

## Pelvic Inflammatory Disease: A Relevant Public Health Concern

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### **ABSTRACT**

Pelvic Inflammatory Disease (PID) is a critical public health concern worldwide. It affects more than one million women each year in the United States. In the United States, as of 2018, a total of 1,758,668 case of chlamydia and 583,405 cases of gonorrhea were reported to the CDC from 50 states and the District of Columbia [1]. Interestingly, the prevalence of self-reported lifetime PID among non-Hispanic Black women was 2.2 times higher than among non-Hispanic White women if no previous STI was diagnosed (6.0% vs 2.7%) [2]. Age is a strong predictor of risk for PID, with the highest infection rates occurring in women aged <25 years. Current recommendations that are in place to address PID are centered on annual chlamydia and gonorrhea screening. The evidence shows that education about avoidance of high-risk behaviors, annual STI screenings, and counseling on signs and symptoms of PID and STIs can lead to healthy outcomes.

### **KEYWORDS**

African Americans; Pelvic inflammatory disease; Public health; Sexually transmitted infection

### **INTRODUCTION**

Pelvic Inflammatory Disease (PID) is a critical public health concern worldwide. It affects more than one million women each year in the United States. PID affects an estimated 20 percent of the most vulnerable population, adolescents. Yet, older women with risk factors such as multiple or new sex partners, or a sex partner who has a sexually transmitted infection (STI) can be affected [3]. More than 85 percent of PID cases are thought to be caused by sexually transmitted organisms, most notably *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC). Additionally, other organisms associated with PID include, *Gardnerella vaginalis*, *Haemophilus influenzae*, and *anaerobes* such as *Peptococcus* and *Bacteroides* species. Moreover, most

women infected with gonorrhea or chlamydia have no symptoms. The consequences of this symptomless infection extend beyond chronic pelvic pain. It can cause ectopic pregnancy, adverse fetal and neonatal outcomes, permanent damage to the female reproductive organs, and infertility. 10 to 15 percent of cases result in infertility [4]. Though PID affects many women, the prevalence and severity occur more often in Black women, however, the exact causes in increasing infection rates are unknown [5].

### **USA IMPACT**

According to a study conducted by Kriesel, Flagg, & Torrone [6], PID continues to remain the most common gynecologic cause of 70,000 emergency department visits in the U.S. annually [6]. In the United States, as of

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2018, a total of 1,758,668 case of chlamydia and 583,405 cases of gonorrhea were reported to the CDC from 50 states and the District of Columbia [7].

### **AFRICAN AMERICAN IMPACT**

In 2014, researchers used a nationally representative sample to assess the burden of self-reported PID, this study found the estimated prevalence of self-reported lifetime PID in sexually experienced women of reproductive age (18-44) was 4.4 percent. Moreover, when stratified by race/ethnicity and having a previous sexually transmitted infection (STI) diagnosis, non-Hispanic Black women and non-Hispanic White women self-reported a previous STI, had nearly equal self-reported lifetime PID prevalence (10.3% vs. 10.0%). Interestingly, the prevalence of self-reported lifetime PID among non-Hispanic Black women was 2.2 times higher than among non-Hispanic White women if no previous STI was diagnosed (6.0% vs 2.7%) [6]. Likewise, Blacks having less than a high school diploma and an income of <150 percent of the federal poverty level were associated with receipt of PID treatment [8]. Despite the growing body of research on the link between PID and Black women, racial disparity data should be analyzed with caution due to the subjective methods by which PID is diagnosed [9].

### **PID DEFINED**

Pelvic inflammatory disease is a polymicrobial infection of the female reproductive tract characterized by inflammation of the fallopian tubes, endometrium and/or peritoneum. It occurs when sexually transmitted bacteria spread from the vagina to the uterus, fallopian tubes, or ovaries. *Chlamydia trachomatis* is the most common sexually transmitted organism associated with PID [3].

### **RISK FACTORS FOR PID**

Age is a strong predictor of risk for PID, with the highest infection rates occurring in women aged <25 years. However, PID can occur at any age in women who have

multiple sex partners, unprotected sex, and exchanging sex for money or drugs. Some research suggests other risk factors such as douching regularly, which alters the balance of good and harmful bacteria in the vagina and a small increased risk of PID after the insertion of an intrauterine device (IUD) [7].

### **ECONOMIC IMPACT**

The Center for Disease Control and Prevention estimates that the lifetime cost of treating eight of the most common STIs contracted in just one year is \$15.6 billion, which places a significant economic burden on the U.S. healthcare system [7]. Each case of PID costs the United States health care system an estimated average of \$3,202 [10].

### **RECOMMENDATIONS**

Current recommendations that are in place to address PID are centered on annual chlamydia and gonorrhea screening. The CDC recommends all sexually active women younger than age 25 years old, and as previously noted, older women with risk factors such as multiple or new sex partners, or a sex partner who has a STI to get screened [3]. Similarly, the United States Preventive Services Task Force recommends women who are sexually active (<25 and older) and at risk for infection be screened for chlamydia and gonorrhea to decrease the PID burden nationwide. Additionally, the USPSTF has also issued recommendations on behavioral counseling for all sexually active adolescents and for adults who are at increased risk for STIs [11]. New technology provides hope for the development of effective and safe vaccines despite the challenges in prior vaccines against pathogens such as *N gonorrhoea*, *C trachomatis*, and *Treponema pallidum* [12].

### **CONCLUSION**

The data available suggests that pelvic inflammatory disease is a major health concern for women. Despite the challenges in identifying and treating PID due to its

asymptomatic prevalence, some progress has been made by the CDC including teaching of the recognition of early signs. This is imperative for proper treatment and diagnosis from gynecology providers, yet there is still much work to be done [3,11]. The evidence shows that education about avoidance of high-risk behaviors, annual

STI screenings, and counseling on signs and symptoms of PID and STIs can lead to healthy outcomes. In the final analysis, healthcare professionals should consult with local public health authorities for guidance on identifying groups that are at increased risk.

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