Rationale for chlamydia screening amongst 15-24 year olds

Dr John Saunders, Consultant and R&D Lead
Blood Safety, Hepatitis, STIs and HIV Division
National Infection Service
Public Health England

BASHH Course, May 2019
Rationale for chlamydia screening amongst 15-24 year olds

1. Why is chlamydia an issue?

2. What are the benefits of screening?
Rationale for chlamydia screening amongst 15-24 year olds

- It's widespread
- It does not affect all groups equally
- If untreated it has serious health consequences
- Its consequences have costs
Chlamydia infection is widespread

Chlamydia is the most commonly diagnosed sexually transmitted infection

STI diagnoses in England, 2017
n=422,147

- Chlamydia 48%
- Anogenital warts 14%
- Gonorrhoea 11%
- Non-specific genital infections 8%
- Herpes 8%
- Pelvic inflammatory disease and epididymitis 4%
- Other sexually transmitted infections 5%
- Syphilis 2%
- Syphilis 2%

Rationale for chlamydia screening amongst 15-24 year olds
Chlamydia infection is widespread

Chlamydia infection disproportionately affects 16-24 year olds

- Women: 3.1%
- Men: 2.3%

16 - 24 year olds

- Women: 1.5%
- Men: 1.1%

16 - 44 year olds

Rationale for chlamydia screening amongst 15-24 year olds

5 Rationale for chlamydia screening amongst 15-24 year olds
Chlamydia infection is widespread

All sexually active people are at risk – you don’t have to have lots of partners. Most people with chlamydia only report one partner in the previous year.

Source: NATSAL-3 infographics 13, Wellcome Trust/Paulo Estriga
Chlamydia infection is widespread

Those with more partners are at greater risk people who reported more partners in the past year were more likely to have chlamydia

Chlamydia patients with only 1 partner in the past year (%)

16 - 44 year olds

- Women: 60.4%
- Men: 43.3%

Source: NATSAL-3 infographics 13, Wellcome Trust/Paulo Estriga
Chlamydia does not affect all groups equally

Chlamydia is more common in socioeconomically deprived areas

2/3 of chlamydia is found in those living in one of the 40% most deprived areas
Untreated chlamydia causes harm

“I have a female patient who is 29 years of age. She got married four years ago and is keen to start a family. Now, after four years of trying she came to see me as she failed to get pregnant despite trying…”

“I noted from her history that she had two episodes of chlamydia when she was 19 and 20 years old. She was treated on both occasions. On further asking, she was with a different partner during that time and unsure if he ever got treated…”

“When I referred [the] patient to a gynaecologist...the diagnosis was Tubal Factor Infertility. She has now been referred for IVF. [The] patient is devastated by the outcome of the investigation and what seems to be the complications of a previous chlamydia infection.”

London GP, 2016
Untreated chlamydia causes harm - women

Untreated chlamydia in women

10%-17% develop into pelvic inflammatory disease
Untreated chlamydia causes harm - women

- 5%-11% result in tubal factor infertility
- 4%-8% result in ectopic pregnancy

of those with pelvic inflammatory disease
Untreated chlamydia causes harm – babies

Babies born to mothers with untreated chlamydia:

- 15% of babies have conjunctivitis
- 7% of babies have pneumonia
Untreated chlamydia causes harm – men

2% of men with chlamydia but without symptoms develop epididymitis
Untreated chlamydia causes harm – men and women

HIV

Increases likelihood of transmitting and acquiring HIV
The costs of the possible consequences of untreated chlamydia

- Neonatal conjunctivitis: £52
- Pelvic inflammatory disease: £173
- Epididymitis: £179
- Neonatal pneumonia: £772
- Ectopic pregnancy: £961
- Tubal infertility: £6,812
The benefits of screening.... reduces the duration of infection and can prevent transmission.
Action on chlamydia can lead to fewer infections

1. Diagnosing and treating infections
2. Reducing duration of infection
3. Interrupting transmission of infection
4. Fewer infections in the population
Action on chlamydia can lead to reduced harm to health

Reduction in pelvic inflammatory disease (PID)

Women who have had a screen are 36% less likely to develop PID compared to those who have not.
Figure 3: Reduced risk of pelvic inflammatory disease (PID) associated with chlamydia screening among women; results of four randomised controlled trials

**RR: Risk ratio for intervention compared to control group. 95% confidence intervals are shown in brackets**
Reduced risk of PID within one year associated with a single offer of a chlamydia screen among women (adapted from European Centre for Disease Control and Prevention report)

<table>
<thead>
<tr>
<th>Study (year)</th>
<th>Effect estimate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholes (1996)</td>
<td>0.44 (0.20-0.90)</td>
</tr>
<tr>
<td>Ostergaard (2000)</td>
<td>0.49 (0.23-1.07)</td>
</tr>
<tr>
<td>Oakeshott (2010)</td>
<td>0.65 (0.34-1.22)</td>
</tr>
<tr>
<td>Andersen (2011)</td>
<td>0.89 (0.56-1.42)</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>0.65 (0.47-0.91)</strong></td>
</tr>
</tbody>
</table>

($I^2 = 11.7\%, \ p=0.334$)
Chlamydia screening addresses health inequalities

Delivery of sexual health services outside of traditional healthcare settings can make screening more accessible to all populations and can reduce costs:

Community pharmacies and primary care make it more accessible in rural areas

Internet testing reaches a population with a relatively high risk of chlamydia infection and appears acceptable to young men, a group that has been difficult to engage with chlamydia testing
Comprehensive case management

1. Test uptake
   - Offer test

2. Detect infections
   - Take specimen

3. Treatment
   - Make a diagnosis

4. Partner management
   - Get result

5. 
   - Give treatment

6. 
   - Notify partner(s)

7. 
   - Prevent reinfection

Improving effective delivery of chlamydia screening
Partner Notification (PN):

1. Reduces risk of onward infection and re-infection
2. High positivity of contacts
3. Better PN outcomes more cost effective approach to case finding compared with increased screening coverage
Risk of re-infection following a positive test

- Young people who test positive for chlamydia are at higher risk of subsequently testing positive for chlamydia\(^1\)\(^-\)\(^3\)

---

Risk of re-infection following a positive test

- High rates of re-infection have been consistently reported in several settings\textsuperscript{4-8} (Median of 14\% women\textsuperscript{7}, 11\% men\textsuperscript{8})

\begin{figure}
\centering
\begin{tikzpicture}
\begin{axis}[
    ybar, 
    ymajorgrids, 
    ymax=25, 
    ylabel={Proportion testing positive at repeat test}, 
    symbolic x coords={GUM clinics, 2010 [4], NCSP tests, 2010 [4], Cornwall, 2003-2009 [8]}, 
    xtick=data, 
]
\addplot coordinates { (GUM clinics, 2010 [4], 17.0\%) (NCSP tests, 2010 [4], 12.5\%) (Cornwall, 2003-2009 [8], 19.4\%)};
\addplot coordinates { (GUM clinics, 2010 [4], 0\%) (NCSP tests, 2010 [4], 5\%) (Cornwall, 2003-2009 [8], 10\%)};
\legend{After negative test, After positive test}
\end{axis}
\end{tikzpicture}
\end{figure}

\textsuperscript{4} Woodhall STI 2012; \textsuperscript{5} Turner STI 2012; \textsuperscript{6} Rietmeijer STD 2002; \textsuperscript{7} Hosenfeld STD 2009; \textsuperscript{8} Fung STI 2007
Possible reasons for repeat infections include:

- Non-adherence with treatment
- Incomplete or unsuccessful partner notification
- Continued risk from sexual behaviour
- Treatment failure of the index patient or a partner

Requires effective processes for:

- Partner notification
- Re-testing
There can be added benefits

Normalisation of testing for sexually transmitted infection

Young people taking responsibility for their health
There can be added benefits

- Deliver health promotion
- Testing for other sexually transmitted infections
- Addressing contraceptive needs of young people

Can increase efficiency and add value beyond that of the chlamydia test itself
Summary: 1 of 2

- Chlamydia is widespread, and disproportionately affects 15-24 year olds and those from deprived areas
- Untreated chlamydia causes harm:
  - 10-17% of women develop PID, and of those: 5-11% tubal factor infertility, 4-8% ectopic pregnancy
  - Babies born to mothers with untreated chlamydia: 15% conjunctivitis, 7% pneumonia
  - 2% of men may develop epididymitis
- Complications cause harm at individual level, and are more expensive to treat compared to the costs of screening
Summary: 2 of 2

- The intervention of screening, combined with effective PN and re-testing, shortens the duration of the infection, interrupting the transmission of the infection, leading to fewer infections in the population.

- Screening can reduce:
  - the harm from untreated chlamydia
  - health inequalities through delivery in community and primary care settings as well as online screening

- Added benefits of screening: normalisation of testing for STIs and young people taken responsibility for their health, opportunity to deliver health promotion and address contraceptive needs.