87, A349, 2011	Poster
Pedrana, Alisa, Hellard, Margaret, Guy, Rebecca, El-Hayek, Carol, Gouillou, Maelenn, Asselin, Jason, Batrouney, Colin, Nguyen, Phuong, Stoove, Mark, Stop the drama Downunder: a social marketing campaign increases HIV/sexually transmitted infection knowledge and testing in Australian gay men, Sexually transmitted diseases, 39, 651-8, 2012	Not a comparative study
Pinkerton, Steven D., Bogart, Laura M., Howerton, Devery, Snyder, Susan, Becker, Kirsten, Asch, Steven M., Cost of rapid HIV testing at 45 U.S. hospitals, AIDS patient care and STDs, 24, 409-13, 2010	Not correct study type
Pizzo, E., Rayment, M., Thornton, A., Hartney, T., Atkins, M., Jones, R., Nardone, A., Roberts, P., Tenant-Flowers, M., Anderson, J., Sullivan, A., Cost effectiveness of routine HIV testing in non-traditional settings, HIV medicine, 13, 58, 2012	Conference abstract
Pizzo, E., Rayment, M., Thornton, A., Rae, C., Hartney, T., Delpech, V., Atkins, M., Jones, R., Nardone, A., Roberts, P., Tenant-Flowers, M., Anderson, J., Sullivan, A., Cost-effectiveness analysis of HIV testing in non-traditional settings-the HINTS study, HIV medicine, 15, 93, 2014	Conference abstract
Portman, M., Aung, S., Brigstock-Barron, O., Hunt, T., Doyle, T., Smith, A., Hirst, J., Evans, A., T'HIV'K goes North: Outcomes and experience of UK HIV Testing week in a northern UK city, HIV medicine, 14, 19, 2013	Poster abstract
Portman, M., Doyle, T., Hill, E., Hirst, J., Smith, A., Aung, S., Sowerbutts, H., Evans, A., Schoeman, S., National HIV testing week-a celebration!, HIV medicine, 15, 113-114, 2014	Poster
Pottie, Kevin, Medu, Olanrewaju, Welch, Vivian, Dahal, Govinda P., Tyndall, Mark, Rader, Tamara, Wells, George, Effect of rapid HIV testing on HIV incidence and services in populations at high risk for HIV exposure: an equity-focused systematic review, BMJ open, 4, e006859, 2014	Review
Prekker, M. E., Gary, B., Olives, T., Patel, R., Gordon, S., Schut, R., Gray, R. O., Non-targeted opt-out screening using rapid tests for human immunodeficiency virus in the emergency department: A comparison with physician-directed testing, Academic emergency medicine, 18, S118-S119, 2011	Conference abstract
Ryder, Priscilla T., Meyerson, Beth E., Coy, Kelsey C., von Hippel, Christiana D. J., Pharmacists' perspectives on HIV testing in community pharmacies, Journal of the American Pharmacists Association : JAPhA, 53, 595-600, 2013	Not UK qual
Santiago, J., Adrien, A., Spigner, C., Katz, A., Identifying practices and strategies to increase HIV testing among	Poster presentation

Haitian migrant communities, Retrovirology, 7, P111, 2010	
Schnall, Rebecca, Clark, Sunday, Olender, Susan, Sperling, Jeremy D., Providers' perceptions of the factors influencing the implementation of the New York State mandatory HIV testing law in two Urban academic emergency departments, Academic emergency medicine : official journal of the Society for Academic Emergency Medicine, 20, 279-86, 2013	Not UK qual
Schwartz, Robert P., Stitzer, Maxine L., Feaster, Daniel J., Korthuis, P. Todd, Alvanzo, Anika A. H., Winhusen, Theresa M., Donnard, Lillian, Snead, Ned, Metsch, Lisa R., HIV rapid testing in drug treatment: comparison across treatment modalities, Journal of substance abuse treatment, 44, 369-74, 2013	Post-hoc analysis - outcomes not relevant. Parent trial included.
Shahkolahi, M. M., Wilson, A., Zucker, L., Mobile-application-based HIV intervention: An opt-in approach to promote rapid HIV screening in an inner-city emergency department, Annals of emergency medicine, 62, S95, 2013	Research forum abstract only
Shiu, K., Acland, D., Padian, N., McCoy, S., Identifying persons living with HIV infection through social network HIV testing-a cost effectiveness analysis, Sexually transmitted diseases, 41, S74, 2014	Conference poster
Siegel, Karolynn, Abel, Stephen N., Pereyra, Margaret, Liguori, Terri, Pollack, Harold A., Metsch, Lisa R., Rapid HIV testing in dental practices, American journal of public health, 102, 625-32, 2012	Not UK qual
Simmons, Emma M., Brown, Monique J., Sly, Kaye, Ma, Mindy, Sutton, Madeline Y., McLellan-Lemal, Eleanor, Barriers and facilitators to HIV testing in primary care among health care providers, Journal of the National Medical Association, 103, 432-8, 2011	Not UK qual
Simpson, W. M., Johnstone, F. D., Boyd, F. M., Goldberg, D. J., Hart, G. J., Gormley, S. M., Hamilton, B. A., A randomised controlled trial of different approaches to universal antenatal HIV testing: Uptake and acceptability, Health Technology Assessment, 3, x-79, 1999	Antenatal testing
Sison, Nathan, Yolken, Annajane, Poceta, Joanna, Mena, Leandro, Chan, Philip A., Barnes, Arti, Smith, Erin, Nunn, Amy, Healthcare provider attitudes, practices, and recommendations for enhancing routine HIV testing and linkage to care in the Mississippi Delta region, AIDS patient care and STDs, 27, 511-7, 2013	Not UK qual
Sokhi, D., Oxenham, C., Blackburn, D., Gupta, N., Price, S., Audit of the impact of an HIV testing protocol for acute neurology admissions to a tertiary centre, HIV medicine, 14, 49, 2013	Poster
Suthar, Amitabh B., Ford, Nathan, Bachanas, Pamela J., Wong, Vincent J., Rajan, Jay S., Saltzman, Alex K., Ajose, Olawale, Fakoya, Ade O., Granich, Reuben M., Negussie, Eyerusalem K., Baggaley, Rachel C., Towards universal voluntary HIV testing and counselling: a systematic review and meta-analysis of community-based approaches, PLoS medicine, 10, e1001496, 2013	SR
Sydney, E. R., Demas, P., Leider, J., Increasing HIV testing in primary care: Overcoming barriers and lessons learned, Journal of general internal medicine, 27, S229, 2012	Conference abstract
Tariq, S., Bath, R., Tillett, S., Nori, A., Saunders, J., Mandersloot, G., Orkin, C., Opt-out HIV testing within intensive care in a large urban hospital: An innovative testing initiative, HIV medicine, 14, 46, 2013	poster
Uhrig, J. D., Davis, K. C., Rupert, D., Fraze, J., Behavioural precursors and HIV testing behaviour among African American women, Health Education Journal, 71, 102-114, 2012	Survey, no intervention
Underhill, K., Morrow, K., Holcomb, R., Operario, D., Mayer, K., Behavior disclosure, access to healthcare, and HIV/STI testing among male sex workers and other MSM in the us: Findings from a qualitative study on prep acceptability, Sexually transmitted diseases, 41, S103, 2014	Poster abstract
Van Handel, Michelle, Mulatu, Mesfin S., Effectiveness of the U.S. national HIV testing day campaigns in promoting HIV testing: evidence from CDC-funded HIV testing sites, 2010, Public health reports (Washington, D.C. : 1974), 129, 446-54, 2014	Data crunching
VanDevanter, Nancy, Combellick, Joan, Hutchinson, M. Katherine, Phelan, Joan, Malamud, Daniel, Shelley, Donna,	Not UK qual

A Qualitative Study of Patients' Attitudes toward HIV Testing in the Dental Setting, Nursing research and practice, 2012, 803169, 2012	
Vidanapathirana, Janaki, Abramson Michael, J., Forbes, Andrew, Fairley, Christopher, Mass media interventions for promoting HIV testing, Cochrane Database of Systematic Reviews, 2005	Review
Vieira, J. C., De Tubino Scanavino, M., Proposal for a semi structured interview of HIV pre-test for sexually compulsive individuals, Journal of Sexual Medicine, 10, 395, 2013	Poster abstract
Villari, P., Fattore, G., Siegel, J. E., Paltiel, A. D., Weinstein, M. C., Economic evaluation of HIV testing among intravenous drug users. An analytic framework and its application to Italy, International journal of technology assessment in health care, 12, 336-57, 1996	No specific intervention - looks at testing in specific population group
Walensky, Rochelle P., Weinstein, Milton C., Smith, Heather E., Freedberg, Kenneth A., Paltiel, A. David, Optimal allocation of testing dollars: the example of HIV counseling, testing, and referral, Medical decision making : an international journal of the Society for Medical Decision Making, 25, 321-9, 2005	Does not assess cost effectiveness of a specific intervention
Wallace, Scyatta A., McLellan-Lemal, Eleanor, Harris, Muriel J., Townsend, Tiffany G., Miller, Kim S., Why take an HIV test? Concerns, benefits, and strategies to promote HIV testing among low-income heterosexual African American young adults, Health education & behavior : the official publication of the Society for Public Health Education, 38, 462-70, 2011	Not UK qual
Wallis, E., Saunders, J., Orkin, C., An audit of HIV testing rates in patients admitted with pneumonia pre- and post-implementation of opt-out HIV testing for acute medical admissions, Sexually transmitted infections, 89, 2013	Poster abstract
Wei, Chongyi, Herrick, Amy, Raymond, H. Fisher, Anglemyer, Andrew, Gerbase, Antonio, Noar Seth, M., Social marketing interventions to increase HIV/STI testing uptake among men who have sex with men and male-to-female transgender women, Cochrane Database of Systematic Reviews, 2011	Review
Wertheimer, S. M., Women and HIV testing in Canada: Barriers to testing as identified by service providers, Canadian Journal of Infectious Diseases and Medical Microbiology, 22, 97B, 2011	Narrative review
White, D. A. E., Alter, H. J., Adler, N., Clark, M. C., Frazee, B. W., Influence of an emergency department laboratory order set on rates of HIV and syphilis screening among patients tested for gonorrhea and chlamydia, Academic emergency medicine, 19, S295, 2012	Conference abstract
Wright, Patricia B., Curran, Geoffrey M., Stewart, Katharine E., Booth, Brenda M., A qualitative analysis of provider barriers and solutions to HIV testing for substance users in a small, largely rural southern state, The Journal of rural health : official journal of the American Rural Health Association and the National Rural Health Care Association, 29, 420-31, 2013	Not UK qual
Young, S. D., Holloway, I., Jaganath, D., Rice, E., Westmoreland, D., Coates, T., Project HOPE: online social network changes in an HIV prevention randomized controlled trial for African American and Latino men who have sex with men, American journal of public health, 104, 1707-12, 2014	Not about the impact of the intervention on test uptake
Young, Sean D., Daniels, Joseph, Chiu, ChingChe J., Bolan, Robert K., Flynn, Risa P., Kwok, Justin, Klausner, Jeffrey D., Acceptability of using electronic vending machines to deliver oral rapid HIV self-testing kits: a qualitative study, PloS one, 9, e103790, 2014	Not UK qual

10. Appendix 5 Search strategy

HIV testing review PH33 PH34 Medline v5

Database(s): **Ovid MEDLINE(R)** 1946 to May Week 5 2015

Search Strategy:

#	Searches	Results
1	exp hiv/	85821
2	hiv infections/di, pc	40417
3	(test or tests or tested or testing).tw.	1974110
4	(1 or 2) and 3	23518
5	((hiv or human immunodeficiency virus) adj3 (test or tests or tested or testing)).tw.	16994
6	((hiv or human immunodeficiency virus) adj3 ((home or self) adj sampl*)).tw.	2
7	((hiv or human immunodeficiency virus) adj3 (voluntary counsel?ing or VCT)).tw.	354
8	((hiv or human immunodeficiency virus) and (hiv-ct or hct) and (test or tests or tested or testing)).tw.	110
9	((undiagnosed adj3 HIV) and (test or tests or tested or testing)).tw.	223
10	or/5-9	17135
11	4 or 10	30795
12	(((delayed or early) adj diagnosis) and (test or tests or tested or testing)).tw.	8235
13	((uptake or up-take or up take or takeup or take-up) and (test or tests or tested or testing)).tw.	34208
14	((expanded or targeted or screening) adj3 (test or tests or tested or testing)).tw.	30520
15	((behavior* or behaviour*) adj3 (change* or changing or alter* or modification* or modify or modifying or modifies or modified)).tw.	54155
16	((barrier* or block* or obstacle* or restrict* or restrain* or obstruct* or inhibit* or imped* or delay* or constrain* or hindrance or hinder* or prevent*) adj4 (aware* or demand or "use" or usage or accept* or referr* or self-referr* or avail* or provision or provid* or administrat* or opportunit* or incentiv*)).tw.	130462
17	culture/	28248
18	(culture* or cultural or acculturat*).tw.	824471

19	language/ or linguistics/ or communication barriers/	37607
20	((language* or linguistic* or communicat* or English) adj3 (problem* or difficult* or (limited adj2 proficienc*))).tw.	7100
21	(illiteracy or illiterate*).tw.	3370
22	((English adj3 (second language or foreign language)) or ESL).tw.	677
23	health status disparities/	8615
24	exp social behavior/	190512
25	prejudice/ or psychosocial deprivation/ or social values/ or cultural deprivation/	43173
26	socioeconomic factors/	119625
27	social class/ or social conditions/ or social control, formal/ or social control, informal/ or social environment/ or social isolation/	101847
28	exp poverty/	31982
29	(prejudice or discriminat* or "social value*" or poverty or depriv* or disparit*).tw.	257451
30	(social* adj (inclusion or include* or exclude* or exclusion)).tw.	1255
31	Stress, Psychological/ or Adaptation, Psychological/	154857
32	shame/	1654
33	(stigma* or shame* or shaming or psychosocial).tw.	77915
34	risk reduction behavior/	8364
35	((increas* or improv* or impact* or encourag* or enhanc* or support* or adopt* or assist* or affect* or optim* or rais* or promot* or facilitat*) adj4 (aware* or educ* or demand or "use" or usage* or accept* or referr* or self-referr* or avail* or provision or provid* or administrat* or opportunit* or incentiv*)).tw.	452676
36	((increas* or improv* or impact* or encourag* or enhanc* or support* or adopt* or assist* or affect* or optim* or rais* or promot* or facilitat*) adj4 (e-mail* or email* or electronic mail or letter* or invite or invitation* or telephone* or cellphone* or phone* or phoning or mobile* or text or texts or texting or SMS or Short Message Service or twitter or tweet* or facebook or social media or social marketing or mass media or target* or chat room* or chatroom* or billboard* or flyer* or poster* or hand out* or hand-out* or handout* or information or communication* or leaflet* or radio or television or tv or newspaper* or magazine* or newsletter* or pamphlet* or booklet* or poster* or workshop* or outreach or campaign*)).tw.	132177
37	*Marketing of Health Services/ or *Social Marketing/	10184

38	family practice/ or primary health care/ or physicians, family/	122611
39	((general or family) adj practi*).tw.	67925
40	(primary care or primary health care or family physic* or doctor*1 or general practitioner* or gp or gps).tw.	218089
41	(staff* or professional* or personnel* or worker* or clinician* or nurs* or service provider* or patient* or user* or client*).tw.	5129511
42	or/38-41	5266630
43	Attitude of Health Personnel/	95288
44	(attitude* or opinion* or belief* or believe* or perceiv* or perception* or experience* or stress* or emotion* or satisfact* or know* or understand* or aware* or perspective* or view* or motivat* or reason* or anx* or fear* or concern* or uncertain* or unsure or thought* or feeling*).tw.	4296532
45	43 or 44	4333637
46	42 and 45	1634103
47	or/12-37	2330094
48	46 or 47	3623466
49	11 and 48	12758
50	limit 49 to yr="1996 -Current"	10539
51	animal/ not (animal/ and human/)	3961836
52	50 not 51	10470
53	(letter or historical article or comment or editorial).pt.	1630384
54	52 not 53	10363
55	limit 54 to english language	9840
56	exp africa/ not exp great britain/	189387
57	55 not 56	7590
58	55 not 57	2250