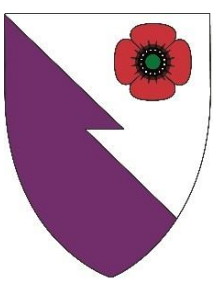
The Royal College of Emergency Medicine

Best Practice Guideline

HIV Testing in the Emergency Department



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Summary of Recommendations

1. Human Immunodeficiency Virus (HIV) testing should be performed in the emergency department (ED) setting when it influences immediate clinical management and improves patient care. Any doctor working in an emergency department should be able to organise and consent a patient for an HIV test. *Strong recommendation.*

2. The HIV seroprevalence rate in the catchment population should be known before any HIV testing program is introduced into the emergency department. *Strong recommendation.*

3. Consider offering routine Emergency Department HIV testing where the local diagnosed HIV prevalence is 2/1000 or greater, providing that appropriate funding, and systems are in place to support this. Emergency Departments are not a suitable environment for ad hoc screening programs where local prevalence rates are uncertain or below 2/1000. *Strong recommendation.*

4. Safeguards are required before introducing routine Emergency Department HIV or blood borne virus testing. These safeguards include: a systems-wide approach; adequate resources for training and education of staff, testing and follow up; and, the development of robust protocols for the transfer of patient care with reactive or positive results to appropriate care and support services. *Strong recommendation*.

Scope

This guideline has been developed to assist Emergency Physicians and healthcare managers in the establishment of human immunodeficiency virus (HIV) testing in Emergency Departments. The guideline offers recommendations regarding the principles and safeguards required for the implementation of HIV testing in the Emergency Department setting.

Reason for development

Early diagnosis and treatment for HIV prolongs life, reduces transmission, improves quality of life and has been demonstrated to be a cost-effective public health intervention.[1-9]

Routine offer of an HIV test is currently recommended for all medical admissions and all patients accessing secondary care, or having a planned venepuncture for any reason, in populations where the diagnosed HIV seroprevalence exceeds 2/1000.[10-12] Furthermore, the Chief Medical Officer (CMO) of England, Wales, Scotland and Northern Ireland has called on every doctor in the UK to improve the detection and diagnosis of HIV in non-HIV specialties in order to reduce the harm caused by late presentation.[13]

Prevalence of HIV in the Emergency Department setting

Evidence from the United States (US) indicates that infection with HIV is rising in non-traditional risk groups (e.g. racial and ethnic minorities, socioeconomically disadvantaged, heterosexual men and women) and the prevalence of undiagnosed infection remains relatively high in the patient populations in urban EDs.[14]

The unselected seroprevalence of HIV infection in urban EDs in the US ranges from approximately 1% to 4%. [2-5,14] Meanwhile, in the UK, estimates of undiagnosed HIV infections rely on data from unlinked anonymous (UA) surveys conducted in three selected audit populations: pregnant women, people who inject drugs and sexual health clinic attendees.[15]

No specific data regarding the prevalence of HIV infection in UK Emergency Departments currently exists, though the prevalence of HIV is usually higher in people who attend emergency departments than the local population. In 2018, there were an estimated 103,800 people living with HIV in the UK; 93% were diagnosed and 7% undiagnosed. There has been a decline in incidence since 2012, most evident in both MSM (men who have sex with men) and African populations, and is most likely due to an increase in testing, repeat testing and prompt initiation of antiretroviral therapy (treatment as prevention). More recently pre-exposure prophylaxis (PrEP) will have contributed to the continuing decline.[16] However, the National Institute for Clinical Excellence (NICE) Public Health Committee in the UK recommends HIV testing for all patients accessing secondary care (including Emergency Departments) or having a planned venepuncture for any reason in areas where the diagnosed HIV prevalence exceeds 2/1000.[11,12]You can check the most up to date HIV prevalence in your region here: https://www.gov.uk/government/collections/hiv-surveillance-data-and-management#regional-reports

HIV Testing in Emergency Departments

The evidence regarding how HIV testing in the Emergency Department affects length of stay and patient flow in the Emergency Department is contradictory. Evidence from the UK suggests that Emergency Department HIV testing may have no significant effect on the time spent with patients, ED patient flow or total time spent in the ED. [17,18] In contrast, US evidence suggests ED length of stay is significantly longer (approximately 1.7 hours added to the length of stay) if patients undergo counselling, testing, receive results and require onward referral in the Emergency Department.[14] Nevertheless, it is intuitively logical that HIV testing should be performed in the Emergency Department setting when it influences immediate clinical management and improves patient care.

There are a number of clinical situations where knowing the HIV status of a patient in the Emergency Department may be relevant to their care during that attendance and therefore testing should be performed. These include:

- Unwell patients in whom a diagnosis of HIV would influence immediate management.
- A patient presenting with an indicator condition (see Appendix 2)
- In occupational or post sexual exposure a blood sample for HIV should be taken, however, the serum is often saved for future testing

In addition, the BHIVA/BASHH/BIA Adult HIV Testing Guidelines 2020[10] now advise testing for HIV in the following population groups who are at increased risk of testing HIV positive. Testing in this groups is irrelevant of local seroprevalence. The attending ED clinician should consent and test the patient If there is an immediate clinical need, otherwise, the patient should be referred to the sexual health clinic for testing.

- MSM;
- Female sexual contacts of MSM;
- People reporting current or prior injecting drug use;
- Sex workers;
- Trans women;
- People from a country with high diagnosed seroprevalence (>1%)*;
- People reporting sexual contact with anyone from a country with high diagnosed seroprevalence regardless of where contact occurs.

Routine testing in the ED

Where local HIV prevalence rates exceed 2/1000, consideration should be given to routine testing of all adult patients who undergo blood tests. The guideline development group recognises that this may be challenging for Emergency Departments in the UK.

Costs to consider are for ED staff education and training, testing materials and laboratory time, and follow up processes. However, the cost benefit analysis in terms of both money and individual lives of identifying HIV infection early, commencing treatment and preventing onward transmission is significant[10] and UK ED's have a role to play in this.

Establishing HIV testing services in non-specialist settings raises issues regarding acceptability by patients and staff. Current evidence suggests that there is a high level of patient and

staff acceptability in the UK regarding the routine offer of HIV testing within non-specialist settings, including the Emergency Department.[17-20]

Possible ways to include routine HIV testing in the ED are:

- Using existing staff to deliver the test as an additional part of their care with consideration of altering the patient care pathway within the department
- Opt out mechanisms informing patients with leaflets and signposting on their attendance to ED
- Inclusion of HIV testing in the medical admissions proforma
- Introduction of a local performance indicator (CQUIN – commissioning for quality and innovation) for HIV testing among all acute admissions

Safeguards for HIV Testing in Emergency Departments

In general, the Emergency Department is not a suitable environment for ad hoc disease screening programs, particularly where local disease prevalence rates are uncertain. Emergency Physicians should know the diagnosed HIV seroprevalence rate in their catchment population before introducing HIV testing programs. The diagnosed HIV seroprevalence is well known for all areas in the UK and can be easily accessed via the Public Health England website.[15]

The following safeguards should be adopted if a routine HIV testing system in an emergency department is planned:

1. A systems-wide approach must be adopted. Emergency Department HIV testing should be integrated with the resources and governance of the entire health care system.[21]
2. Adequate funding must be available to meet the set-up and staffing costs required for its sustainability.[20,21]
3. Emergency Department HIV testing programs must be backed up by strong governance and effective pathways. These pathways for people with a positive test in the Emergency Department need to be robust because the negative and positive predictive values vary from test to test and depend on the local diagnosed HIV seroprevalence rate.[20,21] Additionally, care pathways must also take into account the seroconversion window period.
4. Consent for HIV testing in Emergency Departments should be bound by General Medical Council (GMC) guidance that applies to all diagnostic testing. [10] Lengthy pre-test counselling is not required. Information regarding the benefits of testing and how results will be given, should be provided.
5. HIV testing in the unconscious patient or patient who lacks capacity should be considered if it is in the interest of the patient and their clinical care.
6. The specificity of point of care HIV testing can be quite low. If point of care testing is used for HIV testing in the Emergency Department, it is mandatory to include a clear understandable and translated phrase so that patients understand what a reactive test means and that it DOES not mean they are HIV positive.
7. The responsibility for following up a patient with a positive test and subsequent contact tracing should belong to the appropriate sexual health service, not the emergency department.

Note: Testing for other Blood Borne Viruses within ED

Global strategies aim to eliminate the blood borne viruses (HIV, Hepatitis B, Hepatitis C) as a public health threat by 2030. (21, 22) A significant proportion of people living with blood borne hepatitis in the UK are unaware of their diagnosis, or disengaged from long term care (LTC). Undiagnosed, untreated and chronic infection is associated with high levels of morbidity and mortality, including liver cirrhosis and hepatocellular carcinoma. (22)

There is increasing evidence that the ED may provide a valuable opportunity to detect undiagnosed blood borne hepatitis, in areas of the UK. It is recognised that there is a higher prevalence of hepatitis infection among patients attending Emergency Departments, particularly in centres serving marginalised populations. (23-25)

Current pilot studies suggest that offering hepatitis testing within the Emergency Department maybe a cost-effective method to identify patients with undiagnosed blood borne hepatitis [26,27]. However, although the identification of acute and chronic hepatitis infection and engagement in treatment/surveillance pathways is essential in achieving elimination, the current evidence does not support routine testing in the emergency department as yet. If chosen to pilot in the ED, a systems wide approach should be adopted, to ensure effective pathways and follow-up of positive results.

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Review

Usually within three years or sooner if important information becomes available.

Disclaimers

The College recognises that patients, their situations, Emergency Departments and staff all vary. This guideline cannot cover all possible scenarios. The ultimate responsibility for the interpretation and application of this guideline, the use of current information and a patient's overall care and wellbeing resides with the treating clinician.

Appendix 1

Methodology

Where possible, appropriate evidence has been sought and appraised using standard appraisal methods. High quality evidence is not always available to inform recommendations. Best Practice Guidelines rely heavily on the consensus of senior emergency physicians and invited experts.

Evidence Levels

1. Evidence from at least one systematic review of multiple well-designed randomised control trials
2. Evidence from at least one published properly designed randomised control trials of appropriate size and setting
3. Evidence from well-designed trials without randomisation, single group pre/post, cohort, time series or matched case control studies
4. Evidence from well-designed non-experimental studies from more than one centre or research group
5. Opinions, respected authority, clinical evidence, descriptive studies or consensus reports.

Appendix 2

Indicator conditions[10]

An indicator condition is any medical condition associated with an undiagnosed HIV seroprevalence >1 per 1000.

There are two categories:
1. Conditions that would be AIDS defining in an individual living with HIV (Table 1)

2. Non-AIDS-defining conditions associated with an undiagnosed HIV seroprevalence >1 per 1000 (Table 2).

Table 1: Conditions that would be AIDS defining in an individual living with HIV

Category	Condition
Neoplasms	Cervical cancer Non-Hodgkin lymphoma Kaposi's sarcoma
Bacterial infections	*Mycobacterium tuberculosis*, pulmonary or extrapulmonary *Mycobacterium avium* complex or *Mycobacterium kansasii*, disseminated or extrapulmonary Mycobacterium, other species or unidentified species, disseminated or extrapulmonary Pneumonia, recurrent (two or more episodes in 12 months) Salmonella septicaemia, recurrent
Viral infections	Cytomegalovirus retinitis Cytomegalovirus, other (except liver, spleen, glands) Herpes simplex, ulcer(s) >I month/bronchitis/pneumonitis Progressive multifocal leukoencephalopathy
Parasitic infections	Cerebral toxoplasmosis Cryptosporidiosis diarrhoea, >1 month Isosporiasis, >1 month Atypical disseminated leishmaniasis Reactivation of American trypanosomiasis (meningoencephalitis or myocarditis)
Fungal infections	*Pneumocystis carinii* pneumonia Candidiasis, oesophageal Candidiasis, bronchial/tracheal/pulmonary Cryptococcosis, extrapulmonary Histoplasmosis, disseminated/extrapulmonary Coccidioidomycosis, disseminated/extrapulmonary Penicilliosis, disseminated

Table 2: Non-AIDS-defining conditions associated with an undiagnosed HIV seroprevalence >1 per 1000

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
Peripheral neuropathy
Severe or atypical psoriasis
Mononeuritis
Unexplained weight loss
Unexplained oral candidiasis

References

1. Quinn TC, Wawer MJ, Sewankambo N, Serwadda D, Li C, Wabwire-Mangen F, Meehan MO, Lutalo T, Gray RH. Viral load and heterosexual transmission of human immunodeficiency virus type 1. Rakai Project Study Group. *N Engl J Med* 2000;**342**(13):921-9.
2. Orr MD, Hoos A, Reister DE, Gilcher RO, Meltz ML. Surveillance for HIV antibody and antigen in trauma patients. *J Emerg Med* 1991;**9**:1–3.
3. Baraff LJ, Talan DA, Torres M. Prevalence of HIV antibody in a non-inner city university hospital emergency department. *Ann Emerg Med* 1991;**20**:782–6.
4. Kelen GD, Hexter DA, Hansen KN, Tang N, Pretorius S, Quinn TC. Trends in human immunodeficiency virus (HIV) infection among a patient population of an inner-city emergency department: implications for emergency department-based screening programs for HIV infection. *Clin Infect Dis* 1995; **21**:867–75.
5. Goggin MA, Davidson AJ, Cantrill SV, O'Keefe LK, Douglas JM. The extent of undiagnosed HIV infection among emergency department patients: results of a blinded seroprevalence survey and a pilot HIV testing program. *J Emerg Med* 2000;**19**:13–9.
6. Anderson J, Radcliffe K. *Personal Communication*, October 2011.
7. Sanders GD, Bayoumi AH, Sundaram V, Bilir SP, Neukermans CP, Rydzak CE, Douglass LR, Lazzeroni LC, Holodniy M, Owens DK. Cost-effectiveness of screening for HIV in the era of highly active antiretroviral therapy. *N Engl J Med* 2005;**352**(6):570-85.
8. Paltiel AD, Weinstein MC, Kimmel AD, Seage GR 3rd, Losina E, Zhang H, Freedberg KA, Walensky RP. Expanded screening of HIV in the United States – an analysis of cost-effeciveness. *N Engl J Med* 2005;**352**(6):586-95.
9. Paltiel AD, Walensky RP, Schackman BR, Seage GR 3rd, Mercincavage LM, Weinstein MC, Freedberg KA. Expanded screening of HIV in the United States: effect on clinical outcomes, HIV transmission, and costs. *Ann Intern Med* 2006;**145**(11):797-806.
10. British Association for Sexual Health and HIV (BASHH), the British HIV Association (BHIVA) and the British Infection Society (BIS) Guidelines for HIV Testing. British HIV Association; 2020. Accessed 28th Febraury 2020; Available from: https://www.bhiva.org/file/5dfceab350819/HIV-Testing-Guidelines.pdf
11. National Institute for Health and Clinical Excellence. Increasing the uptake of HIV testing among men who have sex with men (Guidance: PH34). London: National Institute for Health and Clinical Excellence; 2011.
12. National Institute for Health and Clinical Excellence. Increasing the uptake of HIV testing among Black Africans in England (Guidance: PH33). London: National Institute for Health and Clinical Excellence; 2011.
13. Chief Medical Officer letter; Improving the detection and diagnosis of HIV in non-HIV specialties, including primary care. September 2007. Accessed 17th March 2012; Available from: http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_082338.pdf
14. Haukoos JS, Hopkins E, Eliopoulos VT, Byyny RL, Laperriere KA, Mendoza MX, Thrun MW; Denver Emergency Department Rapid HIV Testing Study Group. Development and implementation of a model to improve identification of patients infected with HIV using diagnostic rapid testing in the emergency department. *Acad Emerg Med* 2007;**14**(12):1149-57.
15. Public Health England. Prevalence of HIV. https://www.gov.uk/government/publications/hiv-in-the-united-kingdom

16. Public Health England. HIV: annual data tables. 2019. Available at: https://www.gov.uk/government/statistics/hiv-annual-data-tables
17. Rayment M, Thornton A, Mandalia S, et al. HIV testing in non-traditional settings – The HINTS Study. Oral Presentation, 17th Annual Conference of the British HIV Association, Bournemouth, UK, April 2011.
18. Hempling M et al. Pilot project evaluating HIV testing in St. George's Emergency Department. Oral presentation, College of Emergency Medicine Conference, Gateshead, UK; September 2011.
19. Finlay S, Roberts P, Rayment M, et al. A tale of two trials: Routine HIV testing in the Emergency Department. Oral Presentation. College of Emergency Medicine Conference, Gateshead, UK; September 2011.
20. Health Protection Agency. Time to test for HIV: Expanding HIV testing in healthcare and community in England. Health Protection Agency: final report 2011. Accessed 6th May 2012. Available from: https://www.bhiva.org/file/gMSwfxmXnFQeb/Time_to_test_final_report__Sept_2011.pdf
21. American College of Emergency Physicians (ACEP). ACEP Policy Compendium 2012 Edition: HIV Testing and Screening in the Emergency Department.
22. Joint United Nations Programme on HIV/AIDS (UNAIDS)2016-2021 strategy: On the fast track to end AIDS.
23. World Health Organisation (WHO). Combating hepatitis B and C to reach elimination by 2030. Available at: http://www.who.int/hepatitis/strategy2016-2021/ghss-hep/en/
24. Hopkins MJ et al. Consistent high prevalence of undiagnosed blood- borne virus infection in patients attending large urban emergency departments in England. J Viral Hepatitis 2020 Jan ;27 (1): 88-91
25. Orkin C et al. High prevalence of hepatitis C (HCV) in the Emergency Department of a London Hospital: should we be screening for HCV in ED attendees? Epidemiol Infect. 2015; 143(13): 2837-2840
26. Evans H, et al. An Innovative approach to increase viral hepatitis diagnoses and linkage to care using opt-out testing and an integrated care pathway in a London Emergency Department. PLoS One 2018;13: e0198520 available at: https://doi.org/10.1371/journal.pone.0198520
27. Williams J et al. An Economic Evaluation of the Cost-effectiveness of Opt-out Hepatitis B and Hepatitis C in an Emergency Department Setting in the UK. Value Health 2020;1003-1011

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