Assessing the clinical complexity of a national cohort of adults accessing HIV outpatient care

Peter Kirwan, Cuong Chau, Zheng Yin, Alison Brown and Valerie Delpech
on behalf of the HIV & STI Department, Public Health England
Background

• People living with HIV receive excellent specialist care through HIV clinics
• A substantial number of people may have additional co-morbidities and other complex needs
• The HIV & AIDS Reporting System (HARS) has collected fields to capture clinical complexity, as agreed upon in collaboration with HIV clinicians and commissioners

Aim:
For the first time we analyse clinical complexities reported to HARS to better inform the delivery and commissioning of health services for people living with HIV
## HARS variables

<table>
<thead>
<tr>
<th>Demographic information</th>
<th>Site information</th>
<th>Diagnosis information</th>
<th>Treatment information</th>
<th>Patient information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient ID</td>
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<td>New diagnosis UK</td>
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<td>CD4 count taken</td>
</tr>
<tr>
<td>GP Practice code</td>
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<tr>
<td>GP disclosure</td>
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<td>Site ARV start</td>
<td>Viral load taken</td>
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<tr>
<td>Soundex code</td>
<td>Previous HIV site</td>
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<tr>
<td>Gender identity</td>
<td>information</td>
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1. The patient cohort is generated by linking patient attendances for clinics which had submitted 4 quarters of HARS data.

2. A hierarchical algorithm is used to classify patients by clinical complexity over the previous 4 quarters.
Example: “the tariff clock”
Results

Clinics submitted 4 consecutive quarters of HARS data

Patients in 2016 (85% of patients in 2015)

Average annual number of consultations

13% Complex

7% New

80% Stable

Newly diagnosed (N=3,016)

Newly starting treatment (N=3,819)

21% 41% 38%

Complex (N=8,625)

New (N=4,852)

Stable (N=55,130)

Average number of consultations

0 1 2 3 4 5 6 7
Assessing HIV clinical complexity

**Indicators of complexity**

**Men**
11% (5,293/46,877)

- Psychiatric care: 28% (Sole) 20% (Multiples)
- End organ disease: 26% (Sole) 17% (Multiples)
- AIDS: 19% (Sole) 12% (Multiples)
- Chronic liver disease: 18% (Sole) 14% (Multiples)
- Pregnancy: 9% (Sole) 14% (Multiples)
- Persistent viremia: 10% (Sole) 7% (Multiples)
- Malignancy: 5% (Sole) 3% (Multiples)
- Tuberculosis: 5% (Sole) 3% (Multiples)
- Social care: 31% (Sole) 17% (Multiples)
- Hepatitis B: 9% (Sole) 17% (Multiples)
- Hepatitis C: 31% (Sole) 17% (Multiples)

**Women**
15% (3,323/21,677)

- Psychiatric care: 11% (Sole) 19% (Multiples)
- End organ disease: 13% (Sole) 20% (Multiples)
- AIDS: 8% (Sole) 13% (Multiples)
- Chronic liver disease: 6% (Sole) 8% (Multiples)
- Pregnancy: 9% (Sole) 12% (Multiples)
- Persistent viremia: 3% (Sole) 5% (Multiples)
- Malignancy: 4% (Sole) 6% (Multiples)
- Social care: 16% (Sole) 15% (Multiples)
- Hepatitis B: 9% (Sole) 15% (Multiples)
- Hepatitis C: 9% (Sole) 15% (Multiples)
Assessing HIV clinical complexity

Regional results (NHS trust level)

London
11 NHS trusts; 24,898 patients

Midlands and East of England
35 NHS trusts; 15,627 patients

North of England
32 NHS trusts; 13,299 patients

South of England
30 NHS trusts; 14,783 patients
Conclusions

• Preliminary findings indicate that the large majority of people accessing HIV specialist care in 2016 are stable, with 1 in 8 categorised as complex and 1 in 14 newly diagnosed or starting ART

• Complex and new categories were associated with increased numbers of attendances

• Complexity breakdowns can be produced at clinic, NHS trust and regional level, once clinics have provided 4 consecutive quarters of data

• This work will inform the national tariff with continued engagement with the CRG and NHSE
Future work

Data validation
- Validation work is being undertaken with clinics to improve data quality
- Validation rules need to be developed, which may include clinical audits
- The updated dataset (HARS v1.2) will directly collect persistent viremia, which will be validated using viral load and ART markers

Assessment of complexity categories
- Investigate the impact of co-morbidity upon health outcomes and frequency of HIV clinic attendance
- Assess the effect of clinical complexity upon HIV service use
- Apply adjustments to clinical outcomes data to account for case mix, including complexity category
We gratefully acknowledge people living with HIV, clinicians, microbiologists, immunologists, public health practitioners, occupational health doctors and nurses and other colleagues who contribute to the public health monitoring of HIV and STIs in the UK.

Thank you to colleagues at Public Health England.