



## Infection report

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### HIV-STIs

## Rates of Pelvic Inflammatory Disease (PID) in England (2000-2013)

This report presents data on diagnoses of pelvic inflammatory disease (PID) in general practice (GP) and hospital inpatient admissions in England. Key conclusions of the analysis are that:

- in 2011 (most recent data-comparable year), rates of PID diagnoses recorded in hospital inpatient settings were higher than those in GP settings;
- rates of PID diagnoses were highest in 20 to 24 year-olds in GP settings and among 35 to 44 year-olds in hospital settings;
- rates of PID diagnoses showed a declining trend in GP settings between 2000 and 2011 and an overall relatively stable trend in hospital inpatient settings between 2000 and 2013;
- further exploration of coding practices and interpretation in regards to chlamydia testing practices is needed.

### Background

Pelvic inflammatory disease comprises a range of upper genital tract inflammatory disorders in women that result from the spread of microorganisms from the lower to the upper genital tract [1]. Untreated genital infection with *Chlamydia trachomatis* ('chlamydia') is one of the main causes of PID [2, 3]. The National Chlamydia Screening Programme (NCSP) was established in 2003 and nationally implemented by 2008 with the aim of controlling chlamydia and the adverse consequences of infection. Thus PID is a potentially important outcome measure for the evaluation of the NCSP. Other sexually transmitted infections (STI) including *Neisseria gonorrhoeae* [1] and *Mycoplasma genitalium* [4] have also been implicated as causative agents of PID.

PID diagnoses made in GP settings for 2000 to 2011 were collated from the Clinical Practice Research Datalink (CPRD), which comprises anonymised, patient-level medical records of a representative sample of patients (approximately 10% of the UK population) [5, 6] registered in GPs in England [7]. Hospital inpatient admissions from 2000 to 2013 with a diagnosis of PID recorded were extracted from the hospital episode statistics (HES) dataset [8].

## Methodological notes

- PID diagnoses of chlamydial, gonococcal, other or non-specified aetiology were included;
- diagnoses are recorded in CPRD using 'Read' codes, which are assigned during clinical consultations;
- "Read" codes that denoted PID diagnosis or symptoms indicative of acute or chronic PID were used to identify a PID diagnosis in CPRD. Codes were sub-classified as 'definite', 'probable' and 'possible' PID (see French *et al.* for details) [7]. Only those classed as 'definite' or 'probable' are presented in this report, hereafter referred to as definite/probable PID;
- PID diagnoses recorded in HES were identified using international classification of diseases (ICD-10) codes\*;
- records were de-duplicated to allow only one case of PID per 42-day period within each dataset, reflecting a standard episode of care for STI-related conditions at sexual health services [9];
- PID diagnoses are presented as diagnoses per 100,000 population for hospital inpatient episodes and diagnoses per 100,000 person-years for diagnoses in GP settings.

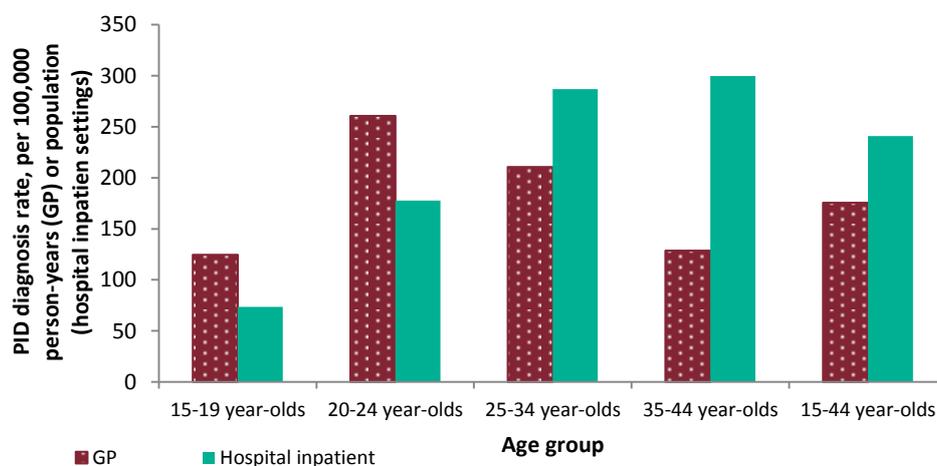
\* PID ICD-10 codes: N70 (salpingitis and oophoritis); N71 (inflammatory disease of uterus, except cervix); N72 (inflammatory disease of cervix uteri); N73 (other female pelvic inflammatory diseases); and, N74 (female pelvic inflammatory disorder in diseases classified elsewhere. The same code groups are used in data presented in the sexual and reproductive health profiles: (<http://fingertips.phe.org.uk/profile/sexualhealth>). In HES, diagnostic codes are reported as either primary or non-primary diagnoses (secondary, tertiary etc.). Codes that were recorded as either a primary or non-primary diagnosis were used to identify cases.

## PID diagnosis rates in 2011

In 2011 (the most recent year when data were available for both sources), the overall rate of definite/probable PID diagnoses among women aged 15 to 44 years was 176 diagnoses per 100,000 person-years in GP settings. The rate of PID diagnoses among 15 to 44 year-olds in hospital settings was 241 per 100,000 population.

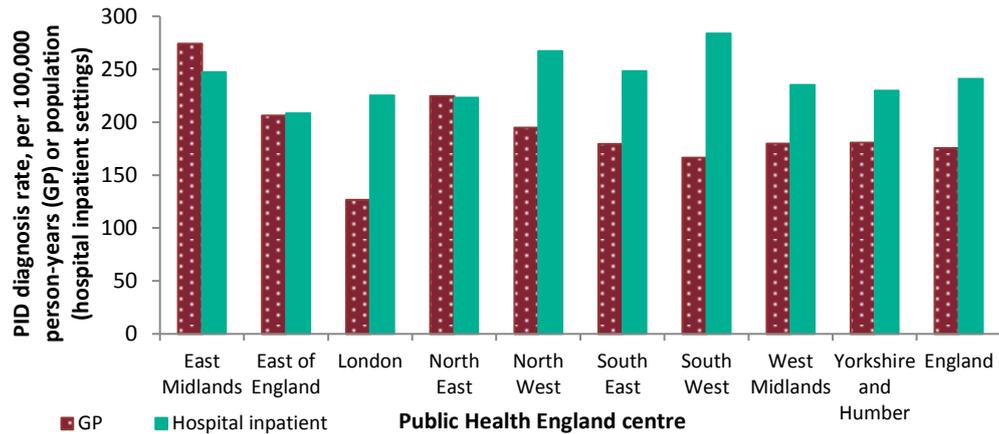
In GP settings rates of definite/probable PID diagnoses peaked in those aged 20 to 24 years. In hospital inpatient settings, PID diagnosis rates increased with age and peaked among 35 to 44 year-old women (figure 1). In the two younger age groups, PID diagnosis rates in GP settings were higher than those in hospital settings, whereas in the two older age groups, PID diagnosis rates were higher in hospital inpatient settings.

**Figure 1. Pelvic inflammatory disease (PID) diagnosis rate by age group recorded in general practices (GP) and hospital inpatient settings, (15 to 44 year-old women, 2011)**



By PHE Centre, rates of definite/probable PID diagnoses in GP settings ranged from 225 (London) to 274 (East Midlands) per 100,000 person-years. Rates of PID diagnoses in hospital inpatient settings ranged from 208 (East of England) to 284 (South West) per 100,000 person-years (figure 2).

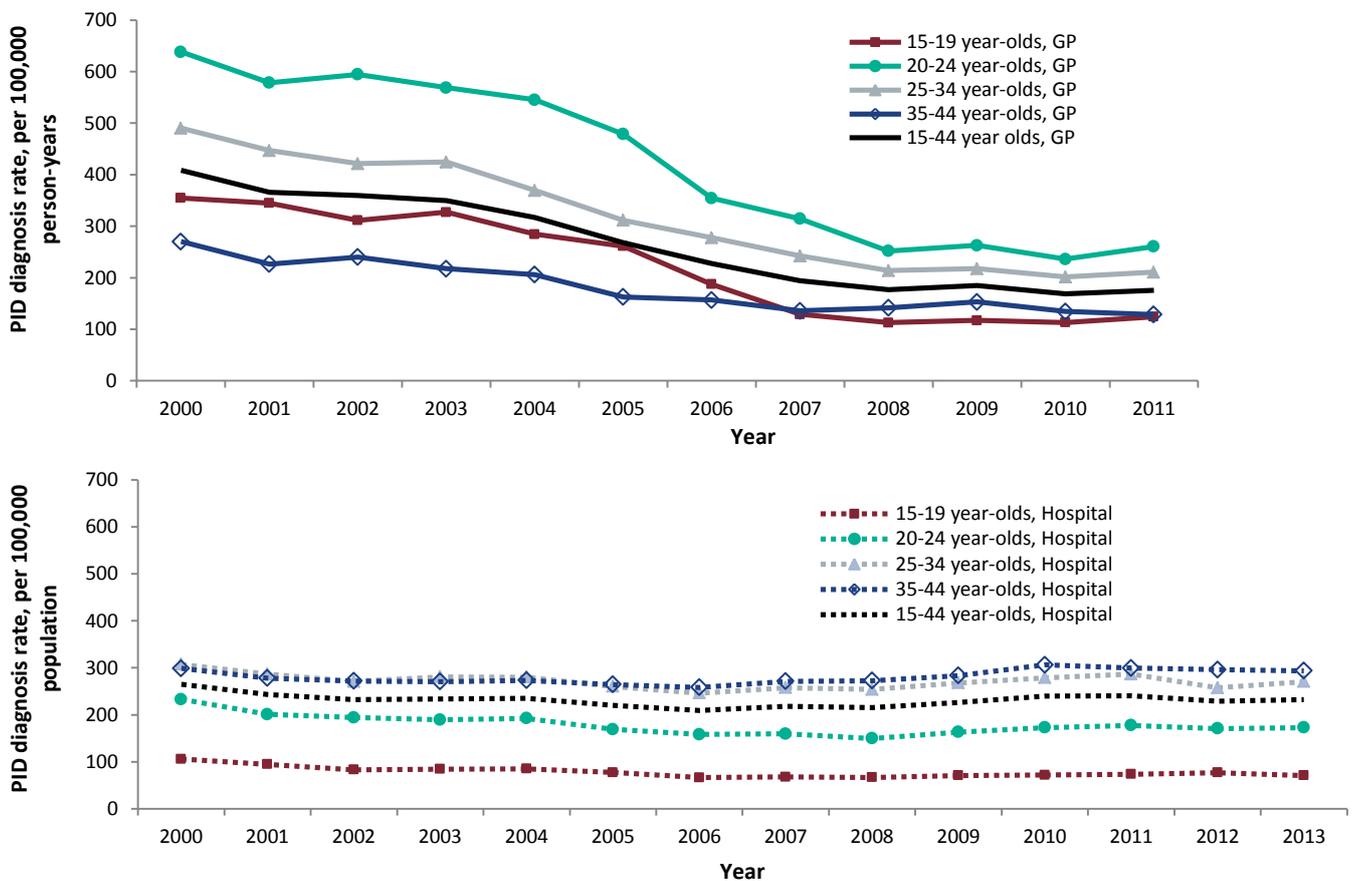
**Figure 2. Pelvic inflammatory disease (PID) diagnosis rate by Public Health England centre recorded in general practices (GP) and hospital inpatient settings (15 to 44 year-old women, 2011)**



**Trends in PID diagnosis rates over time, 2000 to 2013**

Trends in PID diagnosis rates over time varied by setting (figure 3). In GP settings, there were notable decreases in definite/probable PID diagnosis rates in all age groups from 2000 up to 2007/2008, with age-specific rates remaining relatively stable from 2007/2008 to 2011. There were more moderate decreases in PID diagnosis rates in hospital inpatient settings from 2000 up to around 2006, with stable or increasing rates in all age groups up to around 2010, after which time rates remained stable.

**Figure 3. Pelvic inflammatory disease (PID) diagnosis rate by Public Health England centre recorded in general practices (GP) and hospital inpatient settings (15 to 44 year-old women, 2011)**



## Discussion

Reasons for the observed difference in age distribution of cases between healthcare settings are not fully understood but likely reflect differences in attendance patterns, diagnostic coding practices and possibly in aetiologies.

Coding practices complicate interpretation of PID diagnosis rates, as diagnosis of PID is not based on standard diagnostic criteria. Clinical coding practices for PID have been found to vary by clinician [10] and likely vary by setting and over time. Also, it is not possible to uniquely identify patients between services. Differences between settings warrant further investigation to ensure the optimum use of PID diagnoses as an indicator of sexual health or reproductive morbidity.

The declines in PID diagnosis rates may reflect reducing risk of PID in age groups eligible for chlamydia screening following the implementation of the NCSP in 2003 and increases in chlamydia testing in genitourinary medicine (GUM) clinics and other settings [11]. However, further work is needed to explore PID patterns in respect of the changing chlamydia testing patterns over the last decade. Additional data on PID cases diagnosed in other services, including GUM clinics, should also be incorporated into future analyses.

## References

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