

HIV Screening in Acute Medical Patients Presenting with an Indicator Condition

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Abstract

Aim

In Ireland up to 50% of newly diagnosed HIV positive patients tested are and enter care late (CD4 count <350cells/ul). Late diagnosis is associated with increased HIV related morbidity and mortality, poorer treatment response, increased health care costs and increased transmission rates. International guidelines recommend HIV testing for individuals presenting to healthcare with specific indicator conditions including pneumonia, thrombocytopenia, weight loss. The aim of our study was to evaluate adherence to international HIV screening recommendations in clinical practice.

Methods

A retrospective audit was undertaken evaluating adherence to HIV screening recommendations in acute medical patients assessed in a tertiary referral centre in Ireland during the month of November in 2017 and 2021. Basic demographic data including age, gender, and criteria for HIV testing as per NICE guidelines was recorded. The study was approved by CREC ECM 4 (ss) 22/02/2022.

Results

Of 722 patient episodes included in the study, 150 (21%) presented with a condition indicating that HIV screening should be offered. 19 (13%) patients underwent HIV testing and all tested negative for HIV. In 2017, 28 of 206 patients aged 16 and above seen in an acute medical assessment unit had indicator conditions for HIV testing. 9 of 28 (32%) patients underwent HIV testing. All patients tested negative for HIV. In 2021, 122 of 566 patients aged 16 and above admitted under acute medical services had indicator conditions for HIV testing. 10 of 122 (8%) patients underwent HIV testing and all tested negative for HIV. Patients 60 years of age and under were significantly more likely to be tested for HIV 7/24 (29%) versus 3/98 (3%), $p < 0.05$.

Discussion

Adherence to HIV testing recommendations for patients presenting with indicator conditions is low. Further research is needed to identify barriers to testing which may include a lack of awareness of the indicator conditions, misunderstandings surrounding consent for testing and the accessibility of HIV testing for staff. Strategies to increase routine screening of patients presenting with indicator conditions are needed.

Introduction

In Ireland almost 50% of patients with HIV are diagnosed and enter care late (CD4 count $<350 \times 10^6/L$ where diagnosis is not made during seroconversion)¹. Late HIV diagnosis is associated with poor outcomes, an increased risk of ongoing HIV transmission and high healthcare costs². As such, late diagnosis remains a key public health metric in assessing the success of HIV testing programmes.

Where prevalence of HIV in a population does not support routine screening from a health economic perspective (<1 case per 1000)³, NICE guidelines recommend HIV testing for individuals presenting with specific indicator conditions including pneumonia, thrombocytopenia, weight loss⁴.

Up to 20% of patients with a late diagnosis of HIV have a potentially HIV-related presentation to healthcare in the year prior to diagnosis, 23% with more than one presentation⁵.

We previously performed an audit assessing adherence to NICE HIV testing guidelines in patients 60 years and younger presenting to an acute medical assessment unit in November 2017 with indicator conditions. We identified poor adherence to HIV testing recommendations (32%) these findings were presented at an internal medical journal club meeting.

The aim of this study was to re-audit adherence to NICE HIV testing guidelines in patients requiring acute medical admission with indicator conditions in November 2021. The audit was conducted in two parts, each covering a different period.

Methods

A retrospective audit was undertaken to evaluate adherence to NICE HIV testing guidelines. Acute medical patients admitted to a tertiary referral centre in Ireland during the month of November 2021 were included. Where 'acute medical patients' refers to all patients admitted from acute/unselected medical take.

The patients' discharge summaries uploaded to Cork University Hospital's iClinical Manager software system were used as the only source of data. These documents were reviewed by two reviewers to determine if the presenting complaint was in keeping with the HIV indicator conditions. The list of patients from each 24-hour medical take was stored on hospital share drives.

Basic demographic data including age, gender and specific HIV indicator condition such as pneumonia that requires hospital admission, weight loss, acute neurological symptoms/paraesthesia, diarrheal illness, abnormal liver function tests, jaundice, persistent lymphopenia/neutropenia/thrombocytopenia, isolated lymphadenopathy, newly diagnosed lung cancer and Hodgkin's lymphoma) were recorded.

Simple statistical analysis methods including descriptive statistics like calculating percentages and averages to summarize data, identify trends, and spot anomalies were used.

Due to the daily rotation of a large body of doctors (the CUH is a quaternary care centre) including consultants and registrars it is unlikely that the results gathered over 2 months it is unlikely that the results were affected by the varying skillset/experience of the medical staff on duty.

The study was approved by the Clinical Research Ethics Committee of the Cork Teaching Hospitals (CREC) ECM 4 (ss) 22/02/2022.

Results

During the one-month study period of November 2021, 111 of 566 (20%) patients admitted under acute medical services presented with an indicator condition for HIV testing (Table 1). 65 (59%) of the 111 were male, 77 (69%) over 60 years.

13 of 111 (12%) underwent HIV testing. All patients tested negative for HIV.

Pneumonia (56%) was the most common presenting indicator condition followed by sepsis (20%) and weight loss (9%).

Patients under the age of 60 years of age presenting with indicator conditions were significantly more likely to be tested for HIV $p < 0.05$.

When compared with the November 2017 audit (where 28 of 206 (14%) patients aged 16-60 years presented to an acute medical assessment unit with an indicator condition and 9 of 28 (32%) underwent HIV testing) the overall rate of HIV testing was lower in 2021 (13 of 111

[13%]). However, there was no significant difference in HIV testing rates in patients <60 years in 2017 32% versus 28% in 2021.

Discussion

Adherence to HIV testing recommendations for patients presenting with indicator conditions remains low. Late diagnosis of HIV is a major factor in HIV related death, it delays response to treatment, and results in significantly higher cost of care in the first year of treatment⁵.

Differing approaches to HIV testing to allow earlier diagnosis have been suggested. Since 2006, the US Centres for Disease Control and Prevention has recommended universal testing for all adults and adolescents between 13 and 65 years old⁶.

In Ireland routine antenatal testing for HIV in every pregnancy was introduced in 1999. Diagnosis of HIV in pregnancy allows for effective interventions to be implemented and has dramatically reduced the risk of HIV transmission from mother-to-child during pregnancy, delivery and in the postnatal period to less than 1%⁷. Patients may opt-out of this test, I could not find any reliable data for what this opt-out rate is, however the available data suggests the uptake to be very high for example national reported uptake of HIV antenatal screening in 2016 was 99.8%¹².

Implementation of routine HIV testing in an acute medical setting rather than risk-based has been shown to result in patients being diagnosed with higher CD4 counts in centres in the U.K⁸.

In 2018 there were 523 new cases of HIV in Ireland, giving an incidence of 11 in 100,000 population¹¹. This is far below breast cancer (approx. 120 per 100,000) and bowel cancer (approx. 80 in 100,000). This is likely one of the factors making NICE guidelines and the HSE favour testing based on indicator conditions vs routine testing.

There was a low uptake of testing people with indicator conditions with no diagnoses made. It is possible that the admitting/parent team may have been more likely to test if they had made one or more new diagnoses. However, this is difficult to assess, had all teams followed the NICE guidelines it is reasonable to assume that new diagnoses would be made in keeping with the national prevalence of HIV.

Our study has a number of limitations including study sample size. This was a single centre study and findings may not be generalisable to other centres. The study did not capture HIV testing in alternative settings in the previous year or risk assessment which may have been a factor in not testing.

Early diagnosis of HIV and initiation of treatment significantly improve clinical outcome. Screening programs have demonstrated high uptake of HIV testing in other acute medical settings^{9,10} indicating high levels of acceptability of testing in patients. Healthcare providers may be a factor in poor HIV testing rates. Further research is warranted to identify facilitators and barriers to HIV testing in healthcare systems.

Table 1 Baseline demographic data and presenting conditions in patients

Basic demographics	Total N = 111	HIV test performed n	%
Female	46	5 (41%)	11
Male	65	8 (59%)	12
Age >60	77	4 (69%)	5
46-59	20	3 (18%)	20
31-45	6	3 (5%)	50
16-30	8	3 (7%)	38
Presenting condition			
Pneumonia (Requiring admission)	62	3 (56%)	5
Triggers for sepsis flag	23	2 (20%)	9
Weight loss	10	2 (9%)	20
Seizure	1	0 (1%)	0
Neurological Deficit	3	1 (3%)	33
Jaundice/New deranged LFT	5	3 (5%)	60
Chronic diarrhoea	1	0 (1%)	
PUO	6	2 (5%)	33
Isolated lymphadenopathy	0	0	
IMN (Idiopathic membranous nephropathy?)	0	0	
Unexplained leukopenia	0	0	
Unexplained thrombocytopenia	0	0	
Oral candidiasis	0	0	

Declarations of Conflicts of Interest:

None declared.

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Appendix 1

Study Name: Screening for HIV in acute medical patients admitted to Cork University Hospital; a retrospective observational study

Data Collection Tool

Study Code/Number 1-200

Age:

16 – 30 ☐

31 – 45 ☐

46 – 59 ☐

>60 ☐

Gender:

M ☐

F ☐

Is the main presenting complaint one of the following (NICE recommendations for HIV testing):

☐ Pneumonia requires hospital admission

☐ triggers for sepsis flag

☐ Weight loss

☐ Seizure

☐ Acute neurology deficit

☐ Jaundice/New deranged LFTs

☐ Oral candidiasis

☐ Chronic diarrhoea

☐ PUO

☐ Isolated lymphadenopathy

☐ IMN like syndrome

☐ Unexplained leucopenia

☐ Unexplained thrombocytopenia

If Yes, Was HIV test sent?

YES ☐ NO ☐

If HIV test sent, what was the result?

Negative ☐ Positive ☐