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Testing for Sexually Transmitted Infections at Intrauterine Device Insertion: An Evidence-based Approach

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Abstract: This article reviews evidence to guide safe and cost-effective testing for asymptomatic *Neisseria gonorrhea* and *Chlamydia trachomatis* infection before inserting intrauterine devices (IUDs). All women should be screened with a history and pelvic examination before IUD insertion, but only high-risk women need a laboratory test; this includes women aged 25 years or younger with no test within the last year, and women with additional behavioral risk factors. If testing is indicated, it should be done on the same day as insertion not a separate visit. Women with positive test results should be treated as soon as results are available.

Key words: intrauterine device insertion, sexually transmitted infection, testing, screening, pelvic inflammatory disease

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Introduction

With an effectiveness of >99%, intrauterine contraception plays an important role in preventing unintended pregnancies. Despite the high efficacy, reversibility, and known safety of intrauterine devices (IUDs), only 5.5% of United States women use contraception use IUDs.[1] This discrepancy between the

benefits of IUDs and the low uptake in the United States is related in part to the tenacious misperception that IUDs cause pelvic inflammatory disease (PID). PID is an ascending infection of the upper genital tract that can lead to long-term sequellae such as tubal factor infertility, ectopic pregnancy, and chronic pelvic pain. The most frequent pathogens associated with PID are *Chlamydia trachomatis* and *Neisseria gonorrhea,* which are often asymptomatic.[2] If untreated, up to 30% of these cervical infections can lead to PID.[3,4] A substantial body of research has since disproven the earlier assertions of an association between IUDs and PID. Nonetheless, the persistent fear of PID has influenced providers' practices. Studies of clinicians show that many restrict IUDs because of concerns of PID in certain patient populations such as adolescent or nulliparous women.[5]

Furthermore, uncertainty about the role of the IUD in PID combined with an abundance of caution has led to cumbersome insertion protocols, which unnecessarily require a separate visit to document a recent negative test for *N. gonorrhea* and *C. trachomatis*. A study of contraceptive providers in California found that most of them required a *C. trachomatis* test within 3 months of insertion, with 70% requiring this even for women over 25 years old,[6] who are at lower risk of sexually transmitted infections (STI). Such a strategy unnecessarily tests low-risk women and incurs significant cost. The same study also reported that 93% of providers required 2 or more clinic visits for an IUD insertion. Requiring multiple clinic visits for an IUD insertion results in an unnecessary barrier to women accessing contraception. In fact, a retrospective cohort study of a clinic, which had a 2-visit protocol for IUD insertions found that of 708 women who requested an IUD, only 54% returned for the second visit.[7] This evidence confirms that requiring multiple visits, such as a separate visit for STI testing, prevents many women from actually obtaining intrauterine contraception. Moreover, a multivisit protocol precludes the use of the highly effective copper IUD as emergency contraception.[6]

In this article, we review evidence which supports targeted STI testing only of high-risk women and doing so on the day of IUD insertion. In addition to reviewing studies which directly look at testing practices, we also review indirect evidence addressing the potential risks of IUD insertion through a cervix infected with *N. gonorrhea or C. trachomatis*; this information is relevant for evaluating testing strategies since same day and selective testing may mean that some women will have unknown infection at the time of insertion. We aim to provide evidence for IUD insertion practices, which balance safety, access, and cost as part of the larger goal of maximizing IUD use among women who desire this highly effective, long-acting reversible contraceptive method.

Screening, Testing, and National Guidelines

For an individual patient, screening and testing are distinct evaluations. Screening a patient to assess STI risk involves taking a thorough history which assesses behavioral factors and symptoms of a current infection. In addition, pelvic examination screens for signs of active infection such as mucopurulent cervicitis or pelvic tenderness. Screening identifies who should then be tested. Testing is done with a diagnostic test to detect the presence of *N. gonorrhea* or *C. trachomatis*. The most sensitive laboratory method for detecting these infections is with nucleic acid amplification testing (NAAT), which can be run on vaginal, urine, or cervical samples. The test takes < 24 hours to run[8] and results

are thus usually known within 1 to 2 days of specimen submission.

In general, testing asymptomatic, sexually active women at risk for STIs decreases their risk of PID.[3] To detect asymptomatic infection, the Centers for Disease Control (CDC) and United States Preventive Services Task Force (USPSTF) recommend routine, annual testing for all sexually active women who are at high risk, including women who are $\leq$25 years (CDC) or $\leq$24 years (USPSTF).[2,9,10] Beyond this age criterion, the CDC and USPSTF also suggest testing asymptomatic women when other risk factors are present. These risk factors include previous STI or other current STI, new or multiple male partners, inconsistent condom use, having sex while under the influence of alcohol or drugs, or having sex in exchange for money or drugs. Laboratory testing for *N. gonorrhea* and *C. trachomatis* is also indicated for any sexually active woman who has symptoms or clinical signs of infection, such as abnormal discharge, dysuria, spotting, or pelvic pain or tenderness.

Before initiating intrauterine contraception, all women should be screened in this way with an STI risk assessment by medical history and with a pelvic examination (Fig. 1). According to the United States

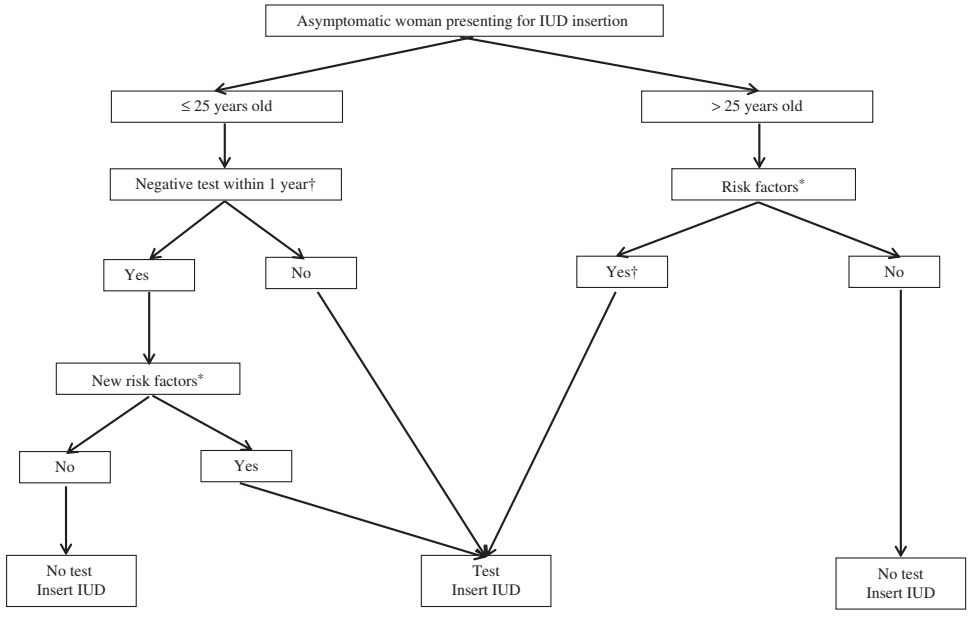

FIGURE 1. Algorithm for *N. gonorrhea* and *C. trachomatis* testing at intrauterine devices (IUD) insertion visit. *Risk factors include: previous sexually transmitted infections (STI) or other current STI; new or multiple male partners; inconsistent condom use; having sex while under the influence of alcohol or drugs, having sex in exchange for money or drugs (CDC, USPSTF). † Any woman who was previously diagnosed with asymptomatic *N. gonorrhea* or *C. trachomatis* and not yet treated should be given treatment immediately. IUD can be inserted that day if the woman is asymptomatic; if she has a symptomatic infection, patient can return in 3 weeks after treatment for IUD insertion. Those with a positive test within the last year who were treated should be tested and can have the IUD inserted on the same day.

Medical Eligibility Criteria for Contraceptive Use, women whose screening examination reveals current mucopurulent cervicitis or clinical signs of PID should not have an IUD inserted.[11] These women should have their suspected infection treated and should have confirmatory laboratory testing performed. IUD insertion should be delayed, although the Medical Eligibility Criteria does not indicate how long to wait. In addition, the Medical Eligibility Criteria state that known, untreated *N. gonorrhea* or *C. trachomatis* infection is a contraindication to IUD insertion. However, the guidelines concede that there is no evidence comparing PID risk in women with an STI and IUD insertion to women with an STI and no IUD insertion. Moreover, if a woman is diagnosed with mucopurulent cervicitis or PID with an IUD already in place, the IUD does not need to be removed while the woman is receiving antibiotic treatment.[11]

The CDC advises in its Select Practice Recommendations for Contraceptive Use that the above general guidelines for STI screening can be applied to women having IUDs inserted.[12] Regarding timing of screening and testing, the CDC states that "screening can be performed at the time of IUD insertion, and insertion should not be delayed."[12] The American College of Obstetricians and Gynecologists makes similar recommendations.[13]

The diagnosis of PID is variable and imprecise. No symptom, examination finding, or laboratory test has good sensitivity or specificity for diagnosing acute PID, compared with a gold standard of laparoscopic evidence of inflammation. Accordingly, the studies reviewed in this article use a variety of diagnostic criteria for PID. To avoid the risks of untreated PID, current guidelines from the CDC recommend a low threshold for diagnosing and treating PID: women with pelvic or lower abdominal pain who have uterine tenderness, adnexal tenderness, or cervical motion tenderness.[2]

STIs Cause PID, Not IUDs

Early reports of PID in IUD users in the 1960s led to the widespread and erroneous assumption that there was a causal relationship between IUD use and pelvic infection. However, these concerns were based on observational studies, which had methodological flaws, especially in using inappropriate comparison groups which exaggerated the risk of PID in the setting of IUD use. A number of methodologically diverse studies in a variety of settings from the last 3 decades have consistently shown that the overall risk of PID in IUD users remains low.

Existing data provide strong evidence that IUDs themselves do not cause PID but that the risk is related to the insertion process itself. One of the most important studies disproving a causal link between IUD use and PID included data from 22,908 IUD insertions worldwide.[14] This was a meta-analysis of 12 WHO-sponsored randomized trials of different IUDs from regions with low and high prevalence of STIs. Overall, 0.35% of this large cohort was diagnosed with PID. Survival analysis showed that the risk of PID in IUD users was 6 times higher within the first 20 days of insertion compared with any time after (9.7 vs. 1.4 per 1000 women years). From 21 days after insertion, the risk of PID was uniform and low for up to 8 years among IUD users and did not increase with long-term use. It is hypothesized that the increased risk of PID within 20 days of IUC insertion is secondary to transient contamination of the uterine cavity in the presence of untreated cervical infection with *C. trachomatis* or *N. gonorrhea* at the time of insertion.[15] Although the WHO studies in the meta-analysis excluded women with an STI in the prior 6 months, the studies did not indicate that STI testing was performed at insertion[14]; thus, we can presume that some women may have had undetected *N. gonorrhea* or *C. trachomatis* at IUD insertion.

Mathematical modeling using evidence from multiple studies suggests that the risk of PID attributed to IUD insertion is low (0.15%) even in populations with a high (10%) *N. gonorrhea* and *C. trachomatis* prevalence.[15] When prevalence of *N. gonorrhea* and *C. trachomatis* is lower (4.4%), the risk of PID attributed to IUD insertion is estimated to be only 0.075%.[16] The main cause of PID in sexually active women, irrespective of contraceptive method, remains untreated cervical infection with *N. gonorrhea* or *C. trachomatis*.

IUD Insertion in the Presence of Asymptomatic Infection Rarely Causes PID

Since we know that IUD insertion transiently inoculates the uterine cavity with bacteria,[17] that the risk of PID is increased in the first 3 weeks after IUD insertion, and that untreated *N. gonorrhea* or *C. trachomatis* can lead to ascending infection, it would seem that inserting an IUD through a cervix infected with one of these microbes would increase the risk of developing PID. This logic would then imply that we should test everyone for *N. gonorrhea* and *C. trachomatis* ahead of time to avoid inserting an IUD in someone with an infection. However, in the non-IUD setting, most women with untreated cervical infection do not go on to have PID, with the risk of PID being approximately 10% from untreated *C. trachomatis*[3] and 15% to 30% from untreated *N. gonorrhea*.[4] Therefore, we cannot assume that testing everyone getting an IUD would necessarily reduce the risk of PID from insertion. To assess whether IUD insertion in the presence of cervical infection leads to an increased risk of PID, the most appropriate comparison group would be women with cervical infection and no IUD inserted. There are no studies directly comparing PID rates between these 2 groups. Moreover, despite the theoretical risk of ascending infection from IUD insertion, a Cochrane review demonstrated that prophylactic antibiotics at the time of IUD placement have no benefit in reducing the risk of PID [odds ratio, 0.89; 95% confidence interval (CI), 0.53-1.51].[18]

In a systematic review of 6 prospective studies comparing the risk of PID among women with and without asymptomatic infection at the time of IUD insertion, the risk of PID was increased in the presence of infection compared with no infection (risk ratio, 1.63-46.35).[4] The absolute risk of PID, however, was low in both groups (0% to 2% for those without infection and 0% to 5% for those with infection). The overall quality of these studies varied and the wide range of the relative risk shows lack of precision because of a small number of PID cases. Moreover, these studies had limited ability to adjust for potential confounders. The authors of the systematic review also note that none of the studies assessed whether the risk of PID in women with STIs but no IUD insertion was comparable to those with IUDs inserted in the presence of an STI.

Of note, women in these studies with asymptomatic *N. gonorrhea* or *C. trachomatis* at IUD insertion who developed PID had not yet been treated for cervical infection, as their test results were not known until 2 to 4 weeks after insertion.[19,20] Now that NAAT assays yield test results within 24 hours, providers should be able to treat those with *N. gonorrhea* or *C. trachomatis* at IUD insertion within a few days of insertion. Antimicrobial activity against *N. gonorrhea and C. trachomatis* begins to take effect within several hours of dosing ceftriaxone and azithromycin,[21] the respective standard treatments. Given this rapid onset, if women in the earlier studies of IUD insertion with unknown *N. gonorrhea* or *C. trachomatis* had been treated within a few days of insertion, their risk of cervical infection ascending to PID would likely have been even lower.

Among women with a known, untreated, positive *N. gonorrhea* or *C. trachomatis* test result who present for IUD insertion, CDC Medical Eligibility Criteria advice that insertion should be delayed. However, the document acknowledges the lack of evidence for this recommendation, and also does not indicate for how long insertion should be delayed.[11] Without the availability of direct evidence, for asymptomatic women with known infection, it seems reasonable then to extrapolate information from the above studies about the low risk of PID from insertion in asymptomatic carriers of infection; after all, the main difference in these 2 groups of women is not the infection itself but whether the asymptomatic infection is known on the day of insertion. Treatment for known, asymptomatic infection and insertion on the same day likely has a similar, if not lower, risk of PID than those who were not known to have infection at insertion. Thus, it is reasonable to treat and insert on the same day in asymptomatic women (Fig. 2). In this scenario where direct evidence is limited, provider practice should be guided by informed consent and patient desire.

Studies of IUD insertion in the presence of cervical infection have uniformly excluded symptomatic women and women with mucopurulent cervicitis, so we cannot make the same assumptions about concurrent insertion as we can with asymptomatic women. In this case, microbiologic studies of clearance time after treatment are helpful to indicate when the cervix should be cleared of infection and therefore when insertion can be done. A study of 43 women treated for uncomplicated *N. gonorrhea* showed a rapid clearance time of 2 to 3 days after treatment.[22] A similar study of 61 women with *C. trachomatis* demonstrated that 100% had cleared the infection by 17 days (95% CI, 16-19 d).[23] On the basis of these clearance times, we can infer that those with uncomplicated, symptomatic cervical infection can have an IUD safely inserted approximately 1 week after treatment for *N. gonorrhea* and 3 weeks after treatment for *C. trachomatis*. In addition, as with all women with *N. gonorrhea* or *C. trachomatis*, CDC guidelines for expedited partner treatment and retesting a woman within 4 months of treatment should be followed.[2]

Only High-risk Women Should be Tested

This low risk of PID at IUD insertion even when asymptomatic infection is present helps us think about a strategy of selective testing before IUD insertion, rather than a costly strategy of testing everyone. The trade-off for targeted

Test needed and insert IUD today	No test needed and insert IUD today
≤25 years old, no test within the last year	≤25 years old, negative test within the last year and no new risk factors* since test
≤25 years old, negative test within the last year, but new risk factors* since test	>25 years old, no risk factors*
Any woman with risk factors, regardless of age*	

FIGURE 2. Testing groups for asymptomatic women presenting for IUD insertion. *Risk factors include: previous STI or other current STI; new or multiple male partners; inconsistent condom use; having sex while under the influence of alcohol or drugs, having sex in exchange for money or drugs (CDC, USPSTF). IUD indicates intrauterine devices; STI, sexually transmitted infections.

testing is that we might miss some cases of asymptomatic infection. However, we know that the risk of PID in those situations is low. Furthermore, women who use IUDs are not at higher risk for STI acquisition compared with women using no contraception or oral contraceptives pills.[24] Thus, it would seem reasonable to test women getting IUDs according to the same criteria used for other sexually active women.

As IUDs do not cause PID, but IUD insertion through a cervix infected with *N. gonorrhea* or *C. trachomatis* might minimally increase the risk of PID, it would follow, then, to ask whether testing before inserting an IUD reduces the risk of PID. The best way to answer this question would be to randomize women presenting for IUDs to testing or no testing, blocking randomization according to high-risk and low-risk women. Such a study has not been performed; given the low risk of PID in the setting of IUD insertion, this study would require a very large sample size and would be costly. Other evidence exists, however, to support strategies of targeted testing only of women at risk for STIs, using various criteria for identifying those high-risk women.

Several studies have looked at universal testing at the time of IUD insertion. In a low-risk population in Norway, all 957 women were tested for *C. trachomatis* at IUD insertion[25]; 0.5% of them had asymptomatic infection, which was promptly treated. This universal testing strategy had no benefit, as there were no cases of PID in the study, and no difference in IUD removals between those with a positive *C. trachomatis* test and those with a negative test. Universal testing at IUD insertion in a higher *C. trachomatis* prevalence cohort in Brazil, with 5.6% testing positive, showed a very low risk of PID of 0.6% within 1 month of insertion.[19] Although the only 2 PID cases were in women who tested positive, the authors concluded that universal testing of everyone getting an IUD is not cost-effective. In a trial of prophylactic antibiotics at IUD insertion in Kenya, all women were tested on the day of insertion.[26] Although 14% of women had *N. gonorrhea, C. trachomatis*, or both, the PID risk was low in both the antibiotic group (1.3%) and the placebo group (1.9%). These studies in which all women were tested did not show a clear benefit to a universal testing strategy.

A rough estimation demonstrates that universal testing of all women getting IUDs placed would be both costly and not cost-effective. The 2006 to 2010 cycle of the National Survey of Family Growth showed an increase in the number of women who reported currently using the IUD from 1.3 million in 2006 to 2008 to 3.0 million in 2008 to 2010 (L.B. Finer, Unpublished tabulations of the 2006–2010 National Survey of Family Growth, 2014). This increase of 1.7 million over a 2-year period translates into approximately 850,000 new IUD users per year. This net increased number is likely an underestimate because it not only adds new IUD users but also subtracts women who had IUDs removed and are no longer IUD users. The highest reported PID risk with no prophylactic antibiotics at IUD insertion when all women were tested is 1.9%[26]; in this study, PID was diagnosed before test results were known, so testing did not mitigate PID risk. With an average lifetime cost of $1995 per PID case,[27] treating PID cases among women who were all tested at IUD insertion would cost $32.2 million. At a cost of $38.80 per NAAT assay,[28] universal testing of all women for *N. gonorrhea* and *C. trachomatis* at IUD insertion would cost more than double this, at $66 million. If we recalculate PID costs based on the lowest reported PID risk when all women were tested, 0.5%,[25] then treating PID cases would cost $8.5 million. At such lower PID rates, the cost of universal testing would be the

same as with high PID settings, but it is 8 times greater than the cost to treat PID. In both high-PID and low-PID prevalence cases, the cost to treat PID is significantly less than the cost to test every woman for *N. gonorrhea* and *C. trachomatis*.

Targeted testing of women at risk for having asymptomatic cervical infection at IUD insertion, rather than testing all women, therefore makes sense. Studies have shown that various clinical screening algorithms have limited ability to correctly identify women with cervical infection at IUD insertion or women likely to develop PID after insertion.[19,20,29,30] In these studies, age ≤ 25 and sexual behavioral risk factors—criteria in the CDC and USPSTF guidelines—have high negative predictive values, ranging from 95% to 99.5%. The high negative predictive value means that women who have none of these risk factors are unlikely to have *N. gonorrhea* or *C. trachomatis* infection. Therefore, these are women in whom testing at the time of IUD insertion could be avoided.

The largest study which looked at targeted STI testing at IUD insertion was a retrospective cohort study in a United States managed care setting where CDC STI testing recommendations were widely applied to women getting IUDs.[31] Forty-seven percent of the 57,728 women in this cohort had no testing within the year before IUD insertion, indicating that providers deemed them to be low risk according to their clinical screening. Investigators compared the risk of being diagnosed with PID within 90 days of insertion among the women who were tested and those who were not tested for cervical infection before insertion. The diagnosis of PID was rigorously assessed by broad ICD-9 criteria for upper genital tract infection and by chart review. The percent with PID was actually lower in women who were not tested, 0.36% (95% CI, 0.3%-0.44%), compared with women who were tested, 0.7% (95% CI, 0.61%-0.8%); the findings persisted when adjusted for age, race, and ethnicity. This indicates that providers appropriately applied clinical judgment in not testing those at lower risk. Of note, the risk of PID was very low, 0.54%, in the entire cohort. This study supports the practice of applying general CDC recommendations for cervical STI testing to the population of women getting IUDs inserted.

In summary, universal testing for women getting IUDs is an unnecessary and costly strategy. Not testing low-risk women and targeted testing of those women who are at higher risk of having a current, asymptomatic cervical infection is a safe strategy with a low risk of PID.

If Indicated, Test on the Same Day as Insertion

For women who are selected for testing, the most appropriate time to assess the microbiologic status of the cervix is on the day of insertion. Although same-day testing may mean inserting an IUD through an infected cervix, the studies reviewed above confirm that the risk of PID remains low.

The safety of testing on the day of IUD insertion is supported by a number of studies. Testing in the Norway study was done on the same day as insertion, and no cases of PID were reported.[25] In the cohort from Brazil where all asymptomatic women were tested on the day of insertion, 10% (2/19) of those with *C. trachomatis* were diagnosed with PID; these women presented 2 weeks after insertion.[19] However, test results were not available until 3 to 4 weeks after insertion, so these 2 women had not yet received *C. trachomatis* treatment by their 2-week PID presentation. Moreover, although 90% of the women with *C. trachomatis* did not receive treatment until 1 month after IUD insertion, none of them were diagnosed with PID. It is possible that if

test results had been known sooner and women treated more promptly after uterine instrumentation, this postinsertion PID risk in women with asymptomatic *C. trachomatis* at insertion would be even lower. Same-day testing was used in a randomized trial of prophylactic antibiotics at 472 IUD insertions among women deemed to be low-risk and there were no cases of PID in the study[32]; prophylactic antibiotics were not shown to modify the risk of PID even among those with a positive *C. trachomatis* test from the day of insertion. A Planned Parenthood affiliate reported no cases of PID from IUD insertions in low-risk, asymptomatic women when they switched their clinic protocol to same-day STI testing for women presenting for IUD insertion.[33] This practice also resulted in a 162% increase in IUD utilization.

We can further extrapolate information on the safety of same-day testing from other clinical settings, which involve immediate insertion of an IUD without knowing the results of laboratory testing. Postabortion IUD insertion, for instance, is now widely practiced and known to be safe. In a randomized trial of immediate versus delayed IUD insertion after first trimester abortion, STI testing was done on all participants at the time of abortion, and, thus, also on the day of IUD insertion for the 258 women assigned to the immediate postabortion IUD group.[34] This same-day testing strategy yielded no difference in PID in the 2 groups (1.9% vs. 1.6%, $P = 0.76$).

Another instance of same-day testing at IUD insertion is the use of the copper IUD for emergency contraception, when IUD insertion needs to be accomplished on the day a woman presents within 5 days of unprotected intercourse. Among 197 women who were prospectively followed after receiving the copper IUD for emergency contraception and who had same-day STI testing, 4% tested positive for *C. trachomatis*; none of them developed PID.[29]

Finally, timing of testing before IUD insertion or on the same day showed little relationship to the incidence of PID in the study of a United States managed care population.[31] Interestingly, the risk of PID was actually lower in the same-day testing group (0.44%; 95% CI, 0.3%-0.65%) compared with those who were tested ahead of time (0.75%; 95% CI, 0.65%-0.87%), with an odds ratio of 0.59 (95% CI, 0.39-0.89). This finding suggests that a negative result from a preinsertion visit could falsely reassure clinicians, as a woman could acquire an STI in the interval between testing and insertion, which would then go untreated. A limitation of the study is that it could not gather information about specific behavioral risk factors for STIs nor did it report the *N. gonorrhea* and *C. trachomatis* results among the differently tested groups. It was, therefore, not possible for investigators to assess the risk of PID among those who were infected. Despite this limitation, providers in this setting widely used CDC risk-based criteria to decide whom to test at IUD insertion; thus, their decision to test or not was a surrogate for what a woman's sexual behavior risk factors were.

In the subgroup of women younger than 26 years old, the risk of PID was statistically equivalent between same-day testing (0.59%; 95% CI, 0.36%-0.96%) and preinsertion testing within the year before insertion (0.97%; 95% CI, 0.81%-1.17%), with an adjusted odds ratio of 1.08 (95% CI, 0.62-1.88). So if a woman 25 years or younger presents for IUD insertion, has had negative STI testing within the last year, and no additional risk factors, study results support that her test within the prior year is sufficient. However, if a woman aged 25 years or younger has had a negative test within the last year but has a new or additional risk factor for STI, she should be tested again on the same day as insertion.

Summary and Recommendations

This article reviews evidence for how clinicians should approach *N. gonorrhea* and *C. trachomatis* testing among women presenting for IUDs. On the basis of this evidence, an algorithm to guide the testing of asymptomatic women presenting for IUD insertion is provided in Figure 1. Figure 2 provides a summary of who should be tested on the day of IUD insertion and who does not need to be tested.

An IUD insertion visit offers an opportunity for a woman to interface with a health care provider who can assess her risk for having current, asymptomatic *N. gonorrhea* or *C. trachomatis* but that risk of cervical infection is not dependent on her desire to have an IUD inserted; presenting for IUD insertion is not a risk factor for an STI. A woman's risk of STI acquisition does not depend on her method of contraception, or when she is tested for STI before IUD insertion; rather, her risk of STIs depends on sexual behaviors. Accordingly, and as supported by the evidence reviewed here, performing laboratory testing on every woman getting an IUD offers no benefit and is costly. Instead, every woman should be screened with a history assessing age and behavioral risk factors; a pelvic examination should be done to exclude mucopurulent cervicitis or current PID, which should be treated and IUD placement delayed. A variety of screening tools exist, and their main utility is in identifying low-risk women who do not need to be tested. On the basis of results of the screening evaluation, providers should determine whether laboratory testing is indicated.

Evidence supports a strategy of applying CDC and USPSTF guidelines for *N. gonorrhea* and *C. trachomatis* testing to women getting IUDs. If a woman desiring intrauterine contraception meets criteria for testing based on these risk factors for the general population of sexually active females, then a laboratory test should be performed. This includes young women ($\leq$25 y old), women with a previous history of an STI, and women with high-risk sexual behavior (eg, having multiple current partners, having a new partner, using condoms inconsistently, having sex while under the influence of alcohol or drugs, having sex in exchange for money or drugs).[2,9,10] For women aged 25 years or younger who are getting an IUD, if they have already been tested within the last year and they have no new risk factors, then another test on the day of insertion does not need to be performed.

With prompt treatment of positive test results from the day of insertion, the risk of PID in women who had an IUD inserted through an asymptomatic, infected cervix is very low. For women in whom screening does indicate that a laboratory test is warranted, evidence supports testing on the same day as insertion. Same-day testing makes sense because that is the most accurate time to evaluate the microbiologic status of a woman's cervix; a negative test from 2 weeks before insertion does not, if she has risk factors, preclude the chance of her getting infected within those 2 weeks, and thus of having an asymptomatic infection on the day of insertion. Likewise, women with a known asymptomatic but yet untreated infection can be treated and have the IUD inserted on the same day. If a woman does have a known infection and symptoms or signs like mucopurulent cervicitis, then the IUD can be inserted 3 weeks after treatment with the appropriate antibiotic.

If same-day testing is completed and *N. gonorrhea* or *C. trachomatis* infection is established after placement of an IUD, treatment should be initiated as soon as the results are available. It is not necessary to remove the IUD.[9] It is the insertion process, not the IUD itself, which presents potential risk; so, once the IUD is in place there is little benefit to removing it.

The evidence we have reviewed here supports a cost-effective strategy of not testing low-risk women for STIs simply because they are having an IUD inserted. Among those who are at risk for having a current asymptomatic infection, performing STI testing on the same day as IUD insertion removes the unnecessary barrier of a separate visit for testing. This evidence-based strategy has the potential to increase women's access to intrauterine contraception.

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