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Dr Joanna Lewis

Imperial College London

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Changes in chlamydia prevalence and duration of infection inferred from testing and diagnosis rates in England: an evidence synthesis using surveillance data, 2000-2015

Joanna Lewis & Peter White
NIHR Health Protection Research Unit in Modelling Methodology
Imperial College London

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NHS
National Institute for Health Research

Background

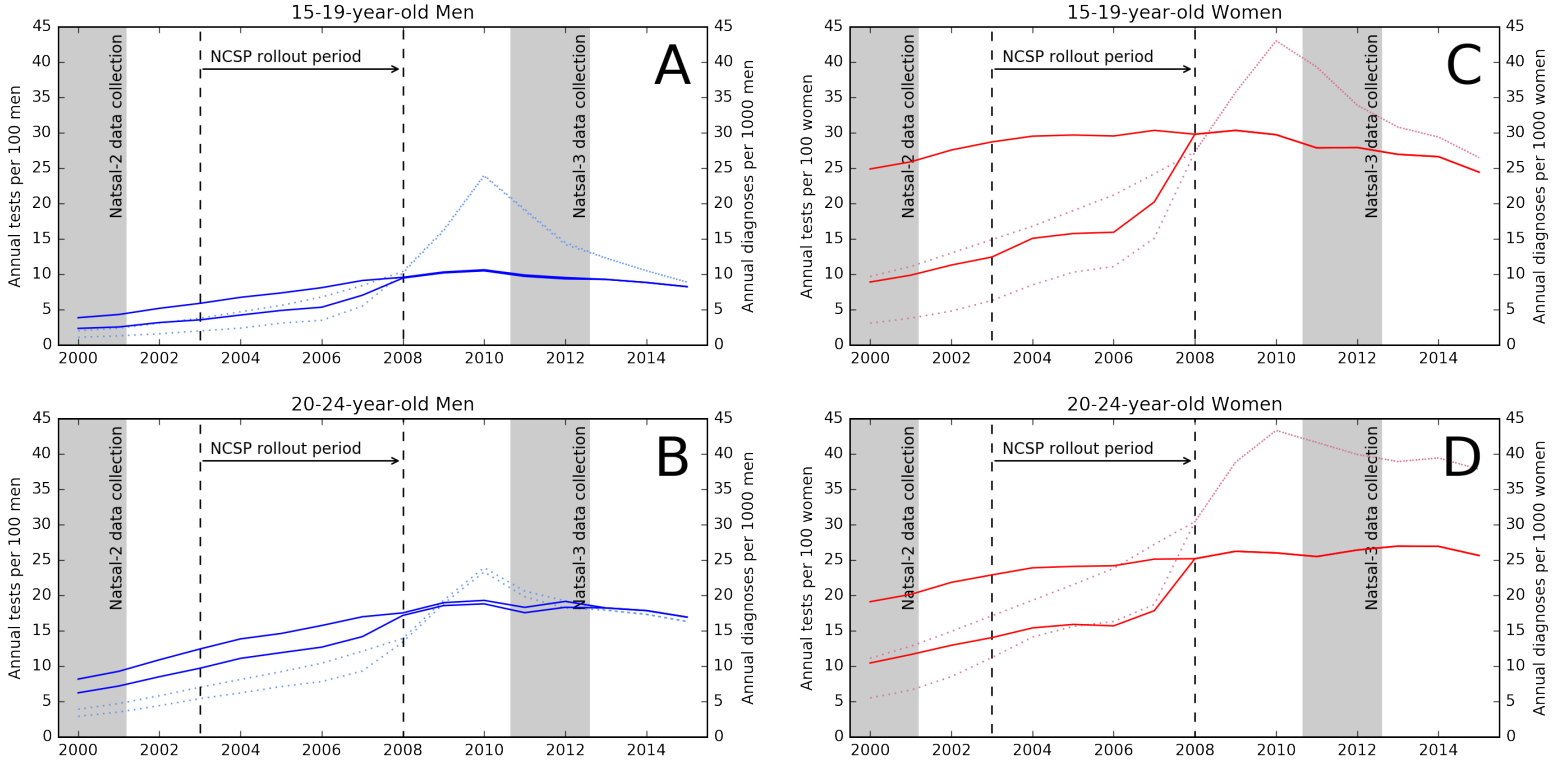
- National Chlamydia Screening Programme (NCSP) rolled out in England between 2003 and 2008, with the aim of reducing chlamydia prevalence and incidence of pelvic inflammatory disease (PID).

- "…in Natsal-2 compared with Natsal-3, prevalence of chlamydia in urine in young people aged 18–24 years was broadly similar in women (3·1% [1·8–5·2] vs 3·2% [2·2–4·6], and men (2·9% [1·3–6·3] vs 2·6% [1·7–4·0])." (Sonnenberg *et al.* 2013)

- It is unclear how prevalence varied in the time between the Natsal surveys.

- Surveillance systems for testing and diagnoses in England since 2000 have evolved, and data have sometimes been incomplete, but Chandra and colleagues have recently produced maximum and minimum estimates. (Chandra *et al.* 2017)

Estimates of chlamydia testing and diagnosis rates have recently become available.



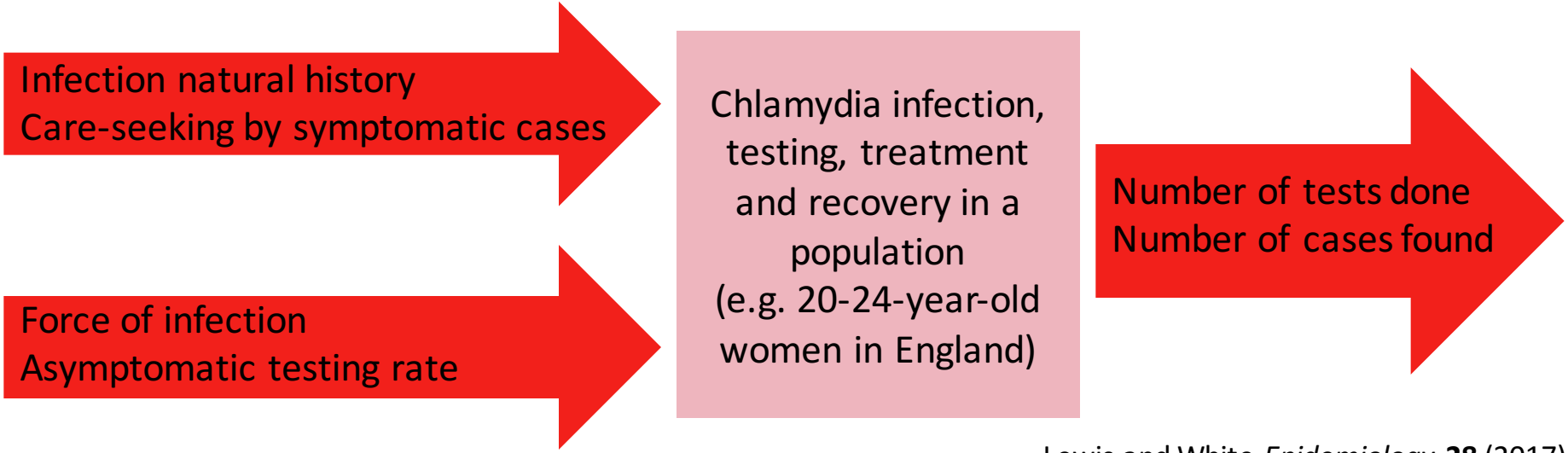
Chandra et al. *Eurosurveillance* **22** (2017)

We have developed a method for estimating chlamydia prevalence from annual numbers of tests and diagnoses.

Our model-based approach uses

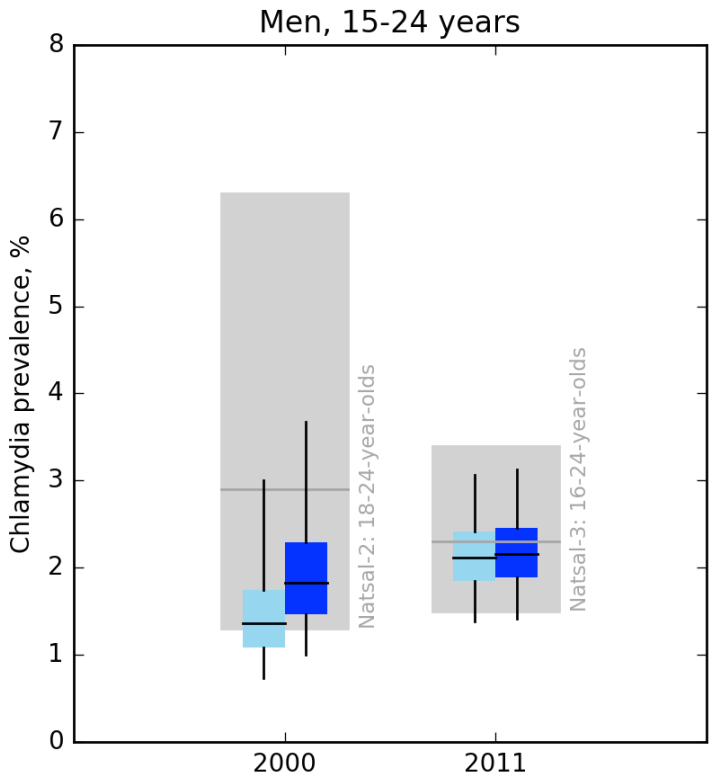
- surveillance data on numbers of tests done and cases found
- information from the literature on infection natural history

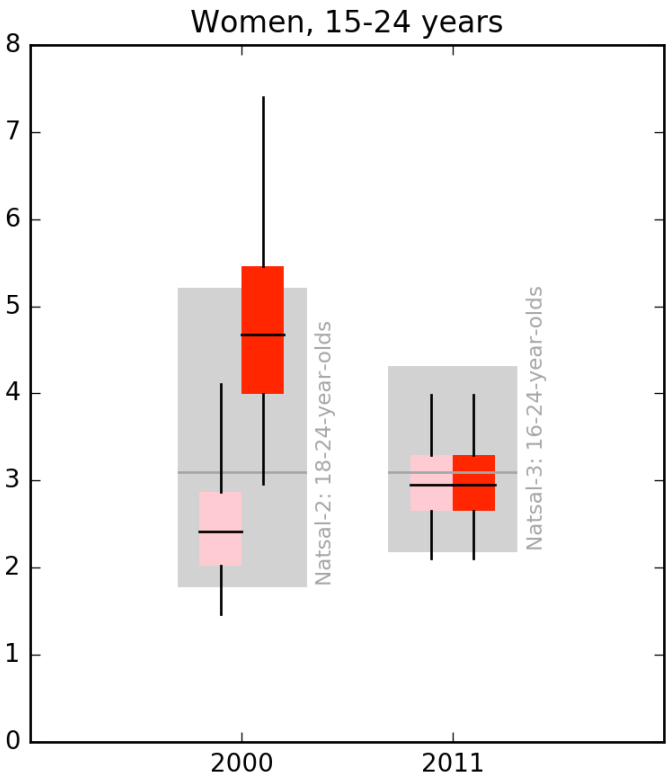
…to infer prevalence in the relevant population



Lewis and White *Epidemiology* **28** (2017)

Estimates using our method and Chandra's data agree well with the Natsal surveys.

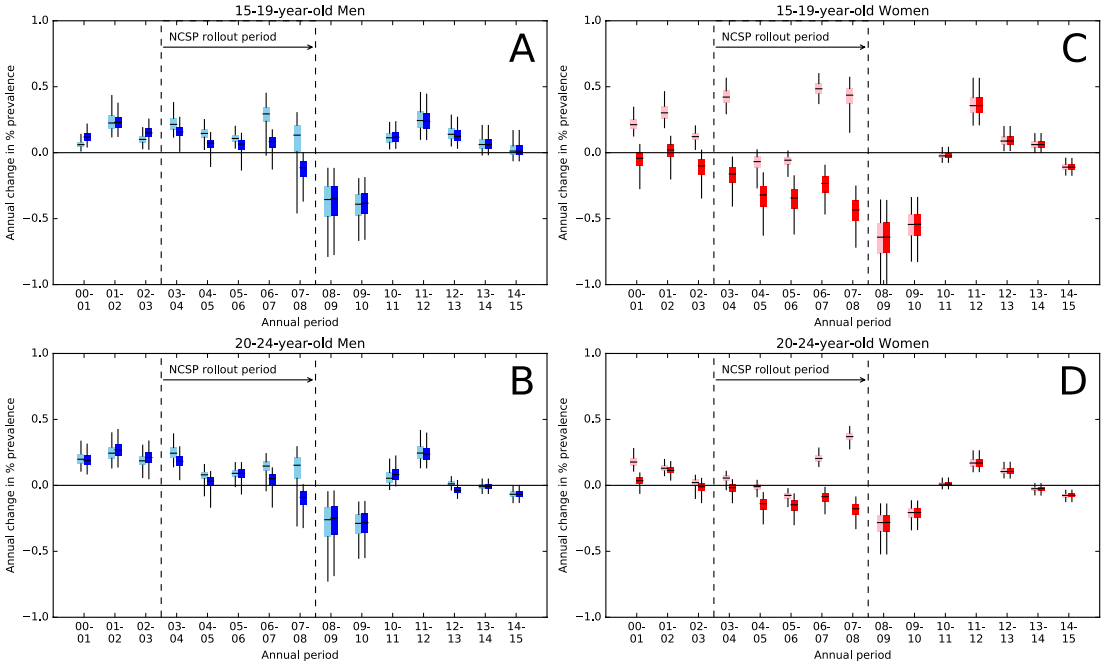




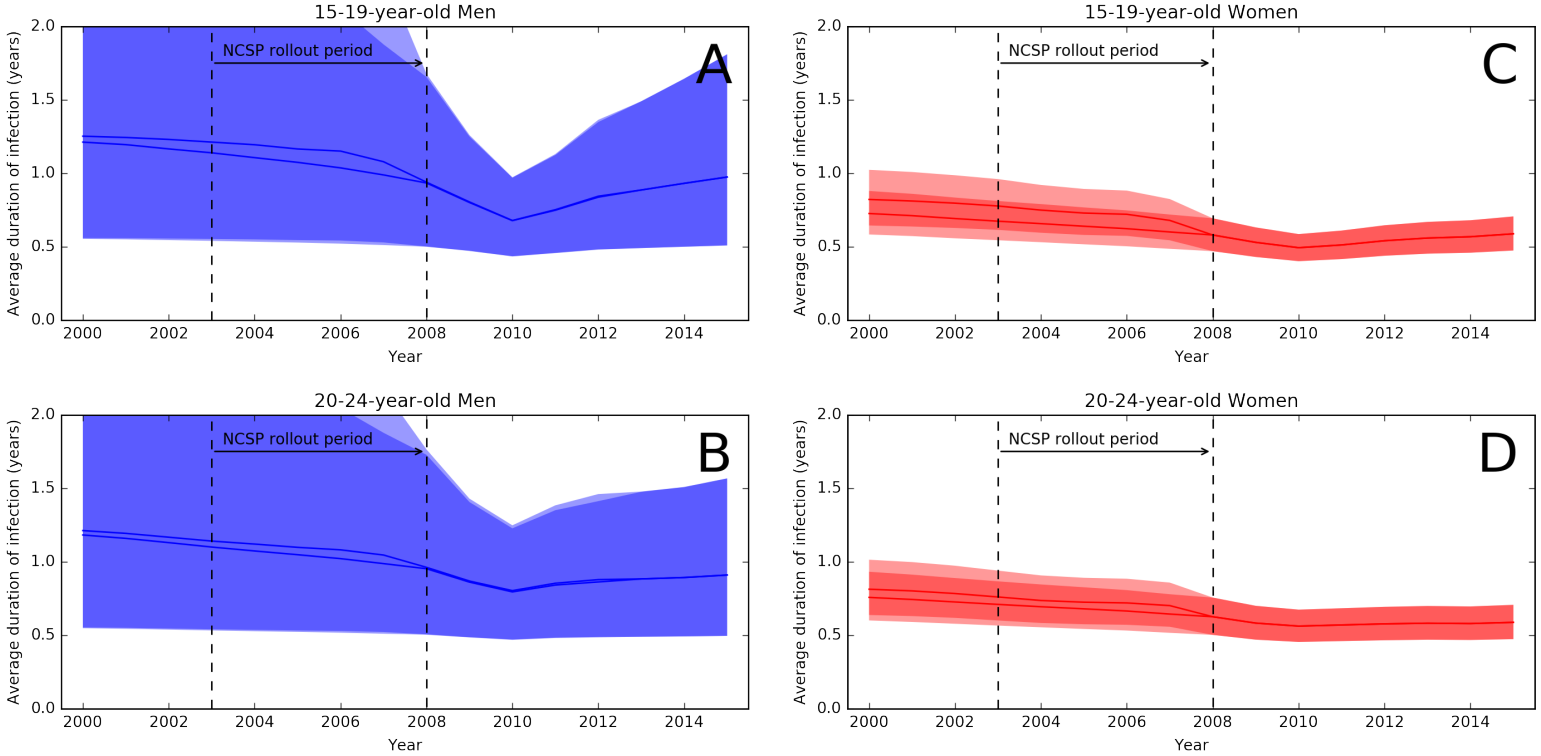
Natsal data from Sonnenberg et al. *Lancet* **382** (2013)

Year-on-year changes in chlamydia prevalence, 2000-2015

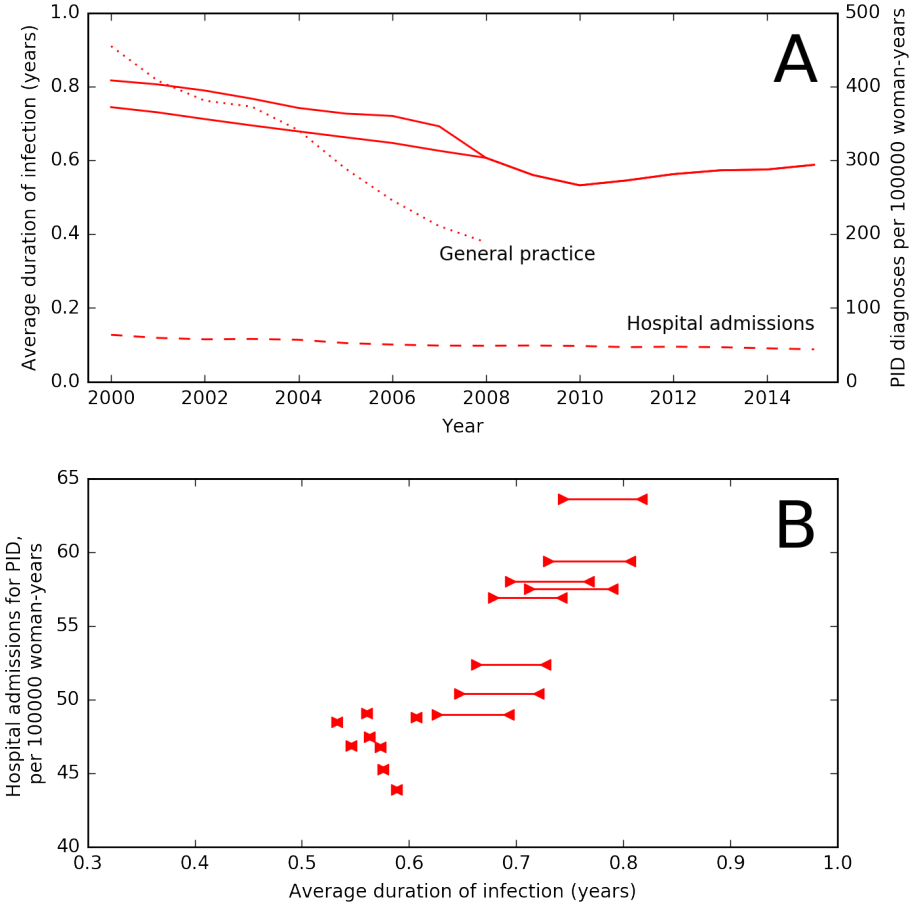
- Chlamydia prevalence in England was stable or increasing before the NCSP.
- This trend was reversed as testing increased during NCSP roll-out.
- In the years following full NCSP implementation, chlamydia prevalence fell.
- Most recently, levels have increased then stabilised.



Increased testing coincided with shorter infection duration, but there has been some reversal of progress in recent years.



The fall in prevalence and infection duration was concurrent with falling PID diagnoses in hospital.



Summary

- Up-to-date surveillance data and analysis methods can provide estimates of changes in chlamydia prevalence.
- Increased chlamydia testing under the NCSP was concurrent with falls in prevalence in both men and women.
- Better understanding of chlamydia natural history and pathophysiology of PID would complement surveillance data and allow further modelling.
- Full analysis to be published in *Lancet Public Health*.