**Supplemental Methods.** DetailedDescription of Data Sources, Case Definitions, Measures of Pelvic Inflammatory Disease (PID), and Covariates

***Nationally Representative Population-Based Surveys***

The National Health and Nutrition Examination Survey (NHANES) is a cross-sectional, complex, multistage survey designed to be nationally-representative of the noninstitutionalized US civilian population. Data from the 2013-2016 cycles of NHANES were analyzed among sexually experienced females aged 18-44 years. Those participants answering “Yes” to the question, “Have you ever had vaginal, anal, or oral sex?” were defined as sexually-expe­rienced and those answering “Yes” to the question “Have you ever been treated for an infection in your fallopian tubes, uterus, or ovaries, also called a pelvic infection, pelvic inflammatory disease, or PID?“ were defined as having a self-reported history of PID. The prevalence of a self-reported history of PID was evaluated overall, and by age, race/ethnicity (R/E), and sexual risk behaviors. Age was categorized as: 18-24, 25-34, and 35-44 years; R/E was categorized as Black, non-Hispanic vs. all other races. The sexual risk behaviors included were age of sexual debut (<16 vs. ≥16 years), having had a prior sexually transmitted infection (STI) diagnosis (having had a chlamydia or gonorrhea infection diagnosed during the past 12 months or ever having been diagnosed with herpes, human papillomavirus, or genital warts), and number of lifetime male vaginal sex partners (1, 2-3, 4-9, ≥10). Analyses were performed using SAS-callable SUDAAN survey procedures and were weighted to represent the noninstitution­alized US female civilian population. Population counts were estimated by multiplying the calculated prevalence estimates by the American Community Survey noninstitutionalized civilian population estimates for 2015 [1]. More information on NHANES can be found at: <https://www.cdc.gov/nchs/nhanes/index.htm>.

The National Survey of Family Growth (NSFG) is a cross-sectional, complex, multistage survey designed to be nationally-representative of the noninstitutionalized US civilian household population. Data from the 2006-2010, 2011-2013, 2013-2015, and 2015-2017 NSFG cycles were analyzed among sexually experienced females aged 18-44 years. In NSFG, respondents are defined as being sexually-experienced if they answered “Yes” to either of two questions: “At any time in your life, have you ever had sexual intercourse with a man, that is, made love, had sex, or gone all the way?” and “Have you ever had any sexual experience of any kind with another female?” Those females answering “Yes” to “Have you ever been treated for an infection in your fallopian tubes, womb, or ovaries, also called a pelvic infection, pelvic inflammatory disease, or PID?“ were defined as having a self-reported history of PID. The prevalence of a self-reported history of PID was evaluated by age and R/E. Age was categorized as: 18-24, 25-34, and 35-44 years; R/E was categorized as Black, non-Hispanic, White, non-Hispanic, and Hispanic. Analyses were performed using SAS-callable SUDAAN survey procedures and were weighted to represent the noninstitution­alized US female civilian population. Population counts were estimated by multiplying the calculated prevalence estimates by the American Community Survey noninstitutionalized civilian population estimates for 2015 [1]. More information on NSFG can be found at: <https://www.cdc.gov/nchs/nsfg/index.htm>.

***Nationally Representative Emergency Department Visit Datasets***

The Healthcare Utilization Project Nationwide Emergency Department Sample (HCUP NEDS) is the largest all-payer publicly available database of emergency department (ED) visits in the United States and includes a stratified sample of US hospital owned EDs. ED visits with an International Classification of Diseases, Clinical Modification, ninth or tenth revisions (ICD-9-CM, ICD-10-CM) diagnosis code indicating a diagnosed acute infection or inflammatory disease of the upper female genital tract in any of 15 (2006-2013) to 30 (2014-2016) diagnostic code fields were included in these analyses among females aged 15-44 years during 2006-2016 (**Supplemental Table 2**) [2-7]. The number of ED visits due to PID was evaluated per year by age and region. Age was categorized as: 15-24, 25-34, and 35-44 years; region was categorized as: Midwest, Northeast, South, and West. It is possible for a patient to be included more than once if they had ≥1 ED visit for acute PID during the study period. Person-based analyses were not possible due to the lack of unique patient identifiers. Analyses were performed using SAS-callable SUDAAN survey procedures and were weighted to represent all ED visits due to PID nationwide during each year. More information on the HCUP NEDS database can be found at: <https://www.hcup-us.ahrq.gov/db/nation/neds/nedsdbdocumentation.jsp>.

The National Hospital Ambulatory Medical Care Survey (NHAMCS) is a publicly-available, national probability sample of visits to EDs, outpatient departments, and ambulatory surgery centers. ED visits were the focus of these analyses, and as such, we used the ED component of this survey (NHAMCS-ED). ICD-9-CM diagnosis codes were used through survey years 2006-2015 to identify ED visits indicating an acute PID diagnosis in any of three (2006-2013) to five (2014-2015) diagnostic code fields among females aged 15-44 years (**Supplemental Table 2**) [2-7]. ICD-10-CM codes were not used in 2015 NHAMCS data since sampling was conducting prior to ICD-10-CM implementation in October 2015. Due to sample size constraints, covariate-stratified analyses, including by patient demographics, were not possible. Additionally, due to the with-replacement sampling design, it is possible for a patient to be included more than once if they had ≥1 ED visit for acute PID within the sampling time frame. Analyses were performed using SAS-callable SUDAAN survey procedures and were weighted to represent all ED visits due to PID nationwide during each year. More information on NHAMCS can be found at: <https://www.cdc.gov/nchs/ahcd/index.htm>.

***Nationally Representative Physician Office Visit Datasets***

The National Ambulatory Medical Care Survey (NAMCS) is a publicly available, national probability sample of visits to non-federally employed, office-based physicians in the US. This sample excludes physicians practicing in hospitals, EDs, and federally funded clinics, such as federally qualified health centers and offices that serve primarily the US veteran population. ICD-9-CM diagnosis codes were used to identify physician office visits indicating an acute PID diagnosis in any of three (2006-2013) to five (2014-2015) diagnostic code fields (**Supplemental Table 2**) [2-7]. ICD-10-CM codes were not used in 2015 NAMCS data since sampling was conducted prior to ICD-10-CM implementation in October 2015. Analyses were performed using SAS-callable SUDAAN survey procedures and were weighted to represent all physician office visits due to PID nationwide. Due to sample size constraints, neither trend nor covariate analyses were possible. Instead, we combined ten years of data (2006-2015) to produce a period estimate. We then divided the weight by the total number of years in the study period (n=10) to calculate the average annual number of physician office visits with an acute PID diagnosis for the period during 2006-2015 [8]. More information on NAMCS can be found at: <https://www.cdc.gov/nchs/ahcd/index.htm>.

The National Disease Therapeutic Index (NDTI) is a commercial database developed and maintained by IQVIA based on a sample of private physicians in the United States using a two-stage random stratified cluster design. Those physicians report on all patient contacts for two consecutive workdays each quarter and the data are then weighted to estimate all patient contacts for all workdays for the universe of office-based physicians in private practice in the United States. ICD-9-CM/ICD-10-CM diagnosis codes were used to identify initial, non-post-operative office visits where PID was diagnosed during 2006-2016 among females aged 15-44 years [2-6]. The ICD-9-CM codes used by NDTI to identify PID office visits was slightly different than those codes used to identify PID in other data sources (614.0, 614.1, 614.2, 614.4, 614.9, 615.9, 628.2). Given the proprietary nature of the NDTI data, the authors had access only to aggregate estimates of the number of PID visits per year and could not conduct additional analyses stratified by covariates. More information about NDTI data can be obtained by contacting IQVIA at: <https://www.iqvia.com/contact/sf>.

***Convenience Samples of Specific Populations***

MarketScan is a large convenience sample of commercially insured persons in the United States containing service-level claims for inpatient and outpatient services, as well as outpatient prescription drugs. ICD-9-CM and ICD-10-CM diagnosis codes were used to identify inpatient, outpatient, or ED claims indicating an acute PID diagnosis in any of two (2006-2008) to four (2009-2016) diagnostic code fields among commercially-insured females aged 15-44 years during 2006-2016 (**Supplemental Table 2**) [2-7]. The rate of PID diagnoses per 100,000 commercially-insured women was calculated as the number of females aged 15-44 years with a claim indicating an acute PID diagnosis divided by the total number of women covered by the commercial insurance plans contributing to MarketScan for that year. The rate was calculated overall, as well as by age group and region. Age was categorized as: 15-24, 25-34, and 35-44 years; region was categorized as Midwest, Northeast, South, and West. More information on the MarketScan database can be found at: <https://www.ibm.com/products/marketscan-research-databases>.

The STD Surveillance Network (SSuN) is a facility-based sentinel surveillance program performed in 25 categorical STD clinics across the United States. Through the course of routine patient care, data from all participating STD clinics are collected on the full census of patients, including STD-related diagnoses and sequelae such as PID. Clinic visit records of female STD clinic attendees aged 15-44 were reviewed and those who were diagnosed with PID during the study period were identified. Ages were categorized as: 15-24, 25-34, and 35-44 years. The annual prevalence of PID was estimated using a random-effects meta-analysis model to account for the substantial diversity in patient demographic characteristics and PID prevalence across the SSuN jurisdictions. The random-effects model incorporates heterogeneity across the jurisdictions by allowing each jurisdiction to have a different true prevalence, which is assumed to have been sampled from a population of true prevalences. The overall annual PID prevalence was calculated using the total number of females with a PID diagnosis in a year in a jurisdiction divided by the total number of female attendees in that jurisdiction that year. Then, using the year and jurisdiction-specific estimates, we estimated the overall annual PID prevalence, using an inverse-variance weighted random effects model. Trends in the proportion of women diagnosed with PID (and 95% CIs) were assessed overall and by age group. The proportion of women diagnosed with PID tested for CT or GC ±14 days from PID diagnosis was also assessed. More information on the SSuN project can be found at: <https://www.cdc.gov/std/ssun/default.htm>.

**References**

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