

PELVIC INFLAMMATORY DISEASE; ACUTE

Includes Acute and Unspecified Pelvic Inflammatory Disease; Does Not Include Chronic Pelvic Inflammatory Disease or Postpartum Endometritis

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of *acute* pelvic inflammatory disease (PID). The condition is important to military-associated populations due to the high prevalence of chlamydia infections among U.S. servicewomen.^{1,2}

Clinical Description

Pelvic inflammatory disease (PID) refers to a group of inflammatory disorders of the female upper genital tract caused by the ascending spread of infection from the lower to the upper genital tract. The most common causative organisms are *Chlamydia trachomatis* and *Neisseria gonorrhoeae*; over half of cases are caused by one or both of these organisms. There is no definitive confirmatory test for PID. Diagnosis is usually based on symptoms of pelvic or lower abdominal pain and examination findings of adnexal, uterine, or cervical motion tenderness. Most cases are treatable with oral antibiotics. Untreated, unsuccessfully treated, and recurrent PID can cause chronic pelvic pain, ectopic pregnancy and infertility.^{3,4}

Case Definition and Incidence Rules

For surveillance purposes, a case of acute pelvic inflammatory disease is defined as:

- *One hospitalization or outpatient medical encounter* with any of the defining diagnoses of acute pelvic inflammatory disease (see ICD9 and ICD10 code lists below) in the *primary* diagnostic position.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first hospitalization or outpatient medical encounter that includes a defining diagnosis of acute pelvic inflammatory disease.
- An individual is considered an incident case only *once per lifetime*.

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¹ Jordan NN, Lee SE, Nowak G, et al. Chlamydia trachomatis reported among U.S. active duty service members, 2000-2008. *Mil Med.* 2011Mar; 176 (3):312-319.

² Gaydos CA, Howell MR, Quinn TC, et al. Sustained high prevalence of Chlamydia trachomatis infections in female army recruits. *Sex Transm Dis.* 2003 Jul; 30(7):539-544.

³ Gradison M. Pelvic inflammatory disease. *Am Fam Physician.* 2012 Apr 15; 85(8):791-796.

⁴ Workowski KA, Berman S. Centers for Disease Control and Prevention (CDC). Sexually Transmitted Diseases Treatment Guidelines, 2010. *MMWR Recomm Rep.* 2010 Dec 17; 59(RR-12):1-110.



Case Definition and Incidence Rules *(continued)*

Exclusions:

- Individuals with possible pregnancy-related PID diagnoses received during medical encounters related to delivery and postpartum care; indicated by ICD9 codes 630-679 (complications of pregnancy, childbirth, and the puerperium) with a fifth digit of 1, 2 or 4 (delivered and post-partum care); V22 (normal pregnancy), V23 (supervision of high-risk pregnancy), V24 (postpartum care and examination), V27 (outcome of delivery), V28 (antenatal screening), and V72.42 (pregnancy examination or test, positive result).

Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Pelvic Inflammatory Disease <i>(acute)</i>	A54.21 (gonococcal infection of kidney and ureter)	098.19 (gonococcal infections, acute, of upper genitourinary tract, other)
	A54.24 (gonococcal female pelvic inflammatory disease)	098.16 (gonococcal endometritis, acute; gonorrhea, acute, of uterus)
	A54.29 (other gonococcal genitourinary infections)	098.10 (gonococcal infections (acute) of upper genitourinary tract, site unspecified) 098.17 (gonococcal salpingitis, specified as acute)
	A54.85 (gonococcal peritonitis)	098.86 (gonococcal infections of other specified sites; gonococcal peritonitis)
	A56.1 (chlamydial infection of pelvic peritoneum and other genitourinary organs)	--
	- A56.11 (chlamydial female pelvic inflammatory disease)	614.9 (unspecified inflammatory disease of female pelvic organs and tissues)
	A56.8 (sexually transmitted chlamydial infection of other sites)	099.56 (other venereal diseases due to <i>Chlamydia trachomatis</i> ; peritoneum)
	N70.0 (acute salpingitis and oophoritis)	614.0 (acute salpingitis and oophoritis)
	- N70.01 (acute salpingitis)	
	- N70.02 (acute oophoritis)	
- N70.03 (acute salpingitis and oophoritis)		

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N70.9 (salpingitis and oophoritis, unspecified)	614.2 (salpingitis and oophoritis not specified as acute, subacute, or chronic)
- N70.91 (salpingitis, unspecified)	
- N70.92 (oophoritis, unspecified)	
- N70.93 (salpingitis and oophoritis, unspecified)	
N71 (inflammatory disease of uterus, except cervix)	--
- N71.0 (acute inflammatory disease of uterus)	615.0 (inflammatory disease of uterus except cervix; acute)
- N71.9 (inflammatory disease of uterus, unspecified)	615.9 (unspecified inflammatory disease of uterus)
N73 (other female pelvic inflammatory diseases)	--
- N73.0 (acute parametritis and pelvic cellulitis)	614.3 (acute parametritis and pelvic cellulitis)
- N73.3 (female acute pelvic peritonitis)	614.5 (acute or unspecified pelvic peritonitis, female)
- N73.5 (female pelvic peritonitis, unspecified)	614.9 (above)
- N73.8 (other specified female pelvic inflammatory diseases)	614.8 (other specified inflammatory disease of female pelvic organs and tissues)
- N73.9 (female pelvic inflammatory disease, unspecified)	614.9 (above)

Development and Revisions

- In June of 2015, AFHSC performed additional analyses of the three acute PID case finding criteria used in the original MSMR article on PID.^{5, 6} Using those criteria to ascertain PID cases in the years 2012-2014, the analyses found the following number of cases: Criterion (1), *one hospitalization or outpatient medical encounter with a PID diagnosis in the primary diagnostic position*, identified the majority of incident cases (frequency 2679; 78.2%); Criterion (2), *one hospitalization or outpatient medical encounter with a PID diagnosis in any secondary (not first listed) diagnostic position, plus a code for one of the "signs and symptoms associated with acute PID" in an antecedent diagnostic position*, returned significantly fewer incident cases (frequency 638; 18.6%); Criterion (3), *two medical encounters (hospitalization or outpatient), occurring within a 60-day period, with a PID diagnosis in any diagnostic position*, identified the fewest incident cases (frequency 107; 3.1%). Among the cases qualifying via Criterion 2, 79 would have qualified via Criterion 1 at a future date. Among the cases qualifying via Criterion 3, 27 would

⁵ Detailed information on this analysis, to include the ICD9 and ICD10 code table used for criteria 2, is available through the Armed Forces Health Surveillance Center; reference Defense Medical Surveillance System Management Tool (DMSSMT) Request #150115 (Comparison of different surveillance case definitions for pelvic inflammatory disease), 2015

⁶ Armed Forces Health Surveillance Center. Acute Pelvic Inflammatory Disease, Active Component, U.S. Armed Forces, 2002-2011. *Medical Surveillance Monthly Report (MSMR)*. 2012 July; 19(7): 11-13.



have qualified via Criterion 1 at a future date. Given the above findings, and the complexity of coding the extensive list of ICD9 and ICD10 codes for “other signs or symptoms associated with acute PID”, AFHSC made the decision to eliminate Criteria 2 and 3 from the case definition.

- In May of 2015 the case definition was updated to include ICD10 codes.
- This case definition was developed in July 2012 by the AFHSC Medical Surveillance Monthly Report (MSMR) staff for a MSMR article on acute pelvic inflammatory disease.⁶ The definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- This case definition was designed to capture cases of acute PID only. Chronic PID is not included in this definition because chronic PID is epidemiologically and clinically different; rates of chronic PID are lower and infections are more often asymptomatic and bacteriologically sterile.⁷
- This case definition was designed to exclude cases of postpartum endometritis and to capture cases of PID *not related to pregnancy*. Exploratory analyses of the data showed that many women hospitalized with PID had a diagnosis of a postpartum infection (e.g. “puerperal endometritis”) followed by a PID-related diagnosis such as “unspecified inflammatory disease of uterus”⁸ As such, individuals with a pregnancy-related diagnosis are excluded. Analyses done for the July 2012 and September 2013 MSMR articles on PID excluded ICD9 codes 640-679 only. This case definition expands the exclusions to include additional pregnancy related codes inadvertently omitted in the previous analyses.
- This case definition uses inpatient and outpatient medical encounters to identify cases. Analyses for this case definition⁷ revealed that “approximately 91% of incident cases were diagnosed during outpatient encounters and the remainder during inpatient visits”. Other studies have limited case finding criteria to outpatient visits only in an effort to maximize validity and power.⁹
- This case definition uses a once per lifetime incidence rule. Given the high reported recurrence rate of PID (14.2%)¹⁰ investigators examining other aspects of PID epidemiology (e.g., recurrence, health care burden) may want to consider using a different incidence rule.

Code Set Determination and Rationale

- The code set for “acute” and “unspecified” PID is based on a code set developed and validated by Satterwhite *et al*¹¹ to estimate the incidence of acute PID diagnosed during medical encounters among civilian women.¹²

⁷ Sutton MY, Sternberg M, Zaidi A, et al. Trends in pelvic inflammatory disease hospital discharged and ambulatory visits, *Sex Transm Dis*. 2005 Dec;32(12):778-784.

⁸ Detailed information on this analysis is available through the Armed Forces Health Surveillance Center; reference Defense Medical Surveillance System (DMSS) Requests # R070519, R060455, and R070281.

⁹ Sutton MY, Sternberg M, Zaidi A, St Louis ME, Markowitz LE. Trends in pelvic inflammatory disease hospital discharges and ambulatory visits, U.S., 1985–2001. *Sex Transm Dis* 2005;32:778–84.

¹⁰ Ness RB, Randall H, Richter HE, et al. Condom use and the risk of recurrent pelvic inflammatory disease, chronic pelvic pain, or infertility following an episode of pelvic inflammatory disease. *Am J Public Health* 2004;94: 1327–9.

¹¹ Satterwhite CL, Yu O, Raebel MA, et al., “Detection of Pelvic Inflammatory Disease: Development of an Automated Case-Finding Algorithm Using Administrative Data,” *Infectious Diseases in Obstetrics and Gynecology*, Vol. 2011, Article ID 428351, 7 pages, 2011. doi:10.1155/2011/428351.

¹² Bohm MK, Newman L, Satterwhite CL, et al. Pelvic inflammatory disease among privately insured women, United States, 2001–2005. *SexTransm Dis*. 2010 Mar; 37(3):131-136.



- ICD9 code 098.19 (acute gonococcal infection, upper genitourinary tract, other) was unintentionally omitted from the code set and analyses used for the July 2012 MSMR article on PID. The total number of cases ascertained would have been higher by approximately one half of 1% if this code had been included

Reports

None

Review

June 2015	Case definition reviewed and updated by the AFHSC Surveillance Methods and Standards (SMS) working group
May 2015	Case definition reviewed and updated by the AFHSC Surveillance Methods and Standards (SMS) working group.
Dec 2012	Case definition reviewed and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
July 2012	Case definition developed and reviewed by AFHSC MSMR staff.

Comments

Limitations of case definition: Case ascertainment is based on disposition diagnosis only. There is no requirement for laparoscopic confirmation of PID.

Chronic Pelvic Inflammatory Disease: The following ICD9 codes relate to chronic PID and are not included in the code set:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Pelvic Inflammatory Disease (chronic)	A54.29 (other gonococcal genitourinary infections)	098.30 (chronic gonococcal infection of upper genitourinary tract, site unspecified)
	A54.24 (gonococcal female pelvic inflammatory disease)	098.36 (gonococcal endometritis, chronic)
	A54.29 (other gonococcal genitourinary infections)	098.37 (gonococcal salpingitis, chronic) 098.39 (chronic gonococcal infection, upper genitourinary tract; other)
	N70.11 (chronic salpingitis)	614.1 (chronic salpingitis and oophoritis)
	N70.12 (chronic oophoritis)	
	N70.11 (chronic salpingitis and oophoritis)	
	N73.1 (chronic parametritis and pelvic cellulitis)	614.4 (chronic or unspecified parametritis and pelvic cellulitis)
N73.2 (unspecified parametritis and pelvic cellulitis)	614.4 (above)	

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	N73.6 (female pelvic peritoneal adhesions, postinfective)	614.6 (pelvic peritoneal adhesions; female, postoperative, postinfection)
	N73.4 (female chronic pelvic peritonitis)	614.7 (other chronic pelvic peritonitis, female)
	N71.1 (chronic inflammatory disease of uterus)	615.1 (inflammatory diseases of uterus, except cervix; chronic)

