Exploring the drivers of the recent decline in gonorrhoea diagnoses in MSM attending GUM clinics in England (2015 to 2016)

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Background

• Gonorrhoea (GC) is the second most common STI in England and disproportionately affects men who have sex with men (MSM)

• Annual and up to 3-monthly STI testing is recommended in MSM at high-risk\(^1,2\)

• From **2015 to 2016**, there was a rapid decline in the number of GC diagnoses following substantial annual increases in the last decade\(^3\)

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1 BASHH/BGCA 2012 “UK Guidelines on Safer Sex Advice”
2 BASHH 2014 “Recommendations for testing for STIs in MSM”
3 PHE 2017 “STIs and chlamydia screening in England, 2016”
Number of GC diagnoses in GUM clinic attendees by sexual orientation, England 2012 - 2016

-22% (2015 to 2016)
+2% (2015 to 2016)
+1% (2015 to 2016)
Objective

Using data national sexually transmitted infection (STI) data from the GUMCAD STI Surveillance System, we investigated possible drivers of the rapid 2016 GC decline in MSM attending GUM clinics in England

- Behavioural change?
- Testing platform performance?
- Reduction in the period of infectiousness?
  - Test frequency
  - Time to treatment
Methods

Behavioural change?
• Calculated chlamydia and syphilis trends in MSM and GC case-mix, 2012-2016

Testing platform performance?
• Requested information on testing platforms used by clinics with greatest declines

Reduction in the period of infectiousness?
• Calculated GC testing and diagnosis trends, annual test frequency and median days to subsequent test following GC diagnosis in MSM, 2012-2016
Methods - GC test history & clinic throughput strata

GC test history
Testing trends stratified by GC test history in preceding year

• Frequent testers: 2 or more tests/year
• Infrequent testers: Less than 2 tests/year

Clinic throughput strata
Testing analyses stratified regionally and bisected by median MSM clinic throughput

• London: high (HT) & low (LT) throughput
• Outside London: high (HT) & low (HT) throughput
Behavioural change? Number of gonorrhoea, chlamydia and syphilis diagnoses in MSM attending GUM clinics, England 2012 - 2016
Behavioural change? GC case-mix in MSM attending GUM clinics, England 2012 - 2016

<table>
<thead>
<tr>
<th>GC case characteristic</th>
<th>Year</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>30</td>
<td>31</td>
<td>31</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Ethnic group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/White British (%)</td>
<td>83.0</td>
<td>82.4</td>
<td>82.1</td>
<td>81.9</td>
<td>81.7</td>
</tr>
<tr>
<td>Region of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK-born (%)</td>
<td>66.3</td>
<td>64.5</td>
<td>64.4</td>
<td>62.8</td>
<td>61.8</td>
</tr>
<tr>
<td>HIV status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Positive (%)</td>
<td>21.1</td>
<td>23.5</td>
<td>22.5</td>
<td>19.9</td>
<td>20.1</td>
</tr>
</tbody>
</table>

¹ where known
Testing platform performance? GC Nucleic Acid Amplification Test (NAAT) platforms used in clinics with greatest declines

Survey of testing platforms used by 13 clinics that had the greatest declines

- Responses from 8/13 clinics or labs surveyed
- 4 different testing platforms used

<table>
<thead>
<tr>
<th>Clinic stratum</th>
<th>NAAT platform</th>
<th>% of GC tests, England 2016¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>London HT (n=6)</td>
<td>GeneXpert</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td>Aptima</td>
<td>11%</td>
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<tr>
<td></td>
<td>BD</td>
<td>2%</td>
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<tr>
<td></td>
<td>Roche</td>
<td>1%</td>
</tr>
<tr>
<td>Outside London HT (n=2)</td>
<td>Aptima</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>BD</td>
<td>2%</td>
</tr>
<tr>
<td>Other GUM clinics surveyed (n=5)</td>
<td>Unknown</td>
<td>6%</td>
</tr>
</tbody>
</table>

¹ where clinics surveyed represent 52% of the of 166,830 GC tests in England in 2016
Exploring the drivers of the recent decline in gonorrhoea diagnoses in MSM attending GUM clinics in England
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Reduction in the period of infectiousness? GC test frequency\(^1\) in MSM attending GUM clinics by strata, England 2015

<table>
<thead>
<tr>
<th></th>
<th>1 test</th>
<th>2 tests</th>
<th>3 tests</th>
<th>4+ tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>London HT (n=58,127)</td>
<td>49%</td>
<td>34%</td>
<td>26%</td>
<td>27%</td>
</tr>
<tr>
<td>Outside London HT (n=47,137)</td>
<td>34%</td>
<td>26%</td>
<td>27%</td>
<td>49%</td>
</tr>
<tr>
<td>London LT (n=4,127)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Outside London LT (n=6,202)</td>
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</tbody>
</table>

\(^1\) in prospective 365 days from first test of year
Reduction in the period of infectiousness? Time interval between GC diagnosis and subsequent GC test by strata, England 2012-2015

Exploring the drivers of the recent decline in gonorrhoea diagnoses in MSM attending GUM clinics in England
Reduction in the period of infectiousness? Time to treatment following GC diagnosis

Though cannot assess time to treatment using GUMCAD data, anecdotal reports of reduced time to treatment in some London clinics

GeneXpert NAAT platform used in some London HT clinics

- Molecular CT/GC testing, 90 minute turnaround
- Earlier time to diagnosis, facilitating faster time to treatment

1 Gaydos et al 2013
2 Wingrove et al 2014
Conclusion

• There was a 22% decline in gonorrhoea diagnoses in MSM in 2016 relative to 2015 following sustained increases in the last 10 years

• Limited evidence of behavioural change, case-mix or testing platform errors associated with GC decline

• Increased testing frequency and shorter test-turnaround time, facilitating earlier identification and treatment of infection, especially those asymptomatic, may have limited secondary transmission and reduced GC incidence
Acknowledgements

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Questions?
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