How have PID rates changed during the era of chlamydia screening in England? Data from primary care and genitourinary medicine clinics, 2000-2012

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INTRODUCTION

- Pelvic inflammatory disease (PID) is an important cause of reproductive tract morbidity and *Chlamydia trachomatis* (CT) is an important cause of it [1].
- Rates of CT testing and diagnosis have increased in England since the 1990s, especially following full implementation of the National Chlamydia Screening Programme (NCSP) in 2008 [2].
- We investigated trends in PID diagnosed in both genitourinary medicine (GUM) clinics and general practice (GP) settings, in the context of increased chlamydia screening.

METHODS

- Rates of clinical PID among 15 to 44 year old women diagnosed in GUM clinics between 2000 and 2012 were calculated using the GUM clinic activity dataset (GUMCAD): aggregate data were available for the years 2000-2008 and disaggregate data for the years 2009-2012.
- Rates of clinical PID among 15 to 44 year old women diagnosed in GP between 2000 and 2011 were calculated using the Clinical Practice Research Datalink (CPRD): CPRD houses data from a sample of ~10% of patients registered with GPs across England.
- GP diagnoses were classified as 'definite', 'probable' or 'possible' PID according to the assigned medical codes. These three classifications were not available for GUM data.
- GUM PID diagnoses were identified as chlamydial PID if there was a chlamydia diagnosis recorded at the time of the PID diagnosis, and as gonococcal PID if there was gonorrhoea diagnosis recorded at the same time of the PID diagnosis. If neither a chlamydia nor a gonorrhoea code was present that PID episode was identified as non-specific PID. All-cause PID refers to chlamydial + gonoccocal + non-specific PID diagnosed in GUM.
- Rates of GP-diagnosed 'definite' and 'probable' PID were combined with rates of GUM diagnosed all-cause PID to obtain overall PID rates. 'Possible' PID diagnoses from GP were excluded from these analyses.
- The number of GUM attendances can only be reliably estimated from 2009 onwards, therefore, any analysis that included GUM PID rates preceding 2009 were calculated using ONS population estimates.
- Statistical significance of trends over time were tested using negative binomial regression.

RESULTS

Rates by population

- Between 2000 and 2011 the majority of PID diagnoses were made in primary care (Figure1).
- The proportion diagnosed in GUM increased in the latter years (Figure 1). For example 45% of PID cases were diagnosed in GUM in 2011 compared to 19% in 2000.
- The combined PID rate ('definite' + 'probable' GP-diagnosed PID plus all-cause GUM-diagnosed PID) declined over the past decade, from 507 cases per 100,000 in 2000, to 318 cases per 100,000 in 2011 (Figure 1).
- Although the combined rate declined, the rate of GUM-diagnosed PID **increased** while rate of GP-diagnosed PID ('definite'/ 'probable') **decreased** between 2000 and 2011.

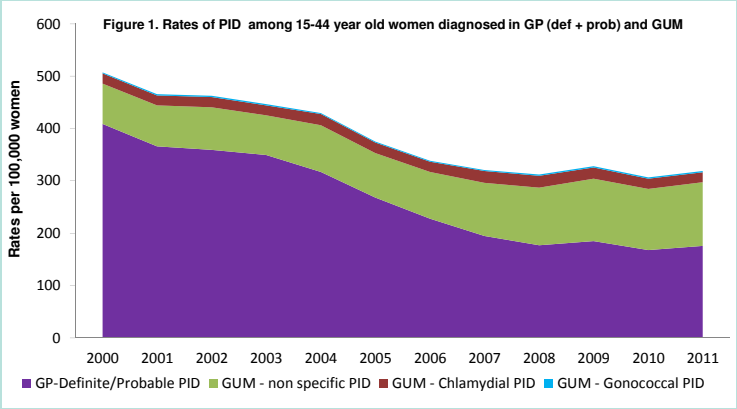
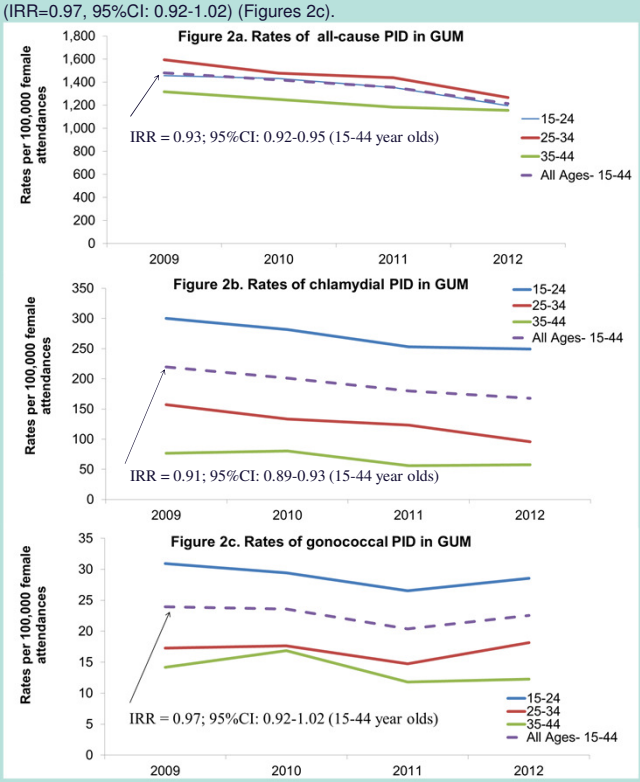


Fig.1 GUM rates calculated using office of national statistics mid-year population estimates for 15-44 year old women. GP rates calculated using the number of 15-44 year old women registered at that GP

- The majority of PID diagnoses made in GUM were accompanied with a STI test. Of those with a PID diagnosis 96% and 95% , respectively had a chlamydia and gonorrhoea test within 6 weeks of their PID diagnosis. 17% of PID cases had a concurrent chlamydia code and only 2% had a concurrent gonorrhoea code. Both are likely to be underestimates.

Rates by attendance

- Accounting for changes in attendance, rates of GUM-diagnosed chlamydial PID fell by 9% each year between 2009 and 2012 (IRR= 0.91, 95% CI:0.89 -0.93) (Figure 2b) while no significant change was observed in GUM-diagnosed gonococcal PID rates (IRR=0.97, 95%CI: 0.92-1.02) (Figures 2c).



DISCUSSION and CONCLUSION

- Although combined rates of PID declined over the study period divergent trends were seen in rates of PID diagnosed in GP and in GUM.
- The increase in GUM-diagnosed PID could, at least in part, be due to an increase in GUM attendances over the last 10 years. Indeed, there is a decline observed in the rate of all-cause GUM-diagnosed PID post 2009 when the rate was calculated using attendances (IRR= 0.93; 95%CI: 0.92-0.95) (Figure 2a) rather than population estimates (IRR=0.97; 95%CI: 0.96-1.00).
- An increase in 'possible' PID has been observed in primary care [3] so the increase in the rate of GUM-diagnosed PID seen between 2000 and 2011 could also, at least partially, be due to an increase in 'possible' PID diagnoses in GUM over this period.
- The rate of chlamydial PID diagnosed in GUM has significantly declined since 2009, in both the under and over 25 age group. This is true even after accounting for the increases in GUM attendances (i.e. rates calculated using no. of attendances)(Figure 2b). However, it is likely that numerous changes have affected this trend, including changes in health seeking behaviour, practitioner awareness of the condition and increased chlamydia screening.
- Interpreting trends in PID with the aim of assessing chlamydial control is complicated by many factors, especially by the fact that PID diagnosis is subjective, incidence varies by age and PID has multiple aetiologies. Furthermore, the coding algorithm of PID episodes in primary care is very complex [4].
- The likelihood of causes, other than chlamydia screening leading to changes in PID rates needs to be carefully assessed.

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