To test or not to test for HIV: there is no question

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London UK
Overview

- HIV epidemiology – Europe, UK, Netherlands
- Undiagnosed HIV
- Late presentation
- Testing and screening guidelines
- AAU and ED data from the UK
Rate of reported HIV diagnoses, by year of diagnosis, in the EU/EEA, 1984–2012

HIV infections reported, 2012

- ≥ 20 per 100 000
- 10 to < 20 per 100 000
- 2 to < 10 per 100 000
- < 2 per 100 000
- Not included

Non-visible countries
- Luxembourg
- Malta
HIV infections reported, 2012
Men who have sex with men - MSM

HIV infections reported, 2012

Injecting drug use

HIV diagnoses in persons originating from countries with a generalised epidemic among all the heterosexually acquired infections, 2012 (n=9 944)

HIV diagnoses in MSM among all reported HIV cases, 2012 (n=29 381)

Male-to-female ratio of HIV infections, 2012 (n=29 327)

# Adult HIV infection in UK and Netherlands 2012

<table>
<thead>
<tr>
<th></th>
<th>Number of people registered with HIV/AIDS in 2012</th>
<th>People newly registered with HIV in 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UK</td>
<td>Netherlands</td>
</tr>
<tr>
<td>Total</td>
<td>77,610</td>
<td>20,077</td>
</tr>
<tr>
<td>MSM</td>
<td>33,600</td>
<td>10,161</td>
</tr>
<tr>
<td>Estimated undiagnosed</td>
<td>21,900</td>
<td>6,783</td>
</tr>
<tr>
<td>Deaths</td>
<td>490</td>
<td></td>
</tr>
</tbody>
</table>
New HIV diagnoses by exposure group: United Kingdom, 2003 - 2012

- Sex between men (adjusted)
- Sex between men (observed)
- Heterosexual contact (adjusted)
- Heterosexual contact (observed)
- Injecting drug use (adjusted)
- Other (adjusted)
- Not reported
New HIV diagnoses and number of persons accessing HIV care in the United Kingdom: 2012

New HIV diagnoses by age of diagnosis: United Kingdom, 2003-2012
HIV diagnosed persons seen for HIV care by age group: United Kingdom, 2003-2012

Number seen for HIV care:
- 50+: yellow
- 35-49: teal
- 25-34: red
- 15-24: grey
- <15: blue

Year:
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012

2003-2012
HIV infected population in clinical care: Netherlands

- 50 years or older
- 40-49 years
- 30-39 years
- < 30 years

% of patients per age category by calendar year:
- 1997
- 2001
- 2005
- 2009
- 2013
Estimates of the proportion of undiagnosed by risk groups, UK

<table>
<thead>
<tr>
<th>Risk groups</th>
<th>Proportion of people living with undiagnosed HIV infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>24%</td>
</tr>
<tr>
<td>MSM (n=8,100)</td>
<td>20%</td>
</tr>
<tr>
<td>African-born men (n=10,500)</td>
<td>27%</td>
</tr>
<tr>
<td>African-born women (n=20,300)</td>
<td>21%</td>
</tr>
<tr>
<td>Non-African born men (n=10,100)</td>
<td>33%</td>
</tr>
<tr>
<td>Non-African born women (n=10,500)</td>
<td>31%</td>
</tr>
<tr>
<td>People who inject drugs (n=2,300)</td>
<td>17%</td>
</tr>
</tbody>
</table>
Undiagnosed HIV infection and onward transmission

US modelling data

- the 20% ‘undiagnosed’ are estimated to be responsible for 49% of incident infections

- 8 transmissions would be averted per 100 persons newly aware of their infection

Hall et al, 2012
Late presentation

Late presentation  CD4 T-cell count <350 cells/μL or AIDS diagnosis

Very late presentation  CD4 T-cell count <200 cells/μL

High rates of late presentation – UK and NL

Associated with

- increased morbidity and mortality
- difficulties with treatment including suboptimal treatment response
- increased cost
Late and very late diagnosis of HIV infection by exposure group: UK, 2011

<table>
<thead>
<tr>
<th>Exposure group</th>
<th>CD4 cell count &lt;350 cells/mm3</th>
<th>CD4 cell count &lt;250 cells/mm3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSM</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Heterosexual men</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Heterosexual women</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>People who inject drugs</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>Overall</td>
<td>50%</td>
<td>30%</td>
</tr>
</tbody>
</table>

1 CD4 count within 3 months of diagnosis
Median CD4 count at diagnosis by exposure group: NL
Median CD4 count at diagnosis by exposure group: UK

* Within three months of diagnosis
Late presentation - increased morbidity and mortality

Mortality, morbidity and AIDS-defining illnesses relate to the CD4 cell count at diagnosis.

Late diagnosis accounts for 35% HIV-related deaths ("BHIVA Mortality Audit" 2005)
Late presentation - increased morbidity and mortality

Mortality, morbidity and AIDS-defining illnesses relate to the CD4 cell count at diagnosis

Late diagnosis accounts for 35% HIV-related deaths ("BHIVA Mortality Audit" 2005)

BHIVA audit: scenario leading to death

- Death not directly related to HIV (31.8%)
- Diagnosed too late for effective treatment (24%)
- Under care but had untreatable complication (15.8%)
- Treatment ineffective due to poor adherence (6.7%)
- Chose not to receive treatment (4.7%)
- HIV +ve, irregular care, re-presented too late (3.4%)
- MDR HIV, ran out of options (2.8%)
- Successful treatment but suffered catastrophic event (1.8%)
- Unable to take treatment – toxicity/intolerance (0.3%)
- Died in community without seeking care (0.3%)
- Treatment delayed/ineligible for NHS (0.2%)
- Other (2.1%)
- Not known/not stated (6.5%)

Adapted from Lucas. Clin Med 2008;8:250
Prompt\(^1\) and late\(^2\) HIV diagnosis in MSM with associated one-year mortality: UK

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\(^1\)Prompt diagnosis: CD4 count $\geq 350$ cells/mm\(^3\) within three months of diagnosis

\(^2\)Late diagnosis: CD4 count <350 cells/mm\(^3\) within three months of diagnosis
Prompt\(^1\) and late\(^2\) HIV diagnosis in black Africans and black Caribbeans with associated one-year mortality: UK

\(^1\)Prompt diagnosis: CD4 count \(\geq 350\) cells/mm\(^3\) within three months of diagnosis

\(^2\)Late diagnosis: CD4 count <350 cells/mm\(^3\) within three months of diagnosis
HIV Treatment and late presentation

- Lack of “preparation” time \(^2\) (no baseline resistance test, no HLA testing)
- Suboptimal treatment response
- Simultaneous treatment of opportunistic infections/malignancies and HIV can be difficult \(^1\)
- When to start HAART? \(^2\)
  - Aim to avoid IRIS (Immune Reconstitution Inflammatory Syndrome) \(^3\)
  - Avoid overlapping toxicities \(^1\)
  - Avoid complex drug-drug interactions \(^1\)

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1. BHIVA Standards for HIV Clinical Care March 2007 sections 2.4
2. BHIVA Guidelines HIV Medicine (2005),76 (Suppl.2), 1-61
CD4 at start of therapy impacts on immunological outcome

- Patients who start ARV therapy with a higher CD4 count have a greater chance of improving their CD4 count to near normal levels\(^1\)

![Graph showing CD4 cell count over weeks from starting HAART for different CD4 counts: >500 cells/mm\(^3\), 350–500 cells/mm\(^3\), 200–350 cells/mm\(^3\), 50–200 cells/mm\(^3\), <50 cells/mm\(^3\).]

- A CD4 \(\geq 350\) cells/mm\(^3\) at 4 years is associated with significantly higher survival (\(p<0.001\))\(^2\)

Adapted from:
Costs rise with late diagnosis

Direct costs in first year of care for those diagnosed late are twice that compared to those with a timely diagnosis.
Costs rise with late diagnosis

Direct costs in first year of care for those diagnosed late are twice that compared to those with a timely diagnosis.

Cost of late presentation in Canada

- Based on data from 241 patients
- Estimated excess cost of late presentation, after adjusting for patient characteristics: CAN$9,723
- Difference in total costs largely attributable to differences in HIV-related hospital care costs (15 times higher for late presenters)

Adapted from Kreiz et al. HIV Med 2004;5:93
Multiple missed opportunities for diagnosis

- 17% accessed healthcare with symptoms in the year preceding HIV diagnosis\(^1\) in UK National audit
- 62% of new AIDS diagnoses accessed secondary care in preceding year in a Brighton study\(^2\)
- 76.4% had seen GP in year prior to diagnosis in London Black African cohort study\(^3\)
- Netherlands – similar situation (Hermans, van den Berk)

HIV treatment in 2014

- HAART (highly active antiretroviral therapy) – emerged in 1996 and has revolutionised the care of HIV
- Lifespans are typically near normal in individuals diagnosed with early stage HIV
- Treatments better tolerated with lower pill burdens
- There are now 5 classes of licensed antiretroviral drugs
- New treatment strategies
  - start ≥ 500 cells/μL – US, WHO
  - treat at seroconversion
  - TasP – treatment as prevention
AIDS diagnoses and deaths: UK

- New HIV diagnoses
- AIDS diagnoses
- Deaths

HIV test developed
HAART available
Antiretroviral drug approval

NRTI, Nucleoside reverse transcriptase inhibitor
NNRTI, Non-nucleoside reverse transcriptase inhibitor
PI, protease inhibitor
Integrase inhibitor
CCR5 antagonist / Entry inhibitor

AZT, ddl, ddC, d4T, 3TC
Saquinavir, Ritonavir, Indinavir, Nevirapine
Nelfinavir, Delavirdine, Lopinavir/r, Amprenavir
Ritonavir, Indinavir, Nevirapine
Efavirenz, Abacavir
Tenofovir
Enfuvirtide, Atazanavir, Emtricitabine, Fosamprenavir
Tipranavir
Darunavir, Maraviroc, Raltegravir, Etravirine, Rilpivirine

2014 Dolutegavir
Survival of patients with CD4 ≥ 500 for >5 years is similar to the general population

<table>
<thead>
<tr>
<th>Duration of Follow-up with CD4 &gt; 500 cells/mm³ (Yrs)</th>
<th>N</th>
<th>Deaths n</th>
<th>Standardized Mortality Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1208</td>
<td>37</td>
<td>2.5 (1.8-3.5)</td>
</tr>
<tr>
<td>1</td>
<td>1156</td>
<td>29</td>
<td>2.1 (1.4-3.1)</td>
</tr>
<tr>
<td>2</td>
<td>1083</td>
<td>26</td>
<td>2.2 (1.4-3.2)</td>
</tr>
<tr>
<td>3</td>
<td>1031</td>
<td>22</td>
<td>2.1 (1.3-3.2)</td>
</tr>
<tr>
<td>4</td>
<td>967</td>
<td>18</td>
<td>2.1 (1.3-3.4)</td>
</tr>
<tr>
<td>5</td>
<td>864</td>
<td>12</td>
<td>1.9 (1.0-3.2)</td>
</tr>
<tr>
<td>6</td>
<td>763</td>
<td>2</td>
<td>0.5 (0.1-1.6)</td>
</tr>
<tr>
<td>7</td>
<td>610</td>
<td>1</td>
<td>0.5 (0.0-2.6)</td>
</tr>
</tbody>
</table>

Standardized Mortality Ratio = Mortality in HIV-infected patients / Mortality in General Population

Potential cost savings

• Avoidance of increased costs associated with late diagnosis

• Savings associated with reducing transmissions
  each new case of HIV infection is estimated to cost between £280,000 and £360,000 in lifetime treatment costs
  if the 3,640 UK-acquired HIV diagnoses made in 2010 had been prevented, between £1.0 and £1.3 billion lifetime treatment and clinical care costs would have been saved

• Social and economic cost savings
HIV testing/screening approaches

• Individuals in high risk groups- MSM, IVDU, BME
• Specific settings
  sexual health clinics, TOP, substance misuse services, ANC
  Opt out in both UK and Netherlands in sexual health clinics and ANC (NL>98% uptake)
• Indicator conditions
• Areas of high prevalence (2/1000) - UK
• PRO-test –primary care in Netherlands
• United States – all 13-64 yo accessing healthcare
Recommendations:

(1) *Targeted screening*: risk groups

(2) *Targeted screening*: indicator diseases

(3) *Routine screening*: specific settings

(4) *Routine screening*: in general medical settings when local diagnosed HIV prevalence > 0.2%
Increasing the uptake of HIV testing among black Africans in England
NICE public health guidance 33

Increasing the uptake of HIV testing among men who have sex with men
NICE public health guidance 34
HIDES – HIV in Indicator Diseases European Survey

Indicator Conditions – those conditions occurring with increased frequency in individuals infected with HIV because they share transmission pathways or their emergence is a consequence of the HIV-related immune deficit. 52 conditions of which 11 are also AIDS defining illnesses

Cost effectiveness is achieved if the HIV prevalence is greater than 0.1% (1/1000)

AIM - To determine the HIV prevalence in proposed indicator conditions.

HIDES I  feasibility and acceptability pilot, 2009 - 2011
HIDES II  larger roll out study, ongoing

14 countries including UK and Netherlands
Indicator Conditions

**HIDES I**
- Sexually Transmitted Infections (STI)
- Hepatitis B + C
- Malignant lymphoma (LYM)
- AIN or CIN II or above
- Unexplained thrombocytopenia or neutropenia >4 weeks
- Herpes zoster <65 years
- Seborrhoeic dermatitis or exanthema
- Mononucleosis-like illness (MON)

**HIDES II**
- Pneumonia (admitted to hospital)
- Unexplained lymphadenopathy
- Peripheral neuropathy of unknown cause
- Primary lung cancer
# Results HIDES I

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>3588</td>
</tr>
<tr>
<td>Mean age</td>
<td>36 years (range 24 – 53; MON cf LYM)</td>
</tr>
<tr>
<td>Sex</td>
<td>55% male</td>
</tr>
<tr>
<td>Previous HIV test</td>
<td>36%</td>
</tr>
<tr>
<td>HIV tests</td>
<td>66 new HIV diagnoses</td>
</tr>
<tr>
<td>HIV prevalence</td>
<td><strong>1.8%</strong></td>
</tr>
<tr>
<td></td>
<td>95% CI 1.4 - 2.3</td>
</tr>
</tbody>
</table>

**HIV positive individuals**

- Male: 83%
- MSM: 58%
- IDU: 9%
## Results – HIV diagnoses per Indicator Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>HIV test</th>
<th>HIV +</th>
<th>Prevalence (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3588</td>
<td>66</td>
<td>1.84 (1.42-2.34)</td>
</tr>
<tr>
<td>STI</td>
<td>764</td>
<td>31</td>
<td>4.06 (2.78-5.71)</td>
</tr>
<tr>
<td>Malignant lymphoma</td>
<td>344</td>
<td>1</td>
<td>0.29 (0.01-1.61)</td>
</tr>
<tr>
<td>Cervical or anal dysplasia</td>
<td>542</td>
<td>2</td>
<td>0.37 (0.04-1.32)</td>
</tr>
<tr>
<td>Herpes Zoster &lt;65yo</td>
<td>207</td>
<td>6</td>
<td>2.89 (1.07-6.21)</td>
</tr>
<tr>
<td>Hepatitis B/C</td>
<td>1099</td>
<td>4</td>
<td>0.36 (0.10-0.93)</td>
</tr>
<tr>
<td>On-going mononucleosis-like illness</td>
<td>441</td>
<td>17</td>
<td>3.85 (2.26-6.10)</td>
</tr>
<tr>
<td>Leuko/thrombocytopaenia</td>
<td>94</td>
<td>3</td>
<td>3.19 (0.66-9.04)</td>
</tr>
<tr>
<td>Seborrheic dermatitis/exanthema</td>
<td>97</td>
<td>2</td>
<td>2.06 (0.25-7.24)</td>
</tr>
</tbody>
</table>
## Results - HIV positive individuals

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previously tested negative</td>
<td>52%</td>
</tr>
<tr>
<td>Median time to last test</td>
<td>1.58 years (0.1-12.7)</td>
</tr>
<tr>
<td>Median CD4 (n=35/66)</td>
<td>400 cells/µL range 11 - 675</td>
</tr>
</tbody>
</table>
Results - HIV positive individuals

- Potential missed opportunities in preceding 5 years
  - previous potentially HIV-related presentations 20%
    - cytopaenia
    - dermatitis
    - Herpes zoster
    - Mononucleosis-like illness
    - oral candidiasis
  - 23% had more than one presentation
  - hospitalised
    - AIDS or infection 11%
    - 71%
HIV Indicator Conditions: Guidance for Implementing HIV Testing in Adults in Health Care Settings
UK data – Emergency Department and Acute Admissions/Medical Units

- HINTS study
- Chelsea and Westminster – ED and AAU data
- AMU – St Thomas’ and Croydon
- Cost data
- Interventions to increase coverage
HIV testing in non-traditional settings – the HINTS study

Feasibility and acceptability study in 4 settings in areas of high HIV prevalence in London
Emergency Department, Acute Care Unit, Primary Care, Med OPD (Derm)

<table>
<thead>
<tr>
<th>Key Outcomes</th>
<th>Emergency Department</th>
<th>Acute Care Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total eligible attendees</td>
<td>5505</td>
<td>1298</td>
</tr>
<tr>
<td>Coverage (%)</td>
<td>4070 (74%)</td>
<td>623 (48%)</td>
</tr>
<tr>
<td>No. ineligible (% of all approached)</td>
<td>637 (16%)</td>
<td>74 (12%)</td>
</tr>
<tr>
<td>Total tests offered</td>
<td>3433</td>
<td>548</td>
</tr>
<tr>
<td>Total tests accepted: Uptake (%)</td>
<td>2121 (61.8%)</td>
<td>384 (70%)</td>
</tr>
<tr>
<td>Reactive HIV tests</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Newly diagnosed individuals; [HIV seropositivity (per 1000)]</td>
<td>4 1.9/1000</td>
<td>4 10.4/1000</td>
</tr>
<tr>
<td>Proportion transferred to care</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
 Questionnaire Respondents (n=1003)

“It is acceptable to me to be offered an HIV test in this setting”

92% overall agreed with this statement

<table>
<thead>
<tr>
<th>Test uptake</th>
<th>Proportion agreeing</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted test</td>
<td>97%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Declined test</td>
<td>85%</td>
<td></td>
</tr>
</tbody>
</table>
Staff attitudes towards HIV testing

- 96% staff were supportive of the need for increased HIV testing, and 84% thought it acceptable for HIV testing to be offered in their Department (n=146)

- **BUT** only 54% staff agreed they would feel comfortable offering HIV tests themselves

![Bar chart showing staff attitudes towards HIV testing]

- "HIV testing should be available in services other than sexual health and antenatal clinics"
- "HIV testing should be routinely offered to everyone"
- "Offering HIV testing to all patients in this department is a good idea"
- "I would feel comfortable offering HIV testing to all patients in this department"
HIV testing in ED as percentage of attendances (16-65yo) Oct 2012 to April 2014

Levels HIV Testing in A&E as Percentage of Attendances - TARGET 50% (---) (Patients 16-65 under A&E as Speciality)
Overall results of HIV testing in ED -2013/14

- Mean testing rates rose from 16% to 45% (peak of 50%)

- 19 new diagnoses 3/1000
  - all transferred to care
  - CD4 count - 353 cells/uL (range 18-1161)
  - 8 (42%) likely to have recently acquired their HIV infection (RITA +)

- Cost per new HIV infection – pre-confirmatory
  - £1663.63 - lab and equipment alone
  - £1886.31 - + ED staff
  - £2035.26 - + implementation team time
Number of HIV tests in AAU 1113
New HIV diagnoses from AAU tests 8 7/1000
+ ED initiated tests, patients admitted to AAU 22 19/1000*
Median 281 cells/uL
*overestimate as denominator does not capture ED patients admitted to AAU with a negative test
### AAU HIV testing programmes - London

<table>
<thead>
<tr>
<th>Key Outcomes</th>
<th>St Thomas’ (CQUIN)</th>
<th>Mayday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage (%)</td>
<td>57.5</td>
<td>32.5</td>
</tr>
<tr>
<td>Total no. tests</td>
<td>2208</td>
<td>4122</td>
</tr>
<tr>
<td>Newly diagnosed individuals; [HIV seropositivity (per 1000)]</td>
<td>11 5/1000</td>
<td>20 4.8/1000</td>
</tr>
<tr>
<td>No. with clinical indicator diseases</td>
<td>8 (73%)</td>
<td>8 (57%)</td>
</tr>
<tr>
<td>Late presenters (%)</td>
<td>89 %</td>
<td></td>
</tr>
<tr>
<td>Median CD4 (cells/μL)</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>Potential missed opportunities</td>
<td>6 (55%)</td>
<td></td>
</tr>
<tr>
<td>Cost per HIV diagnosis</td>
<td></td>
<td>£1466</td>
</tr>
</tbody>
</table>
HIV TEST PROMPT
This pop up appears when specific patients are ‘activated’ by clinician, e.g. 16-65 yo attending ED, admitted to AAU. Can also be linked to a specific clinic resource code and patient type – e.g. new patient attending the TB clinic
Leads to this screen, to select the appropriate outcome. Can capture reasons for declining or indicator condition in comments box.
If click on the “HIV Test not offered” response, a dropdown menu appears, can select the most appropriate reason.
Prompt responses from ED and AAU: April 2013-Feb 2014

<table>
<thead>
<tr>
<th></th>
<th>ED</th>
<th>AAU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with response recorded</td>
<td>3580</td>
<td>1195</td>
</tr>
<tr>
<td>Patients aged 16-65 y attending</td>
<td>16840</td>
<td>4298</td>
</tr>
<tr>
<td>% eligible patients with response</td>
<td><strong>21%</strong></td>
<td><strong>28%</strong></td>
</tr>
<tr>
<td>HIV test offered and accepted</td>
<td>2336</td>
<td>432</td>
</tr>
<tr>
<td>HIV tests performed</td>
<td>6359</td>
<td>510</td>
</tr>
<tr>
<td>% accepting test with response</td>
<td><strong>37%</strong></td>
<td><strong>85%</strong></td>
</tr>
<tr>
<td>Offered and declined</td>
<td>367</td>
<td>251</td>
</tr>
<tr>
<td>reason captured</td>
<td>11 (3%)</td>
<td>12 (5%)</td>
</tr>
<tr>
<td>Not offered</td>
<td>579</td>
<td>270</td>
</tr>
<tr>
<td>medically too unwell</td>
<td>102 (17%)</td>
<td>47 (17%)</td>
</tr>
<tr>
<td>known HIV +</td>
<td>176</td>
<td>61</td>
</tr>
<tr>
<td>reason not captured</td>
<td>106 (12%)</td>
<td>78 (28%)</td>
</tr>
</tbody>
</table>
Common Tests Order Set – HIV Test added
# Post Take Ward Round

**Consultant:**

**Additional History, Examination & Discussion with Patient**

| T: |  
|----|---
| P: |  
| BP: |  
| RR: |  
| Sats%: |  
| O2%: |  
| PEFR: |  
| BM: |  
| GCS: |  
| NEWS: |  

**Review of Results and Investigations**

**Problems**

1. 
2. 
3. 

**Differential Diagnosis**

1. 
2. 
3.
Factors to consider when starting an HIV testing programme

- Consent issues
  PTD leaflet, routine verbal consent
  HIV testing can be delivered by any HCP

- Results governance
  ensure all results are reviewed
  weekly report of all positive results sent from laboratory to sexual health team

- Link with local team
  to give results if required
  clear patient pathway into care
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