

Literature search strategy

Databases were searched from January 2000 (generally from 2000; see PICO tables for specific dates for each question) to May 2017:

Ovid Medline, Medline daily update, Embase, Pubmed National electronic Library for Health (NeLH) Guidelines Database, Cochrane Library.

Search language English only. References in reviews and papers included.

Conference abstracts were searched from January 2014 to May 2017:

Conference on Retroviruses and Opportunistic Infections (CROI), HIV Glasgow, European AIDS Clinical Society (EACS), IAS Conference on HIV Pathogenesis and Treatment, BHIVA/BASHH annual conferences.

PICO (population, intervention, comparator, outcome) questions

PICO question 1

What is the prevalence of (previously undiagnosed) HIV infection in the following clinical presentations?

- Sexually transmitted infections
- Malignant lymphoma
- Anal cancer/dysplasia
- Cervical dysplasia
- Herpes zoster
- Hepatitis B or C (acute or chronic)
- Unexplained lymphadenopathy
- Mononucleosis-like illness
- Community-acquired pneumonia
- Unexplained leukocytopenia/thrombocytopenia lasting >4 weeks
- Seborrheic dermatitis/exanthema
- Invasive pneumococcal disease
- Unexplained fever
- Visceral leishmaniasis
- Pregnancy (implications for the unborn child)
- Primary lung cancer
- Lymphocytic meningitis
- Oral hairy leukoplakia
- Severe or atypical psoriasis
- Guillain–Barré syndrome
- Mononeuritis
- Subcortical dementia
- Multiple sclerosis-like disease
- Peripheral neuropathy
- Unexplained weight loss
- Unexplained oral candidiasis
- Unexplained chronic diarrhoea
- Unexplained chronic renal impairment
- Hepatitis A
- Candidiasis

PICO question 1 (to be repeated for each of the indicator conditions above)

	INCLUSION	EXCLUSION
Period of publication	January 1990 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Retrospective observational studies (e.g. case-control studies) • Laboratory-based publications • Commentary/opinion pieces 	<ul style="list-style-type: none"> • Studies determining prevalence of indicator conditions in patients with already diagnosed HIV infection
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥ 16 years) in Europe, N America, Australasia without a diagnosis of HIV at time of clinical presentation 	<ul style="list-style-type: none"> • Children (aged ≤ 15 years) • Adults (aged ≥ 16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Prevalence of newly diagnosed HIV infection in population presenting with indicator condition • Relative risk of subsequent HIV diagnosis in retrospective papers • Independent risk factors for HIV infection 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 2

What is the undiagnosed HIV prevalence at which it is cost-effective to screen a population?

	INCLUSION	EXCLUSION
Period of publication	January 2000 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Retrospective observational studies (e.g. case-control studies) • Pharmaco-economic descriptive studies • Pharmaco-economic modelling studies • Commentary/opinion pieces 	<ul style="list-style-type: none"> • Laboratory-based publications • Other non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials [unless include original data], comments, not referring to HIV testing)
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥ 16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤ 15 years) • Adults (aged ≥ 16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Cost-effectiveness of testing approaches 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 3

What interventions to implement routine HIV testing in various populations and settings have been shown to be effective and acceptable to patients and healthcare workers?

	INCLUSION	EXCLUSION
Period of publication	January 1995 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Retrospective observational studies (e.g. case-control studies) • Cross-sectional studies and mixed methodology studies (e.g. qualitative studies) aimed at addressing barriers to testing among patients and staff • Prospective quality improvement/sustainability methodology reports in healthcare and non-healthcare settings (e.g. community, occupational health) 	<ul style="list-style-type: none"> • Other non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials [unless include original data], comments, not referring to HIV testing)
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤15 years) • Adults (aged ≥16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Uptake and coverage of HIV testing • HIV positivity/diagnosis rates • Acceptability of testing approaches to patients and staff 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 4

What evidence is there to support opt-in, opt-out and notional consent for HIV testing to improve uptake?

	INCLUSION	EXCLUSION
Period of publication	January 1990 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Cross-sectional studies and mixed methodology studies aimed at addressing barriers to testing • Commentary/opinion pieces 	<ul style="list-style-type: none"> • Non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials [unless include original data], comments, not referring to HIV testing)
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤15 years) • Adults (aged ≥16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Description of barriers to HIV testing • Description of approaches applied aimed to increase HIV testing with specific reference to opt-in, opt-out and notional consent approaches • Uptake and coverage of HIV testing • HIV positivity/diagnosis rates • Acceptability of testing approaches • Cost-effectiveness of testing approaches 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 5

What are the barriers to HIV testing?

	INCLUSION	EXCLUSION
Period of publication	January 2000 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Cross-sectional studies and mixed methodology studies (e.g. qualitative studies) aimed at addressing barriers to testing among patients and staff • Prospective quality improvement/sustainability methodology reports in healthcare and non-healthcare settings (e.g. community, occupational health) 	<ul style="list-style-type: none"> • Commentary/opinion pieces
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤15 years) • Adults (aged ≥16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Description of barriers to HIV testing • Description of approaches applied aimed to increase HIV testing • Uptake and coverage of HIV testing • HIV positivity/diagnosis rates • Acceptability of testing approaches • Cost-effectiveness of testing approaches 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 6

What are effective interventions to overcome the barriers to HIV testing?

	INCLUSION	EXCLUSION
Period of publication	January 2000 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Retrospective observational studies (e.g. case-control studies) • Cross-sectional studies and mixed methodology studies (e.g. qualitative studies) aimed at addressing barriers to testing among patients and staff • Prospective quality improvement/sustainability methodology reports in healthcare and non-healthcare settings (e.g. community, occupational health) 	<ul style="list-style-type: none"> • Commentary/opinion pieces
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤15 years) • Adults (aged ≥16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Description of barriers to HIV testing • Description of approaches applied aimed to increase HIV testing • Uptake and coverage of HIV testing • HIV positivity/diagnosis rates • Acceptability of testing approaches • Cost-effectiveness of testing approaches 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 7

What is the evidence for routine HIV testing in high and very high prevalence areas?

	INCLUSION	EXCLUSION
Period of publication	January 2000 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Retrospective observational studies (e.g. case-control studies) • Laboratory-based publications (e.g. laboratory sentinel surveillance data) 	<ul style="list-style-type: none"> • Commentary/opinion pieces • Non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials [unless include original data], comments, not referring to HIV testing)
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤15 years) • Adults (aged ≥16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Description of barriers to HIV testing • Description of approaches applied aimed to increase HIV testing • Uptake and coverage of HIV testing • HIV positivity/diagnosis rates • Acceptability of testing approaches • Cost-effectiveness of testing approaches 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 8

What evidence is there to support frequency of testing in men who have sex with men, people who inject drugs, heterosexuals and commercial sex workers?

	INCLUSION	EXCLUSION
Period of publication	January 2000 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Retrospective observational studies (e.g. case-control studies) • Cross-sectional studies and mixed methodology studies (e.g. qualitative and behavioural/sexually transmitted infection studies) • Laboratory-based publications (e.g. incidence assay studies) 	<ul style="list-style-type: none"> • Commentary/opinion pieces • Non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials [unless include original data], comments, not referring to HIV testing)
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤15 years) • Adults (aged ≥16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Uptake and coverage of HIV testing • HIV positivity/diagnosis rates including HIV incidence if applicable • Acceptability of testing approaches • Cost-effectiveness of testing approaches 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 9

What is the evidence to support home testing, home sampling and community-based testing (both outreach and lay testers) and new testing technologies?

	INCLUSION	EXCLUSION
Period of publication	January 2005 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Randomised controlled trials • Non-randomised, prospective comparative studies • Prospective observational studies (e.g. cohort studies) • Retrospective observational studies (e.g. case-control studies) • Cross-sectional studies (e.g. semi-structured interviews) aimed at addressing barriers to testing • Cross-sectional studies and mixed methodology studies (e.g. qualitative and behavioural studies) • Laboratory-based publications/ publications from providers of home sampling and home testing kits • Prospective quality improvement/sustainability methodology reports relating to home sampling and home testing (e.g. community, occupational health) 	<ul style="list-style-type: none"> • Commentary/opinion pieces • Non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials [unless include original data], comments, not referring to HIV testing)
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) in Europe, N America, Australasia 	<ul style="list-style-type: none"> • Children (aged ≤15 years) • Adults (aged ≥16 years) outside Europe, N America, Australasia
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Uptake and coverage of HIV testing • HIV positivity/diagnosis rates • Acceptability of testing approaches • Cost-effectiveness of testing approaches 	<ul style="list-style-type: none"> • No exclusion based on outcomes

PICO question 10

What is the window period for each of the HIV test methods?

	INCLUSION	EXCLUSION
Period of publication	January 2000 – May 2017	
Study design /type	<ul style="list-style-type: none"> • Meta-analyses or systematic reviews • Laboratory studies (e.g. validation studies with known seroconverter panels) • Commentary/opinion pieces 	<ul style="list-style-type: none"> • Non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials [unless include original data], comments, not referring to HIV testing)
Study quality	<ul style="list-style-type: none"> • Study duration (no minimum) • Number of subjects (no minimum) 	
Study population	<ul style="list-style-type: none"> • Adults (aged ≥16 years) 	<ul style="list-style-type: none"> • Children (aged ≤15 years)
Study comparison	<ul style="list-style-type: none"> • Not applicable 	
Specific outcomes of interest	<ul style="list-style-type: none"> • Performance characteristics of different HIV testing technologies (third and fourth generation), HIV viral load screening (pooled and individual), incidence assays • Performance characteristics of different specimen types (e.g. whole blood, capillary blood, oral fluid) 	<ul style="list-style-type: none"> • No exclusion based on outcomes