Overcoming barriers to HIV testing
An agenda to expand HIV testing

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IMPRESS Conference: Tackling HIV Stereotypes
Canterbury
25th March 2015
Outline

• International HIV Policy
• HIV in the UK
  • Epidemiology
  • HIV testing policy
• HIV testing in:
  • General medical services
  • Community settings
UNAIDS targets by 2020

- 90% PLHIV know their status
- 90% of diagnosed on sustainable ART
- 90% of treated have a durable viral suppression

‘This would result in the end of AIDS and make HIV transmission rare by 2030’
Continuum of Care People living with HIV, United Kingdom, 2013

- HIV infected (n=107,000)
- HIV diagnosed (n=80,900)
- Retained in care (n=76,800)
- On treatment (n=72,700)
- Undetectable VL (VL<200, n=68,700)
## International cascades of HIV care

<table>
<thead>
<tr>
<th>Country</th>
<th>Living with HIV</th>
<th>Diagnosed</th>
<th>Linked to care</th>
<th>In care</th>
<th>On ART</th>
<th>&lt;50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>27,674</td>
<td>86%</td>
<td>78%</td>
<td>76%</td>
<td>66%</td>
<td>62%</td>
</tr>
<tr>
<td>Denmark</td>
<td>6,500</td>
<td>85%</td>
<td>81%</td>
<td>75%</td>
<td>62%</td>
<td>59%</td>
</tr>
<tr>
<td>UK</td>
<td>94,900</td>
<td>77%</td>
<td>n/a</td>
<td>72%</td>
<td>64%</td>
<td>58%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>25,000</td>
<td>n/a</td>
<td>73%</td>
<td>68%</td>
<td>59%</td>
<td>53%</td>
</tr>
<tr>
<td>France</td>
<td>149,000</td>
<td>81%</td>
<td>n/a</td>
<td>74%</td>
<td></td>
<td>52%</td>
</tr>
<tr>
<td>Canada (BC)</td>
<td>72,000</td>
<td>71%</td>
<td>67%</td>
<td>57%</td>
<td>51%</td>
<td>35%</td>
</tr>
<tr>
<td>USA</td>
<td>1,148,000</td>
<td>82%</td>
<td>66%</td>
<td>37%</td>
<td>33%</td>
<td>25%</td>
</tr>
</tbody>
</table>

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1 Adapted from H Raymond et al at HIV Glasgow 2014

The diagram shows the number of undiagnosed infections and incident infections from 2004 to 2013. The graph indicates a steady increase in the number of undiagnosed infections and incident infections over the years, with confidence intervals also shown. The data suggests a growing trend in HIV diagnoses during this period.
Counter – factual scenario
No condom use *Phillips et al PLOS One 2013*

No condom use (a) ART at diagnosis from 2000

Cessation of all condoms in 2000 would have resulted in a 400% increase in incidence
Why focus on HIV testing?

• Improved individual prognosis:
  − Late diagnosis associated with higher mortality and morbidity

• Public health impact:
  − Adoption of safer behaviour subsequent to diagnosis
  − Reduced transmission from individuals on treatment

• Cost:
  − x3 more expensive to treat individuals diagnosed CD4<75 than at CD4 >500

• Missed opportunity:
  − 25% of new HIV diagnoses could have been diagnosed earlier
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Antenatal screening for HIV

1 Includes previously diagnosed and those diagnosed through antenatal testing
2 Assumes vertical transmission rate of 26.5% in undiagnosed women and 2.2%, 1.6% and 1.1% in diagnosed women in 1999, 2000-2002 and 2003-2008 respectively.
3 These data contain reports received by the end of June 2012, data for recent years is subject to reporting delay.
Modelled impact on HIV incidence of increased testing among MSM

Adapted from Phillips A CROI conference 2014
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Cost and cost-effectiveness

Lower costs associated with early versus late diagnosis (Krentz et al)

Cost-effectiveness of increasing HIV testing

• France: one time testing of general population\(^1\)
• USA: cost-effectiveness threshold of positivity 1/1,000\(^2\)
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New HIV diagnoses by exposure group: United Kingdom, 2004 - 2013

- Sex between men (adjusted)
- Heterosexual contact (adjusted)
- Injecting drug use (adjusted)
- Not reported

Number of new HIV diagnoses

Year of first HIV diagnosis in the UK

<table>
<thead>
<tr>
<th>Exposure category</th>
<th>Total HIV infection</th>
<th>% Undiagnosed</th>
<th>HIV prevalence per 1,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(credible interval)</td>
<td>(credible interval)</td>
<td>(credible interval)</td>
</tr>
<tr>
<td><strong>Men who have sex with men</strong></td>
<td>43,500</td>
<td>16%</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>(40,200, 48,200)</td>
<td>(10, 25%)</td>
<td>(52, 68)</td>
</tr>
<tr>
<td><strong>People who inject drugs</strong></td>
<td>2,400</td>
<td>10%</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>(2,100, 2,600)</td>
<td>(6, 16%)</td>
<td>(5.5, 8.3)</td>
</tr>
<tr>
<td><strong>Heterosexuals</strong></td>
<td>59,500</td>
<td>31%</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>(54,700, 66,00)</td>
<td>(25, 38%)</td>
<td>(1.5, 1.8)</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td>24,000</td>
<td>34%</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>(21,600, 27,400)</td>
<td>(27, 42%)</td>
<td>(1.2, 1.5)</td>
</tr>
<tr>
<td><strong>Black African ethnicity</strong></td>
<td>13,600</td>
<td>38%</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>(11,800, 16,700)</td>
<td>(29, 50%)</td>
<td>(35, 49)</td>
</tr>
<tr>
<td><strong>Non black-African ethnicity</strong></td>
<td>10,200</td>
<td>27%</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>(9,100, 12,300)</td>
<td>(18, 39%)</td>
<td>(0.5, 0.7)</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>35,500</td>
<td>29%</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>(32,700, 28,900)</td>
<td>(23, 36%)</td>
<td>(1.7, 2.0)</td>
</tr>
<tr>
<td><strong>Black African ethnicity</strong></td>
<td>25,100</td>
<td>31%</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>(22,400, 28,900)</td>
<td>(23, 40%)</td>
<td>(63, 81)</td>
</tr>
<tr>
<td><strong>Non black-African ethnicity</strong></td>
<td>10,300</td>
<td>23%</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>(9,400, 11700)</td>
<td>(16, 32%)</td>
<td>(0.5, 0.6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>107,800</td>
<td>24%</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>(101,600, 115,800)</td>
<td>(20, 29%)</td>
<td>(3.5, 4.0)</td>
</tr>
</tbody>
</table>
HIV Testing in the UK

General Population\(^1\)

- 9% of males and 5% of females had VCT in <5 years

Other health services\(^2\)

- Most (>75%) HIV tests performed by STI or antenatal services

Most at-risk populations

- 58% of MSM reported an HIV test in the last year
- 40-50% of Black Africans had an HIV test

\(^1\)NATSAL 2000/01 survey; \(^2\)Tweed et al STI 2010
HIV testing

- Increases in reported HIV testing in targeted groups
Proportion MSM in gay venues reporting an HIV test, London: 2000-2013

Gay Mens’ Sexual Health Survey:
University College London/Public Health England
UK National Guidelines for HIV Testing

- Services with high background prevalence (e.g. STI clinics, Antenatal, Termination of Pregnancy etc)

- Patients at higher risk (e.g. MSM, PWID):

- Patients with clinical indicator diseases

- Expanded HIV testing in areas of high diagnosed HIV prevalence (>2/1,000)
  - Registrants in primary care
  - General medical admissions

- HIV testing in the community
Pilot projects of routine offer of an HIV test in general medical services

• Pilot projects to evaluate models of expanded HIV testing in general medical services in 2010

• 10,688 HIV tests performed with 41 new HIV diagnoses (3.8/1,000).
  – 4.8/1,000 in primary care
  – 3.1/1,000 in hospitals

• Pilot projects demonstrated:
  – high levels of acceptability among patients
  – feasibility of routine testing in different medical services
  – 6 of 8 projects exceeded cost-effective threshold (1/1,000)

¹HPA Time to test for HIV report 2011
## Preliminary Results

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Accepted</th>
<th>Declined</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>It was a good idea to offer me an HIV test today during my new patient health check*</td>
<td>97.8</td>
<td>93.5</td>
<td>96.7</td>
</tr>
<tr>
<td>I think I may be at risk of HIV*</td>
<td>6.5</td>
<td>2.5</td>
<td>5.5</td>
</tr>
<tr>
<td>I had enough time to decide whether or not to have an HIV test today*</td>
<td>85.3</td>
<td>71.1</td>
<td>81.7</td>
</tr>
<tr>
<td>I would like to receive my HIV test result straight away*</td>
<td>93.9</td>
<td>51.1</td>
<td>84.1</td>
</tr>
<tr>
<td>I am happy to have an HIV test at my doctor’s surgery*</td>
<td>98.6</td>
<td>73.3</td>
<td>92.3</td>
</tr>
<tr>
<td>I would prefer to have an HIV test at a specialist sexual health clinic*</td>
<td>8.6</td>
<td>10.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Overall I would rate my experience of being offered an HIV test as helpful and useful*</td>
<td>94.1</td>
<td>86.2</td>
<td>92.1</td>
</tr>
</tbody>
</table>

* Indicates significant difference by chi-squared test (p<0.05)
Offer and Acceptance by Admitting Doctor

Offer rate differed significantly by grade $p<0.001$

Offer rate differed significantly by Consultant $p<0.001$
### Pilots routine HIV testing: Cost per HIV diagnosed, UK, 2011

<table>
<thead>
<tr>
<th>Pilot Site</th>
<th>Service</th>
<th>Number HIV diagnosed</th>
<th>Number HIV tests</th>
<th>Cost per HIV diagnosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brighton</td>
<td>10 GPs</td>
<td>2</td>
<td>1,473</td>
<td>£4,673</td>
</tr>
<tr>
<td>London</td>
<td>18 GPs</td>
<td>19</td>
<td>2,713</td>
<td>£787</td>
</tr>
<tr>
<td>London</td>
<td>1 GP</td>
<td>0</td>
<td>1,002</td>
<td>-</td>
</tr>
<tr>
<td>London</td>
<td>ACU</td>
<td>4</td>
<td>384</td>
<td>£299</td>
</tr>
<tr>
<td>Brighton</td>
<td>ACU</td>
<td>2</td>
<td>1,413</td>
<td>£3,780</td>
</tr>
<tr>
<td>Leicester</td>
<td>ACU</td>
<td>10</td>
<td>984</td>
<td>£818</td>
</tr>
<tr>
<td>London</td>
<td>ED</td>
<td>4</td>
<td>2,121</td>
<td>£5,200</td>
</tr>
<tr>
<td>London</td>
<td>OPD</td>
<td>0</td>
<td>598</td>
<td>-</td>
</tr>
</tbody>
</table>

- Costs per HIV detected compare well with other studies:
  - USA\(^1\): varied from $1,980 (UCC) to $9,724 (ED)

\(^1\) Mehta et al Pub Health Rep 2008;
• Despite low coverage, reported high
  • Acceptance/uptake (69%)
  • Positivity (0.6%)
Innovations in HIV testing

- HIV tests ordered on-line
  - 4th generation dried blood spot
  - 3rd generation oral swab

- Samples posted to laboratory

- Individual informed of result
  - Negatives by text
  - Positives by phone and letter

- Referral to HIV service recommended
HIV Self-Sampling Services

• 6 months of operation (Nov 13-Mar 14), these two services have delivered:
  − 12,485 test requests
  − 6,593 returned (53%)
  − 92 new diagnoses (1.4% positivity)

• Unique selling points of self-sampling:
  − High volumes managed through the internet
  − Different to clinic populations (younger and more rural)
  − Used by those at high risk due to testing and sexual behaviour

• Establishment of a national service
Relationship to marketing

(Phase 2)

MARKETING

National HIV testing week

Brady M et al BHIVA/BASHH conference 2014
Socio-demography of users (MSM)
Risk behaviour of users (MSM)

n=3270

- 25% Never tested
- 33% Over a year ago
- 41% Within the last year

Percentage of clients ordering a kit:
- Never tested
- Over a year ago
- Within the last year

None, 1, 2-5, 6-12, 13+
Conclusion

HIV testing major component of prevention strategy

HIV testing strategies reflect the local epidemiology:
• Services with high background prevalence
• Individuals with a risk for HIV
• Illnesses and conditions with high background prevalence

Improve HIV testing by:
• Expansion in general medical services
• Promoting HIV testing in at-risk communities
Acknowledgements

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Alan McOwan and colleagues at Dean Street Clinic/Chelsea & Westminster Hospital NHS Foundation Trust

Thank you