Testing for Chlamydia trachomatis infection: are we meeting clinical guidelines? Evidence from a state level data linkage analysis for 15-29 year olds

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Chlamydia notification rate per 100,000 population, Australia, 1994 to 2014
## Notification data

<table>
<thead>
<tr>
<th>Age group</th>
<th>Sex</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19 years</td>
<td>Males</td>
<td>401</td>
<td>488</td>
<td>547</td>
<td>711</td>
<td>740</td>
<td>724</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>1383</td>
<td>1566</td>
<td>1718</td>
<td>2064</td>
<td>2299</td>
<td>2202</td>
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<tr>
<td>20-24 years</td>
<td>Males</td>
<td>984</td>
<td>1030</td>
<td>1159</td>
<td>1328</td>
<td>1482</td>
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<tr>
<td></td>
<td>Females</td>
<td>1595</td>
<td>1722</td>
<td>1788</td>
<td>2044</td>
<td>2228</td>
<td>2283</td>
</tr>
<tr>
<td>25-29 years</td>
<td>Males</td>
<td>604</td>
<td>663</td>
<td>671</td>
<td>786</td>
<td>841</td>
<td>866</td>
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<tr>
<td></td>
<td>Females</td>
<td>688</td>
<td>733</td>
<td>776</td>
<td>814</td>
<td>878</td>
<td>882</td>
</tr>
</tbody>
</table>

### Chlamydia notification rates, males and females aged 15 to 29 years, Australia, 2007 to 2012 *

- Young people aged 15-29 years make up ~80% of notified cases
- Females disproportionately represented

Background

- Chlamydia - mean overall prevalence in Australia estimated at 4.6%
- Australian healthcare costs AUD$90-$160 million
- Significant sequelae
  - infertility
  - increased transmission of other sexually transmissible infections
  - ectopic pregnancy
  - pelvic inflammatory disease
  - reactive arthritis
The costs of treating subfertility due to chlamydia are high –
  • tubal surgery
  • in vitro fertilisation

Costs of treating the complications of undiagnosed infection, including pelvic inflammatory disease and tubal infertility, also high -

  • psychosocial
  • financial
Background

• Clinical guidelines recommend:

  • Annual chlamydia tests for all sexually active people aged 15 to 29 years

  • If positive, repeat testing at 3 months to check for reinfection

• Mathematical modelling

  • Large reductions in prevalence are possible, provided adequate testing coverage in target population
Aim

• Measure adherence to the clinical guidelines

• Compare the testing rates to those estimated to be required to reduce chlamydia prevalence
Datasets

- All chlamydia tests conducted in Tasmania by all public and private laboratories provided to Tasmanian Data Linkage Unit
- 2012 and 2013
- Probabilistic linkage
- Linked using a combination of
  - Name, address, date of birth, sex
Datasets

- TDLU provided:
  - De-identified dataset
  - Laboratory identifier
  - Unique patient identifier
  - Postcode of residence
  - Date of birth
  - Sex
  - Date and result of test

- Very smooth process
Why use linked data?

- Without linkage - unable to ascertain whether a person was tested more than once in each year
- Repeat tests can inflate estimates of population testing coverage
- First in Australia at a state-wide level
Current status of project

• Analyses complete

• 3 papers

  • Medical Journal of Australia – under review – testing

  • Australian Journal of Rural Health – under review - geographic differences

  • Final draft – submission to Sexual Health - retesting
Brief results

• 31,899 tests in 24,830 individuals

• Population testing coverage higher in females (21%), than males (6%)

• Highest testing rate in females 20-24 years (26%)

• Test positivity higher in males (16%), compared to females (10%)
Brief results

• Less testing and higher test positivity in areas of most disadvantage compared to middle and least disadvantaged areas

• Testing rates higher in inner regional areas (15%), compared to outer (9%) and remote (8%) areas
Brief results

• Retest rates at 3-month timeframe higher in females (14%) than males (10%)

• Retest positivity at 3 months higher in males (36%), than females (23%)

• Retest positivity 1-12 months post initial infection same in males and females (32%)
Conclusions

• Testing rates are below levels recommended under clinical guidelines, particularly in males and in people living in areas of most disadvantage

• Rates are too low to impact on chlamydia prevalence in the short term, however sustained testing in age group 20-24 years may reduce prevalence over the next decade
Conclusions

- People living in outer regional and remote areas in Tasmania are significantly less likely to be tested for chlamydia than those living in inner regional areas.

- Retesting rates at the recommended 3-month timeframe are minimal in both males and females.
Benefits of data linkage project

• Valuable feedback to doctors on their testing effort (national strategy, clinical guidelines)

• Valuable feedback for DHHS for policy development
Acknowledgements

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