Impact of HIV co-morbidities on attendance frequency
England & Wales, 2017

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Overview

• Background & aims
• Positive Voices
• Participant characteristics
• Co-morbidities
• Attendance frequency and impact of co-morbidities
• Strengths and limitations
• Conclusions
• HARS: national system for monitoring HIV outpatient care

• Collects complexity information which will inform the national tariff: **Stable / New / Complex**

**Conditions for Complex**
- AIDS illness
- TB treatment
- Malignancy
- Psychiatric care
- Persistent viraemia
- Chronic viral liver disease
- End organ disease
- Pregnancy

• Diversity across stable? Poly-pharmacy/other psychosocial issues. Trounce et al. – poster 92.
Time period: February – September 2017
Nationally representative: Random sample from HARS
Clinic-based recruitment: Face to face, post or email
Self-completion: Paper (87%) or online (13%)
Incentive: £5 high street voucher

Total of 4,424 responses: 1 in 20 people living with HIV in E&W
Background

- HARS: national system for monitoring HIV outpatient care
- Collects complexity information which will inform the national tariff
  - Stable / New / Complex

Aim: Investigate the relationship between self-reported co-morbidities on frequency of attendance at the HIV clinic

Dataset:

- HARS
  - HIV & AIDS Reporting System
- PositiveVoices
  - the national survey of people living with HIV

Exclusions: People newly diagnosed or newly starting treatment

Impact of HIV co-morbidities on attendance frequency
3,861 participants had clinical data available for 4 quarters (87%).

- **Men**: 72%
- **Women** (including 13 trans women): 28%

- **Age**:
  - Age <35: 36%
  - Age 35-44: 24%
  - Age 45-54: 26%
  - Age ≥ 55: 10%

- **Ethnicity**:
  - White British: 48%
  - Black African: 26%
  - Other: 26%

- **Clinical factors**:
  - U=U on ART: 98%
  - 97% suppressed viral load (among those on ART)

- **Location**: 52% live in London

19,724 participants had clinical data available for 4 quarters (87%).

- **Age**:
  - Age <35: 36%
  - Age 35-44: 28%
  - Age 45-54: 24%
  - Age ≥ 55: 10%

- **Ethnicity**:
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  - 97% suppressed viral load (among those on ART)

- **Location**: 52% live in London

Public Health England
Co-morbidities self-reported in Positive Voices

Participants self-reported from a list of 24 conditions (ever diagnosed):

<table>
<thead>
<tr>
<th>Condition</th>
<th>Diabetes</th>
<th>Osteopenia/Osteoporosis</th>
<th>Sleep disorder/insomnia</th>
</tr>
</thead>
<tbody>
<tr>
<td>High cholesterol</td>
<td>High blood pressure</td>
<td>Arthritis</td>
<td>PTSD</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>Erectile dysfunction</td>
<td>Cancer</td>
<td>Psychosis/schizophrenia</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>Heart attack</td>
<td>Anxiety</td>
<td>Asthma</td>
</tr>
<tr>
<td>Stroke/mini stroke</td>
<td>Rheumatoid arthritis</td>
<td>Depression</td>
<td>COPD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Personality disorder</td>
<td>Neurpathy**</td>
</tr>
</tbody>
</table>

Burden of self-reported co-morbidity

- **71%** of people reported ≥1 co-morbidity
- **33%** reported ≥3 co-morbidities

**including peripheral neuropathy**
Prevalence of each condition

*prevalence of erectile dysfunction among men  **including peripheral neuropathy
### Relationship between co-morbidities and complexity

<table>
<thead>
<tr>
<th>All participants (n=3,861)</th>
<th>Stable</th>
<th>Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>No self-reported co-morbidities (n=1,132)</td>
<td>93%</td>
<td>7%</td>
</tr>
<tr>
<td>1-3 self-reported co-morbidities (n=1,898)</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>4-6 self-reported co-morbidities (n=613)</td>
<td>82%</td>
<td>18%</td>
</tr>
<tr>
<td>7+ self-reported co-morbidities (n=218)</td>
<td>71%</td>
<td>29%</td>
</tr>
</tbody>
</table>
Distribution of attendance frequency

• Total of **12,602** attendances in 2017

• Median attendances: **3 [IQR: 2-4]**

• Attendance frequency was skewed
  • 10% of people accounted for 3,100 attendances (a quarter of all attendances)

**Association with co-morbidity**

• Increased burden of co-morbidity led to higher frequency of attendance

Impact of HIV co-morbidities on attendance frequency
Multivariable Poisson regression model for consultation frequency adjusted for age, gender, ethnicity, unsuppressed VL, place of residence and HIV exposure

Model A: count of burden of comorbidities

- Black heterosexuals (ref. white MSM): -0.10 (-0.17 to -0.03) p<0.005
- Age (each additional year): -0.005 (-0.007 to -0.003) p<0.001
- Co-morbidity (per additional): 0.04 (0.03 to 0.05) p<0.001
- Resident in London (n=1,995): 0.09 (0.05 to 0.13) p<0.001
- Unsuppressed VL (n=112): 0.30 (0.21 to 0.39) p<0.001

- 8,870 comorbidities led to an additional 355 attendances
- Unsuppressed VL: 34 additional attendances

Regression coefficient
Multivariable Poisson regression model for consultation frequency adjusted for age, gender, ethnicity, unsuppressed VL, place of residence and HIV exposure

Model B: each comorbidity separately

- Anxiety (n=919): 
  - Regression coefficient: 0.10 (0.04-0.16) p<0.005
  - Additional attendances: 92

- Cancer (n=312):
  - Regression coefficient: 0.11 (0.02-0.20) p<0.05
  - Additional attendances: 34

- Neuropathy* (n=304):
  - Regression coefficient: 0.16 (0.06-0.25) p<0.01
  - Additional attendances: 49

- Psychosis/schizophrenia (n=74):
  - Regression coefficient: 0.17 (0.02-0.32) p<0.05
  - Additional attendances: 13

- Dementia (n=12):
  - Regression coefficient: 0.56 (0.24-0.87) p<0.001
  - Additional attendances: 7

- Anxiety: 92 additional attendances
- Cancer: 34 additional attendances
- Neuropathy: 49 additional attendances
- Psychosis/schizophrenia: 13 additional attendances
- Dementia: 7 additional attendances
Strengths and limitations

• Linkage of HIV survey data to routinely collected surveillance data

• Undiagnosed and rarer conditions will not have been captured

• Analyses were limited to Positive Voices participants and sites which had submitted a full year of HARS data

• Limited to HIV clinic attendances
Conclusions

• Almost three-quarters of people living with HIV reported one or more co-morbidity

• Self-reported co-morbidities impact upon frequency of attendance and are seen not only in “complex” patients

• From multivariable regression, co-morbidities accounted for ~350 additional attendances over 12 months

• Results have been shared with HIV clinical reference group to better inform patient care
We gratefully acknowledge the continuing collaboration of people living with HIV, as well as clinicians, microbiologists, immunologists, public health practitioners, occupational health doctors, nurses and other colleagues who contribute to the surveillance of HIV and STIs in the UK.

Thank you to all Positive Voices survey participants & staff at 73 recruiting HIV clinics.

Questions?