Evaluating strategies for STI management in remote Indigenous communities of Australia
## STIs in remote Indigenous communities

<table>
<thead>
<tr>
<th>Age group</th>
<th>Gonorrhoea prevalence</th>
<th>Chlamydia prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-19</td>
<td>13.5%</td>
<td>17.4%</td>
</tr>
<tr>
<td>20-24</td>
<td>7.6%</td>
<td>8.2%</td>
</tr>
<tr>
<td>25-29</td>
<td>2.8%</td>
<td>6.0%</td>
</tr>
<tr>
<td>30-34</td>
<td>4.3%</td>
<td>3.5%</td>
</tr>
<tr>
<td>16-34</td>
<td>7.2%</td>
<td>9.0%</td>
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</tbody>
</table>

STI screening

• Robust screening test available
  – nucleic acid testing sensitivity and specificity 95%-100%

• Good coverage achievable
  – 44%+ population screened annually

• Increase screening coverage

• Point-of-care (POC) testing
STI screening and interventions

Susceptible

Exposed

Asymptomatic (destined for presumptive treatment)

Symptomatic (actively seeking treatment)

Treated and waiting for treatment

Treated and treated at consultation

Tested and treated at consultation

Tested and waiting for treatment

Treated and waiting for treatment

Treated and treated at consultation

Recovered

Susceptible
POC testing

Gonorrhoea

Chlamydia

Prevalence (%)

Years since switching to POC test

Existing

POC test
POC testing with increased screening coverage
Findings

• Point-of-care tests have the potential to be especially beneficial for populations where the probability of a patient returning for a screening result and to receive treatment is low.

• Modelling suggested STI prevalence in remote community can be drastically reduced with increased STI screening coverage and the uses of point-of-care test.

• Cost?
STI persistence in remote community

• Both gonorrhoea and chlamydia persist in these communities, despite:
  – Infections only last for 1-2 years even without treatment
  – High background testing and treatment rate
  – Small population

• High population mobility
  – In 2006, 8-10% of 15-45 years old are temporarily away from their usual place of residence during census night
  – Number of screening > Number of residents in population
    • Screening coverage of more than 100%! 
Individual based model
Days spent away from home location

Gonorrhoea

Chlamydia
Periodic / seasonal variations

**Gonorrhoea**

<table>
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<th>Prevalence at end of 60 years</th>
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<tr>
<td>(100%,100%)</td>
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<tr>
<td>(125%,75%)</td>
</tr>
<tr>
<td>(150%,50%)</td>
</tr>
<tr>
<td>(175%,25%)</td>
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<tr>
<td>(200%,0%)</td>
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**Chlamydia**

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Expanding symptomatic treatment to travellers

Gonorrhoea

Years required for elimination

(25%,0%) (25%,25%) (50%,0%) (50%,25%) (50%,50%) (99%,0%) (99%,25%) (99%,50%) (99%,99%)

Symptomatic treated within 25 days (resident, non-resident)
Finding

• Gonorrhoea and chlamydia can persist if mobile individuals spend a very short time (less than 21 days for gonorrhoea and less than 30 days for chlamydia) away from home.

• Seasonal or periodic variations in mobility pattern could increase the level of prevalence sustainable.

• The benefit of expanding symptomatic treatment to include both resident and travellers is limited. Intervention specifically designed to target high mobile intervention might be necessary.
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