

# Making blood borne virus screening work for everyone

## Opportunities to improve opt-out screening in two large London Emergency Departments

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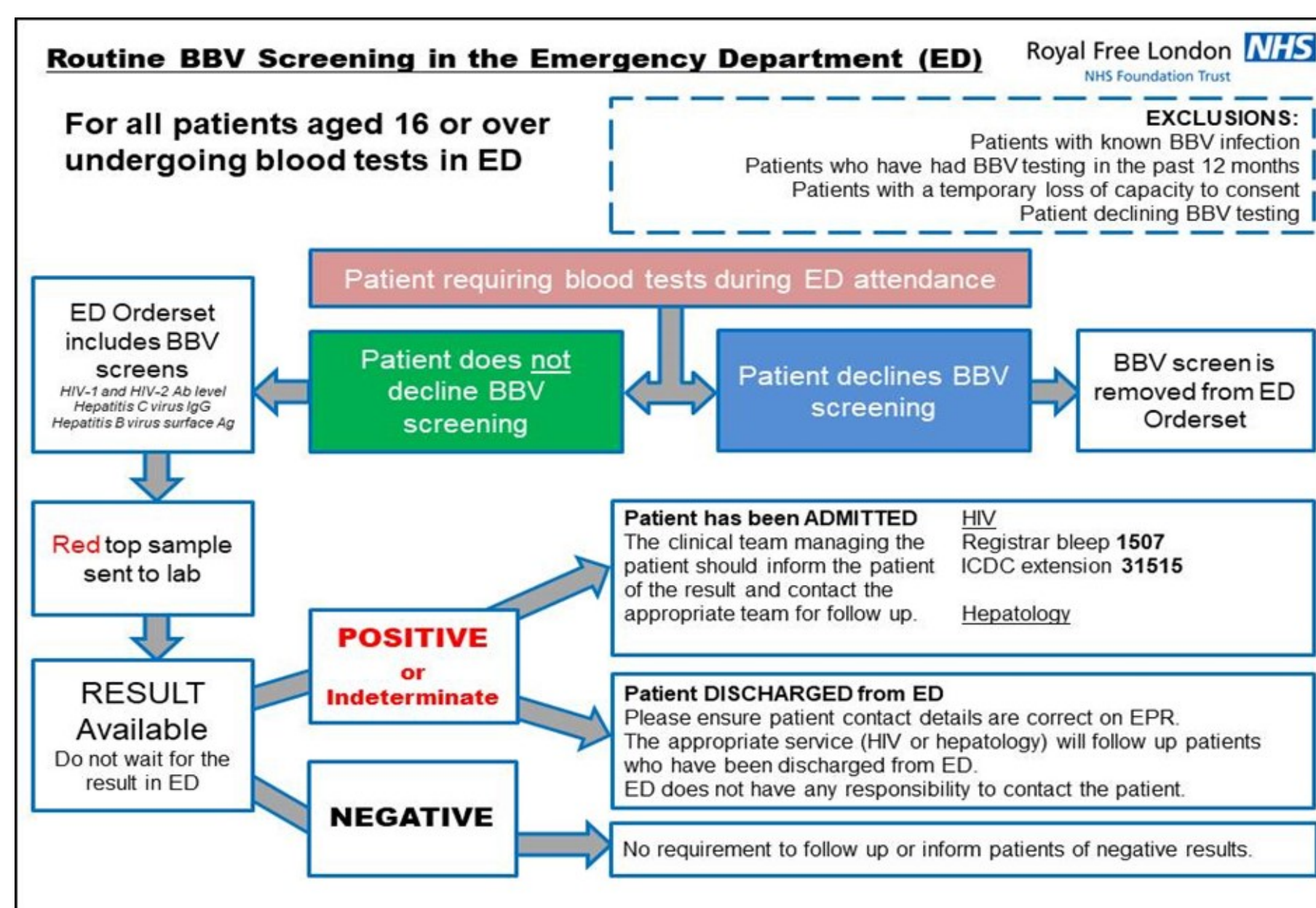
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### Background:

- Early diagnosis of HIV, hepatitis B and hepatitis C enables access to life-saving treatments and holistic care. 6% of people living with HIV in the UK are undiagnosed; [1] an estimated 95600 people had undiagnosed hepatitis C in 2019[2] and hepatitis B is often diagnosed late. [3]
- With 16 million attendances per year nationally, Emergency departments (ED) are excellently placed to undertake testing. [4] ED is also particularly accessible for socially excluded populations, who may be at increased risk of BBV. [5]
- In 2022 NHSEI expanded opt-out BBV screening in the highest prevalence EDs supported by DHSC[6] and RCEM. [7] The Royal Free London NHS Foundation Trust has two EDs: the Royal Free (RF) and Barnet (BA). Both were included in this rollout. The Trust serves Camden, Islington & Haringey, which all experience HIV incidences  $\geq 0.5\%$  for residents aged 15-59 [8], and also provides specialist HIV and viral hepatitis care.
- Effective screening programmes need to meet the needs of all service users, including higher risk demographic groups: for example a recent study found men, people of Black or Black/British ethnicity and people aged 40 to 59 were more likely to receive a new diagnosis of a BBV through opt-out screening or require linkage to BBV care. [9]
- There are barriers to BBV screening: screening places additional workload on ED including blood-drawing time and discussion with patients (despite opt-out programmes reducing the onus on frontline clinicians to offer and discuss BBV screening). [10] While opt-out approaches may help to normalise BBV screening, stigma, for instance linked to life-expectancy, misconceptions about transmission routes or associating HIV with 'irresponsible' behaviors, remains a barrier to uptake. People may also incorrectly perceive themselves to be low risk for BBV. These beliefs may affect patient and staff attitudes towards screening. [11,12]
- This retrospective, mixed-methods study aimed to evaluate the rate of opt-out BBV screening uptake and identify patient, staff and process-related screening barriers; assess for demographic differences in uptake and identify strategies for improvement.

### Process for opt-out BBV screening in RF and BA ED:



Posters throughout ED inform patients of BBV screening. ED staff may discuss screening with patients but this is not a requirement. ED staff may sign post patients to a QR-code based leaflets.

### Methods:

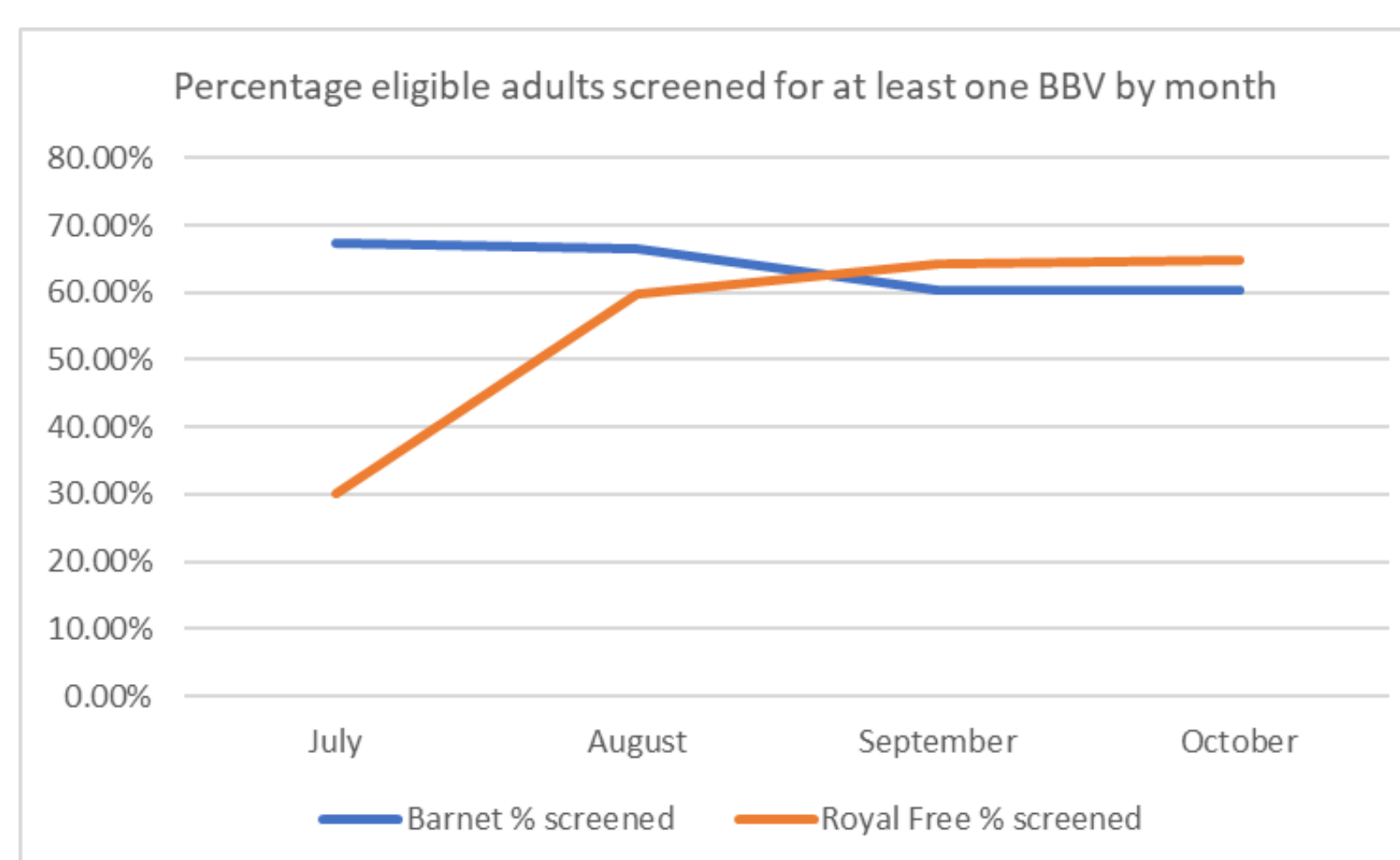
Those eligible for screening were defined as unique adults aged  $\geq 16$  receiving blood tests in ED were identified through Electronic Patient Records. The study period July-October 2022 was selected to allow settling time post-roll out (April 2022). Screening rates in pre-defined demographic groups were compared. Age was assessed as a continuous variable by unpaired t-test and additionally those aged  $\geq 80$  (admitted under geriatric teams in both Trusts) were compared to those aged  $< 80$ . The impact of sex, ethnicity, attendance time and admission status were analysed through odds ratios. Verbally consented ED staff identified through stratified random selection underwent brief semi-structured interviews to understand their experience of screening.

### References:

1. Department of Health and Social Care (2021) Towards Zero. Available at: <https://www.gov.uk/government/publications/towards-zero-the-hiv-action-plan-for-england-2022-to-2025/towards-zero-an-action-plan-towards-ending-hiv-transmission-aids-and-hiv-related-deaths-in-england-2022-to-2025>
2. Public Health England (2019) Hepatitis C in England. Available at: [https://phub.net/documents/135939561/316421015/HCV\\_in\\_England\\_2019.pdf/621d6c9-bef6-2842-9470-c3c0df386399?e=1590139215393](https://phub.net/documents/135939561/316421015/HCV_in_England_2019.pdf/621d6c9-bef6-2842-9470-c3c0df386399?e=1590139215393)
3. British Liver Trust (2009) A professional guide to hepatitis B. Available at: [http://www.britishlivertrust.org.uk/wp-content/uploads/HBP0209\\_100809.pdf](http://www.britishlivertrust.org.uk/wp-content/uploads/HBP0209_100809.pdf)
4. Baker C. (2022) NHS Key Statistics: England 2022. House of Commons Library.
5. Royal College of Emergency Medicine (2020) Inclusion Health in the Emergency Department.
6. Department of Health and Social Care (2021) Towards Zero, annex B. Available at: <https://www.gov.uk>
7. Royal College of Emergency Medicine (2020) HIV testing in the Emergency Department. Available at: [https://rcecm.ac.uk/wp-content/uploads/2021/10/RCEM\\_HIV\\_Testing\\_in\\_the\\_ED\\_revised\\_December\\_2020.pdf](https://rcecm.ac.uk/wp-content/uploads/2021/10/RCEM_HIV_Testing_in_the_ED_revised_December_2020.pdf)
8. Department of Health and Social Care (2021) Towards Zero, annex B. Available at: <https://www.gov.uk/government/publications/towards-zero-the-hiv-action-plan-for-england-2022-to-2025/annex-b-local-authorities-with-high-or-very-high-hiv-prevalence-2019>
9. Orkin, C. et al. (2016) Incorporating HIV/hepatitis B virus/hepatitis C virus combined testing into routine blood tests in nine UK Emergency Departments: the 'Going Viral' campaign. *HIV Medicine* 17, 222-230
10. Rayment, M. et al. (2013). Routine HIV testing in the ED. *HIV Med*, 14: 6-9.
11. Debono J et al. (2010) Barriers to HIV testing in Europe: a systematic review. *European Journal of Public Health*, 20(4):422-432.
12. Fakoui F, Prost A, Burns F, Hart G. (date not available) Barriers to HIV testing: NICE Guidance. Available at: <https://www.nice.org.uk/guidance/ng60/evidence/barriers-to-hiv-testing-final-full-report-ph33-pdf-272798357>
13. Clepely, L. et al. (2019). Seroprevalence of HCV, HBV and HIV in two inner-city London emergency departments. *Epidemiology & Infection*, 147, E145.
14. Clifton S. et al. (2016) HIV testing, risk perception, and behaviour in the British population. *AIDS*, 30(6): 943-952.
15. Pillay K et al. (2018) Long term effect of primary health care training on HIV testing: a quasi-experimental evaluation of the Sexual Health in Practice (SHIP) intervention. *PLoS One*; 13: e0199891.

### Results:

There were 33388 opportunities for screening. At RF and BA respectively, 53.65% (8687/16193) and 63.87% (10983/17195) received screening for at least one BBV. 86 HIV screens were positive, including 5 new HIV diagnoses. 136 hepatitis B screens were positive. 22 patients had detectable HCV RNA.



### Likelihood of being screened for at least one BBV

Demographic:	OR (RF)	OR (BA)
Asian	0.995 (0.906-1.094)	0.948 (0.859-1.047)
White	1.047 (0.984-1.114)	1.043 (0.979-1.112)
Black	0.860 (0.771-0.961)	0.966 (0.858-1.087)
Mixed	0.955 (0.759-1.202)	1.081 (0.855-1.366)
Chinese	0.931 (0.635-1.365)	1.180 (0.835-1.667)
Other/ not stated/ not known	1.010 (0.946-1.078)	0.966 (0.892-1.046)
Admitted	0.891 (0.830-0.955)	0.933 (0.869-1.002)
Female	0.943 (0.886-1.003)	0.797 (0.747-0.851)
80 and over	0.868 (0.792-0.951)	1.019 (0.938-1.106)

### Data suggests HIV screens are omitted as a choice:

Whether a patient declined or screening was omitted for procedural reasons is not yet recorded at the Trust. However, discrepancies in BBV screening suggest patients declining or staff choosing to omit may be a significant driver. 937 people received hepatitis but not HIV screening but only 82 people received HIV but not hepatitis screening. This suggests HIV screens are actively removed by clinicians. Because viral hepatitis prevalence is approximately twice as high as HIV in this population,[13] known prior infection is unlikely to be the main driver of this.

### Attendance time affects likelihood of BBV screening:

Attendance time:	OR (RF)	OR (BA)
9am-5pm	1.631 (1.532-1.735)	1.198 (1.125-1.275)
5pm-11pm	0.492 (0.460-0.526)	0.470 (0.440-0.503)
11pm-9am	1.194 (1.104-1.290)	2.242 (2.055-2.443)

Attendees at both hospitals between 5pm-11pm were less likely to receive screening. This is when ED is busiest: for example at RF from 5pm-11pm 2049 patients attended ED including blood tests, compared to only 1841 patients between 11pm and 9am.

### Sex:

At BA, women were less likely to receive screening (OR 0.80, 95%CI 0.75-0.85). At RF a non-significant trend towards this also existed. Women may be excluded from screening due to recent screens (e.g. during maternity care), however patient and staff perception of women as 'low risk' may contribute: a recent study found women were less likely to view themselves as high risk for HIV acquisition. [14]

### Admission status:

At RF admitted patients (OR 0.89, 95%CI 0.83-0.96) were less likely to receive screening. There was a non-significant trend toward this at BA. Admitted patients may be more unwell, so staff may prioritise other blood tests, or the patient may be more challenging to bleed. Though patients may be more likely to lack capacity, one nurse felt that though in high acuity areas "most people in are too sick" to discuss screening, screening typically still went ahead.

### Ethnicity:

At RF, people identifying as black were less likely to receive screening. Ethnicity was not otherwise associated with uptake. This contrasts to a recent study where black and Asian people were more likely to receive screening.[9] A systematic qualitative literature review identified social, personal and cultural barriers to HIV (opt-in) testing within black African communities,[15] with perceptions of HIV as deadly and a lack of positive HIV imagery driving stigma. Stigma may lead patients to decline screening, and may also discourage staff from discussing screening (a theme identified in our interviews) for fear of a negative reaction.

### Age:

At the RFH people  $\geq 80$  were less likely to be tested than those  $< 80$  and there was a non-significant trend towards those untested being older than those tested (t Stat = -1.05003;  $p < 0.29$ ). Conversely, at BA the likelihood of being tested increased with age (t stat = 2.677166,  $p < 0.007434$ ), with no difference between age  $\geq 80$  or  $< 80$ . Staff and patient perceptions of older age groups having a lower risk of BBV may be important: at the RF one staff member commented "the elderly always say no...90 year olds think 'what's the point?'". Self-perception of HIV acquisition risk has been shown to decrease in older age groups. [14] These perceptions exist despite 21 people aged  $\geq 80$  receiving positive BBV screens and a recent London study identifying people aged  $\geq 65$  with undiagnosed BBV.[9] Perceived difficulty in bleeding older patients may also contribute.

### ED staff experience of opt-out BBV screening:

20 ED staff including 5 ED assistants (EDAs), 1 receptionist, 10 nurses (including junior and senior) and 4 doctors took part in semi-structured interviews in resus, majors and urgent care. All took bloods though it was reported that EDAs took the majority of blood tests. Most staff members were aware of opt-out BBV screening, though some were unaware of the term BBV and instead recognised the term hepatitis B/C or HIV screening.

### Time pressures limit discussion of BBV screening:

ED staff expressed a desire to discuss BBV screening but time pressures were frequently cited as barrier. One EDA in resus reported "we don't really have time to tell them, it's too busy", and a doctor agreed, commenting "it's like fire-fighting out there". Inability to discuss testing was a potential source of moral injury, with some staff members seeing lack of discussion as a failing. One EDA in urgent care reported always discussing testing: "if it were me, and I wasn't told and then my test came back positive I'd be like 'what?!'"

### Staff were confident in initial BBV screening discussion, but not further discussion in patients who declined:

5 staff members including an EDA, nurse and doctor felt the discussion was straightforward. A doctor explained: "it's not a difficult conversation - either they say yes or no". An EDA says to patients "it's your choice. We offer it to everyone - it's good for your health to know if you have these viruses - most patients say yes". A receptionist even reported approximately 10 patients per month requesting screening directly after seeing posters. However, as one nurse commented, there was a feeling that "patients either do or don't want [screening]". Staff nurses remarked "Some patients just don't want to know" citing that "it's scary, isn't it - you don't know if you have it" as a reason for this. They felt in principle confident to discuss further with patients who declined screening but had never conducted that conversation, and doctor made a similar comment. An EDA remarked that "if they say no, I respect that" and another explained: "if they say no, I don't want to push it". Staff did feel more able to sign post patients to further written resources including a virtual leaflet, however.

### ED staff cannot prioritise BBV screening in hard-to-bleed patients:

Multiple staff members cited challenges in drawing blood from patients to be a barrier to screening. One EDA explained "To be honest, the red top is the least prioritised". ED doctors and nurses agreed that the red to tube (for BBV screening) was the least prioritised.

### ED staff felt education initiatives were valuable and changed practice:

Education initiatives embedded in the roll-out were valued by ED staff. A doctor felt a video produce by ED gave a "really helpful" explanation. Insufficient education sometimes left staff members in a challenging position: one nurse commented that they didn't understand why screening had been rolled out and said "Sometimes I take off the test, as I don't see the point.. It's a 'waste of blood tests'". They recalled that there been some education about opt-out testing at the beginning but didn't remember it well. Frequent teaching at handovers was cited as useful. Elsewhere, brief educational interventions have previously been shown to increase opt-in HIV testing rates by as much as 16%, sustained over an 8 year period. [16]

### Conclusions:

Screening was acceptable to patients and staff, with good uptake. Demographic variations represent important areas for further improvement. Systems to document a patient declining screening, rather than omission for another reason, may enable targeted interventions to improve uptake. Collaboration with laboratories to optimise sample volumes may improve performance.

ED staff are motivated to discuss screening, and ED encounters have the potential to be an excellent opportunity to engage patients who might be initially hesitant to take up screening. Interventions to equip staff with time and confidence to have these discussions may improve uptake including in higher risk groups