



**USAID**  
FROM THE AMERICAN PEOPLE



# Prevention and Management of Chlamydial and Gonorrheal Infections in Pregnancy and Prevention of Newborn Eye Infection

## Recent Updates to WHO Guidelines and Policy Considerations

March 2020

[www.mcsprogram.org](http://www.mcsprogram.org)

### Key Messages

- Chlamydial and gonorrheal infections are among the most common sexually transmitted infections (STIs) globally and cause significant health and financial burdens worldwide.
- Maternal chlamydial and gonorrheal infections are associated with serious adverse outcomes for both women and neonates, including pelvic inflammatory disease, infertility, preterm birth, low birth weight, and neonatal conjunctivitis, blindness, nasopharyngeal infection, and pneumonia.
- Antimicrobial drug resistance is a major threat worldwide, especially for *Neisseria gonorrhoea*.
- Transition from syndromic management of STIs, which was based on World Health Organization's 2003 guidelines, to infection-specific diagnostic testing and treatment should consider local infection prevalence, antibiotic resistance patterns, and a range of health system factors.
- Country-level guidance on STI treatment should prioritize evidence-based use of antibiotics to maximize treatment effectiveness, reduce the burden of infection, and minimize emergence of antibiotic resistance.
- Prevention and management of STIs in pregnancy should ideally be one component of a broader country strategy to address STIs based on local epidemiology.
- Dual therapy is preferred over single therapy for gonococcal infection; local antimicrobial resistance patterns should dictate specific choice of antibiotics.
- To interrupt transmission of infection and prevent re-infection, treating sexual partners is an important component of STI case management.<sup>1</sup>

### Background

More than 1 million people acquire sexually transmitted infections (STI) every day, worldwide. Chlamydial and gonorrheal infections are among the most common STI globally and are associated with significant health and financial burdens. In November 2018, the World Health Organization (WHO) released a standard protocol for conducting periodic prevalence assessments of chlamydia and gonorrhoea, including in pregnant women, to inform national policy and STI prevention and management strategies.<sup>1</sup>

Occurring most commonly among young, sexually active adults, chlamydial infection causes cervicitis in women and urethritis in men, as well as infections outside the reproductive tract, including rectal and

<sup>1</sup> WHO. 2016. *Standard protocol to assess prevalence of gonorrhoea and chlamydia among pregnant women in antenatal care centres*. <https://apps.who.int/iris/bitstream/handle/10665/275846/9789241514675-eng.pdf?ua=1>

oropharyngeal infections. Asymptomatic infections are common in both women and men. Untreated chlamydial infection may lead to severe complications in women, including ectopic pregnancy, salpingitis, pelvic inflammatory disease, and infertility. Maternal infection is associated with serious adverse outcomes in neonates, including preterm birth, low birth weight, conjunctivitis, blindness, nasopharyngeal infection, and pneumonia. Gonorrhoeal infection is the second most common bacterial STI globally. Uncomplicated gonorrhoea is often asymptomatic in women. Untreated infection may lead to serious complications, including pelvic inflammatory disease, ectopic pregnancy, and infertility. Infants of mothers with gonococcal infection are at risk for neonatal conjunctivitis, which can cause blindness if untreated.

Gonorrhoeal and chlamydial infections can be diagnosed by culture or nucleic acid amplification tests, which are the most accurate diagnostic tools. Efforts are underway to develop accurate and affordable point-of-care diagnostic tests for both infections. At present, point-of-care diagnostic tests for STIs are widely available only for HIV and syphilis. In 2003, WHO recommended a **syndromic approach** for the management of STIs based on empiric treatment for signs of infection. WHO is currently updating its guidelines for STI prevention, screening, testing, and management to move from syndromic management to treatment based on diagnostic testing and local disease and antimicrobial patterns. In moving from a syndromic STI management approach to infection-specific strategies based on diagnostic testing, countries must consider a range of factors, including local burden of disease, antimicrobial resistance patterns, and costs of testing.



Prevention and management of sexually transmitted infection is an essential component of comprehensive maternal and newborn care.

## 2016 WHO Guidelines for the Treatment of *Chlamydia trachomatis* and *Neisseria gonorrhoeae*

In 2016, WHO updated its 2003 guidelines for the treatment of *Neisseria gonorrhoea* and *Chlamydia trachomatis* infections, including for pregnant women, based on changes in the epidemiology of STIs, antimicrobial resistance patterns, and advancements in prevention, diagnosis, and treatment of STIs.

This brief summarizes the updated WHO 2016 guidelines and highlights policy considerations for low-resource settings.



## WHO 2016 Recommendations

**Table 1. Treatment of Gonorrhoeal and Chlamydial Infections in Pregnancy**

Recommendations and Policy Considerations	
Recommendation	Key Policy Considerations
<p>The 2016 WHO STI guideline recommends that local antimicrobial resistance data should determine the choice of <b>gonorrhea therapy</b> for treatment of all individuals, including pregnant women (both dual and single therapy). In settings where local resistance data are unavailable, WHO recommends <b>dual (two antibiotics)</b> over single therapy (single antibiotic) for people with genital or anorectal gonorrhoea.</p> <p><i>Dual therapy</i> includes one of the following combinations:</p> <ul style="list-style-type: none"> <li>• Ceftriaxone 250 mg intramuscular (IM) as a single dose PLUS azithromycin 1 g orally as a single dose</li> <li>• Cefixime 400 mg orally as a single dose PLUS azithromycin 1 g orally as a single dose</li> </ul> <p><i>Single therapy</i> (one of the following based on local antibiotic resistance data, when available):</p> <ul style="list-style-type: none"> <li>• Ceftriaxone 250 mg IM as a single dose</li> <li>• Cefixime 400 mg orally as a single dose</li> <li>• Spectinomycin 2 g IM as a single dose</li> </ul>	<p>Because of emerging resistance data for gonococcal infections and reduced effectiveness of some antibiotics, choice of antibiotic treatment should be informed by reliable local data on antimicrobial susceptibility whenever possible. WHO guidance on surveillance of antimicrobial resistance in <i>N. gonorrhoeae</i> is included in the <i>Global action plan to control the spread and impact of antimicrobial resistance in Neisseria gonorrhoeae</i>.<sup>2</sup></p> <p>Pregnant women diagnosed with gonorrhoea should be promptly treated and closely monitored for complications.</p>
<p>In pregnant women with genital <b>chlamydial infection</b>, WHO recommends using azithromycin over erythromycin.</p>	<p><b>Azithromycin 1 gm orally as a single dose is the recommended first choice treatment for chlamydial infection based on effectiveness and cost.</b> A single-dose treatment is more likely to be effective due to better adherence. However, azithromycin may not be available in all settings due to the misconception that it is costly. Azithromycin capsule 250 and 500 mg formulations are in the <i>WHO Model List of Essential Medicines</i> for single-dose treatment of genital <i>Chlamydia trachomatis</i> and trachoma.</p> <p>Azithromycin is preferred over erythromycin because of greater effectiveness and lower cost, and over amoxicillin due to greater effectiveness.</p> <p>Doxycycline should not be used in pregnant women because of adverse effects.</p>
<p>In pregnant women with genital <b>chlamydial infection</b>, WHO suggests using azithromycin over amoxicillin.</p>	
<p>In pregnant women with genital <b>chlamydial infection</b>, WHO suggests using amoxicillin over erythromycin.</p> <p>Dosages:</p> <ul style="list-style-type: none"> <li>• Azithromycin 1 g orally as a single dose</li> <li>• Amoxicillin 500 mg orally three times a day for 7 days</li> <li>• Erythromycin 500 mg orally four times a day for 7 days</li> </ul>	

**Table 2: Prevention of Gonococcal and Chlamydial Ophthalmia Neonatorum**

Recommendation	Key Policy Considerations
<p>For all neonates, the 2016 WHO STI guideline recommends topical ocular prophylaxis for the prevention of gonococcal and chlamydial ophthalmia neonatorum (neonatal conjunctivitis). For prophylaxis of ocular infections, the WHO STI guideline recommends one of the following topical treatments (both eyes) shortly after birth:</p> <ul style="list-style-type: none"> <li>• Tetracycline hydrochloride 1% eye ointment</li> <li>• Erythromycin 0.5% eye ointment</li> <li>• Povidone iodine 2.5% solution (water-based only)</li> <li>• Silver nitrate 1% solution</li> <li>• Chloramphenicol 1% eye ointment.</li> </ul>	<p>These recommendations apply to the prevention of both chlamydial and gonococcal ophthalmia neonatorum.</p> <p>Local antibiotic resistance patterns and antibiotic availability and cost should help determine the most appropriate antibiotic for prevention of neonatal conjunctivitis caused by chlamydia and gonococcus.</p> <p>Only a water-based solution of povidone iodine should be used; alcohol-based povidone iodine solution should not be used for prevention of neonatal conjunctivitis</p>

<sup>2</sup> WHO.2012. *Global action plan to control the spread and impact of antimicrobial resistance in Neisseria gonorrhoeae*. [http://apps.who.int/iris/bitstream/handle/10665/44863/9789241503501\\_eng.pdf?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/44863/9789241503501_eng.pdf?sequence=1)

## Prevention of STIs in Pregnancy

Policy makers should consider the special needs of pregnant women when developing policies for prevention of STIs. In particular, the use of condoms may be difficult for pregnant women to negotiate in the absence of a need for contraception. When used correctly and consistently, condoms (male and female) offer one of the most effective methods of protection against STIs, including HIV. Effective counseling can improve the capacity of pregnant women to prevent STIs and to recognize and promptly seek care for STI symptoms in themselves or a sexual partner.

The following evidence-based counseling and behavioral interventions for primary prevention against STIs, including HIV, are relevant for all populations, including pregnant women:

- Comprehensive sexuality education, STI and HIV pre- and post-test counseling
- Safer sex/risk-reduction counseling, condom promotion
- Interventions targeted at key populations, such as sex workers, men who have sex with men, and people who inject drugs
- Education and counseling tailored to the needs of adolescents

Public STI campaigns should include messaging to address poor public awareness and common, widespread stigma around STIs, including among health workers, which may hamper the above interventions.

## National Policy Recommendations

A comprehensive approach to policy development for STI prevention and treatment, including in pregnant women, should incorporate the following elements in addition to other elements relevant in the country context:

- National reproductive, maternal, newborn and child health and antimicrobial resistance reduction strategies and roadmaps
- National Essential Medications List
- Pre- and in-service education and supervision of health workers (managers, clinicians, laboratory, and other)
- Standards of clinical and laboratory practice, including during antenatal care, childbirth, and postnatal period
- Supply chain (e.g., diagnostic test kits, laboratory reagents, antibiotics)
- Diagnostic testing during antenatal care and intrapartum period
- Budgeting for antibiotics; low-cost medicines may be obtained through international vendors of generic medications and non-profit organizations with procurement schemes (e.g., UNFPA)
- Updates to routine data collection systems to strengthen availability and quality of a minimum set of data for clinical decision-making, program management, quality improvement, and surveillance (STI incidence, antimicrobial resistance) related to effective surveillance, prevention, and treatment of STI

This brief is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of the Maternal and Child Survival Program and do not necessarily reflect the views of USAID or the United States Government.