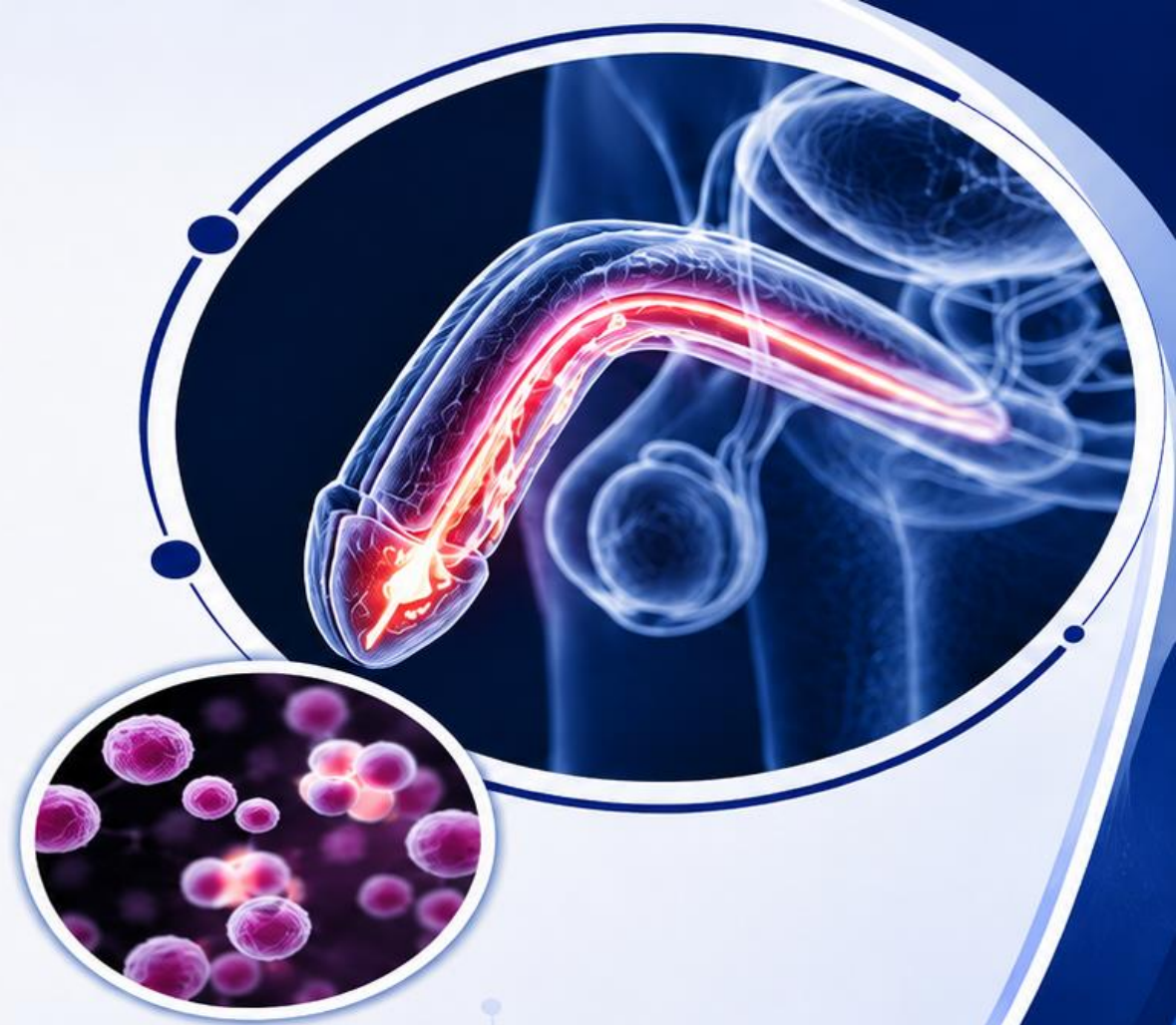


MANAGEMENT OF A PATIENT WITH URETHRITIS

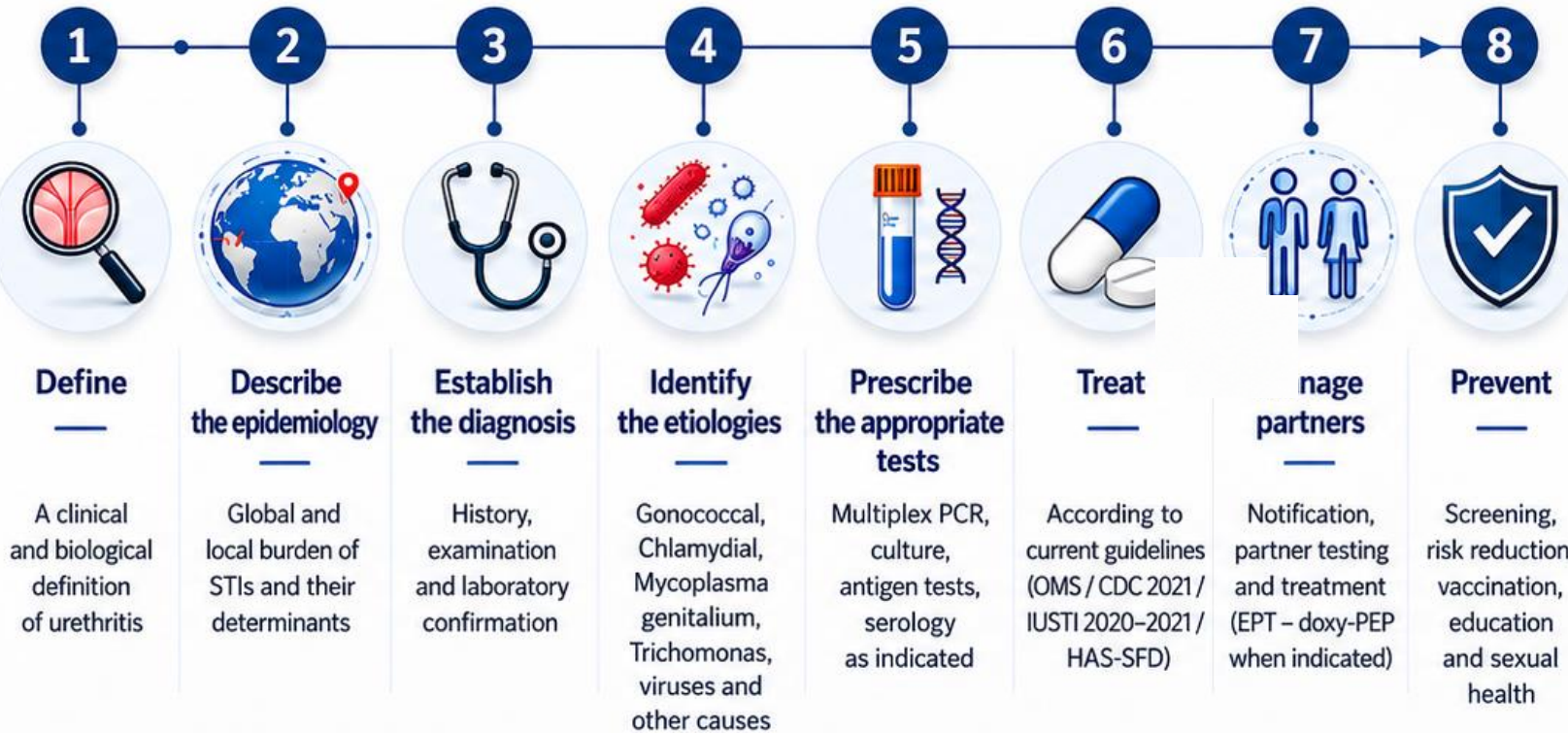


— Prof. Ahmed Bouhamidi —



LEARNING OBJECTIVES

At the end of this presentation, the participant will be able to:



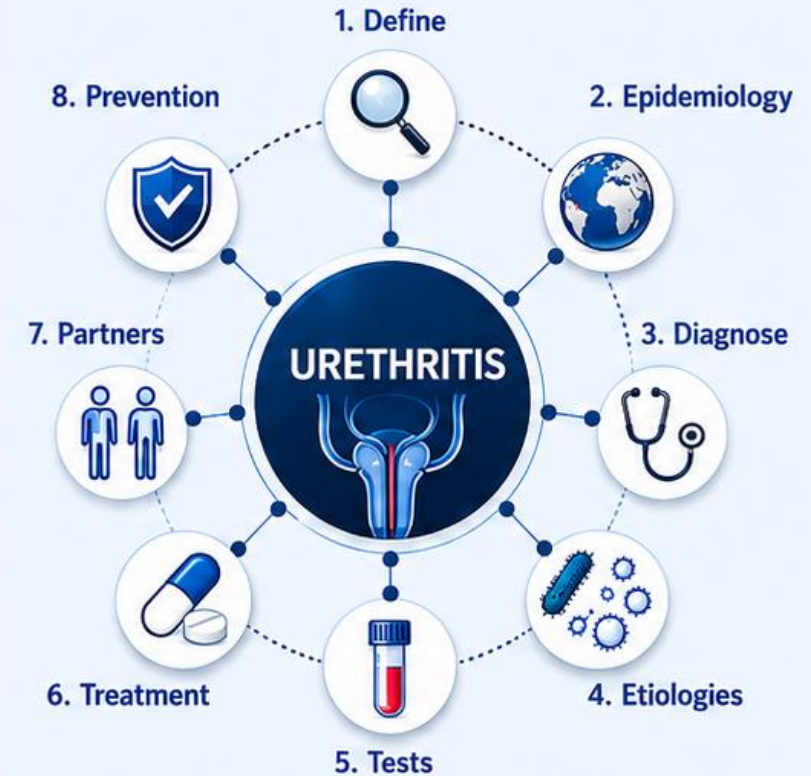
A structured approach from diagnosis to prevention for optimal and responsible management of urethritis.



KEY MESSAGE

Urethritis is a key symptom of STIs: early diagnosis, appropriate treatment, prevention of individual complications and interruption of community transmission.

MANAGEMENT PATHWAY FOR URETHRITIS



Course Outline



01



Introduction

02



Definition

03



Anatomical review

04



Epidemiology

05



Pathophysiology

06



Infectious and non-infectious etiologies

07



Clinical manifestations

08



Diagnostic approach

09



Additional investigations

10



Treatment – gonococcal infection

11



Treatment – non-gonococcal urethritis

12



Partner management

13



Complications

14



Prevention

15



Interactive clinical cases

16



Key messages, MCQs, OSCEs and summary

Urethritis,

a common reason for consultation



A symptom, not a diagnosis

- Urethral discharge and/or dysuria = syndrome requiring an etiological investigation



Gateway to bacterial STIs

- The most frequent reason for consultation for STIs in young men



Public health concern

- Global burden of gonococcal infection and antimicrobial resistance
- Risk of transmission to partners and complications (infertility, dissemination)



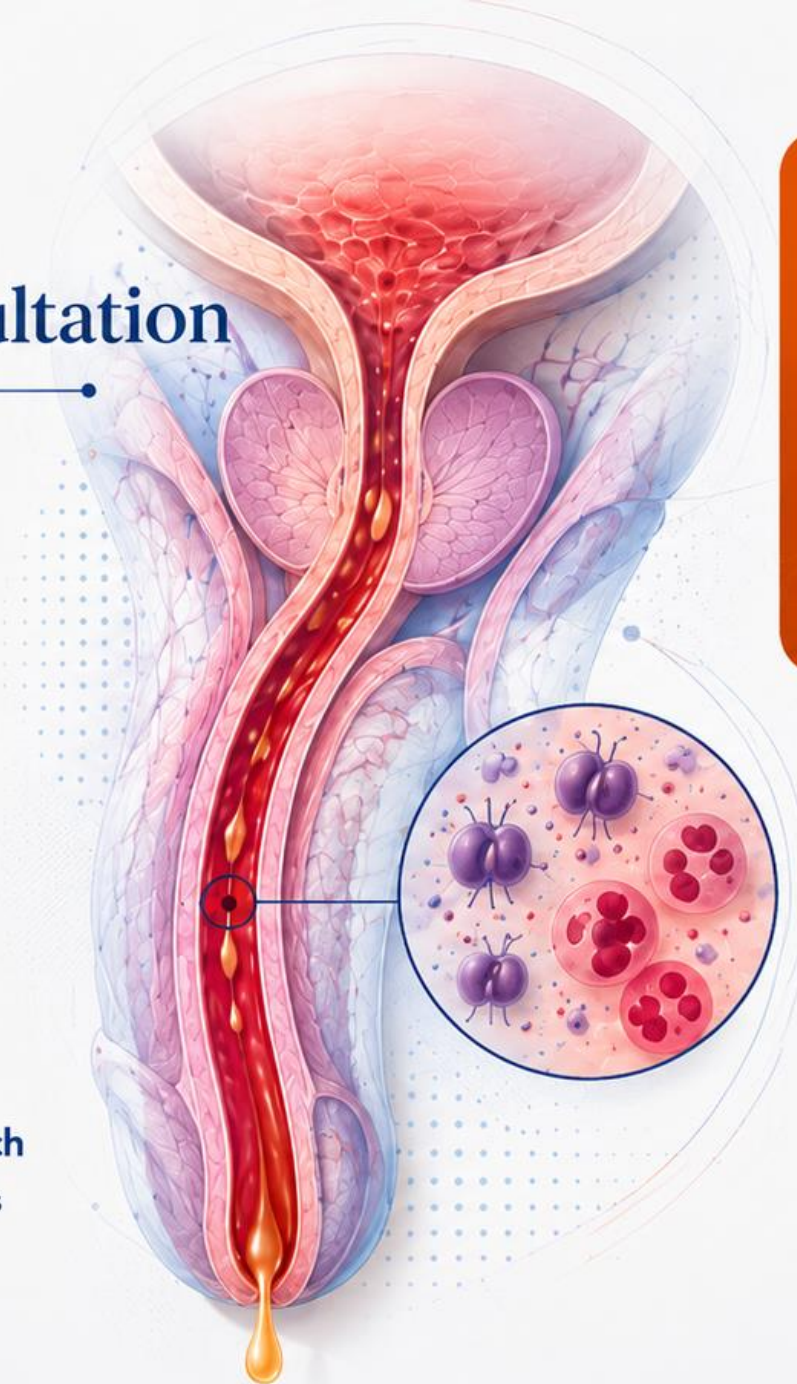
WHO-recommended syndromic approach

- Treat without waiting for microbiological results in resource-limited settings
- In France/Morocco: targeted microbiological diagnosis prior to documented treatment



KEY MESSAGE

In the presence of urethral discharge, management must be prompt, standardized and systematically combined with broad testing for STIs and partner management.



2. DEFINITION

What is urethritis?



Clinical definition

- Inflammation of the urethra manifested by urethral discharge, dysuria and/or urethral pruritus.



Microbiological definition

- Presence of ≥ 5 polymorphonuclear neutrophils (PMNs) per high-power field (HPF, $\times 1000$) on Gram-stained urethral smear.
- Or leukocyturia ≥ 10 WBCs/HPF in the first-void urine.



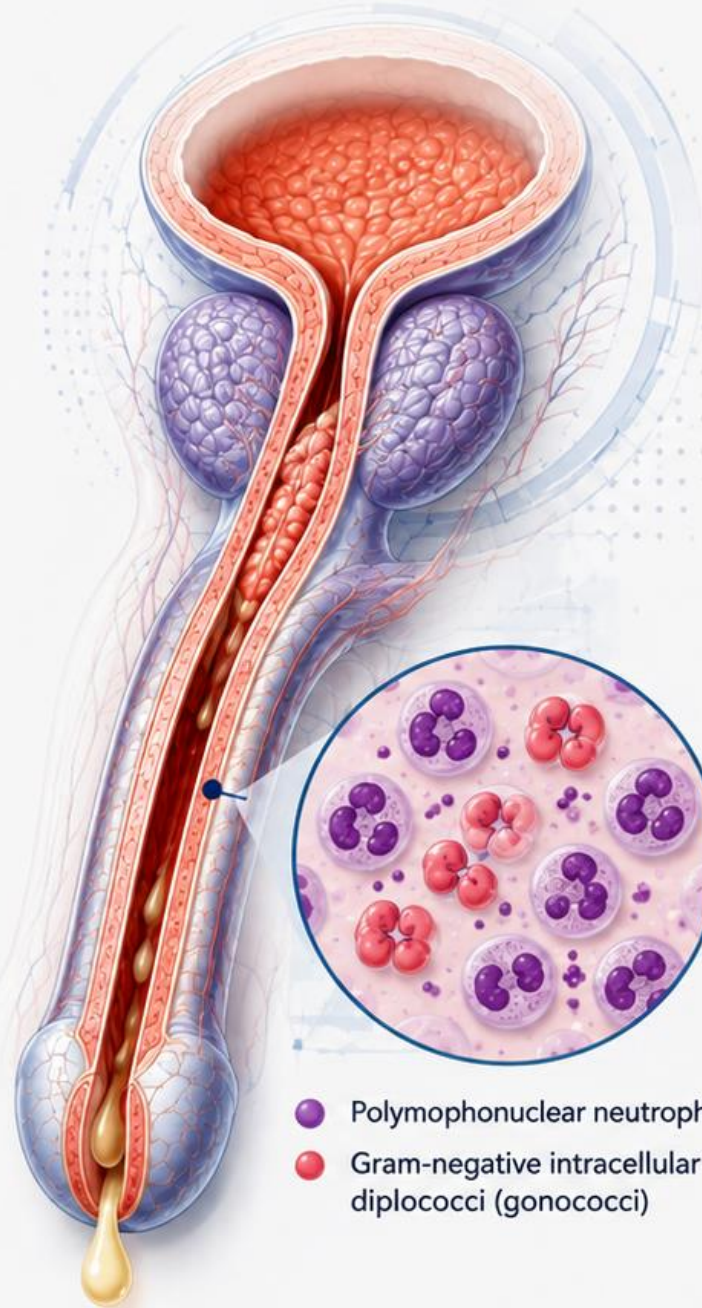
Two major etiologic categories

- Gonococcal urethritis (GU) – *Neisseria gonorrhoeae*
- Non-gonococcal urethritis (NGU) – all other infectious agents or non-infectious causes.



Clinical course

- Acute: duration < 4 weeks.
- Chronic/persistent or recurrent: treatment failure, reinfection or resistant cause to be considered.



- Polymorphonuclear neutrophils (PMNs)
- Gram-negative intracellular diplococci (gonococci)



KEY MESSAGE

The diagnosis of urethritis is primarily clinical; its biological confirmation (Gram stain/leukocyturia) guides the urgency of treatment and the presence or absence of intracellular diplococci suggestive of gonococcal infection.

The urethra: anatomy and differences between males and females



MALE URETHRA (~20 cm)

- **Anterior urethra:** penile (bulbar) urethra (stratified or non-keratinized squamous epithelium)
- **Posterior urethra:** membranous then prostatic urethra (transitional epithelium)
- **Littre's glands and Cowper's (bulbourethral) glands:** sites of bacterial latency



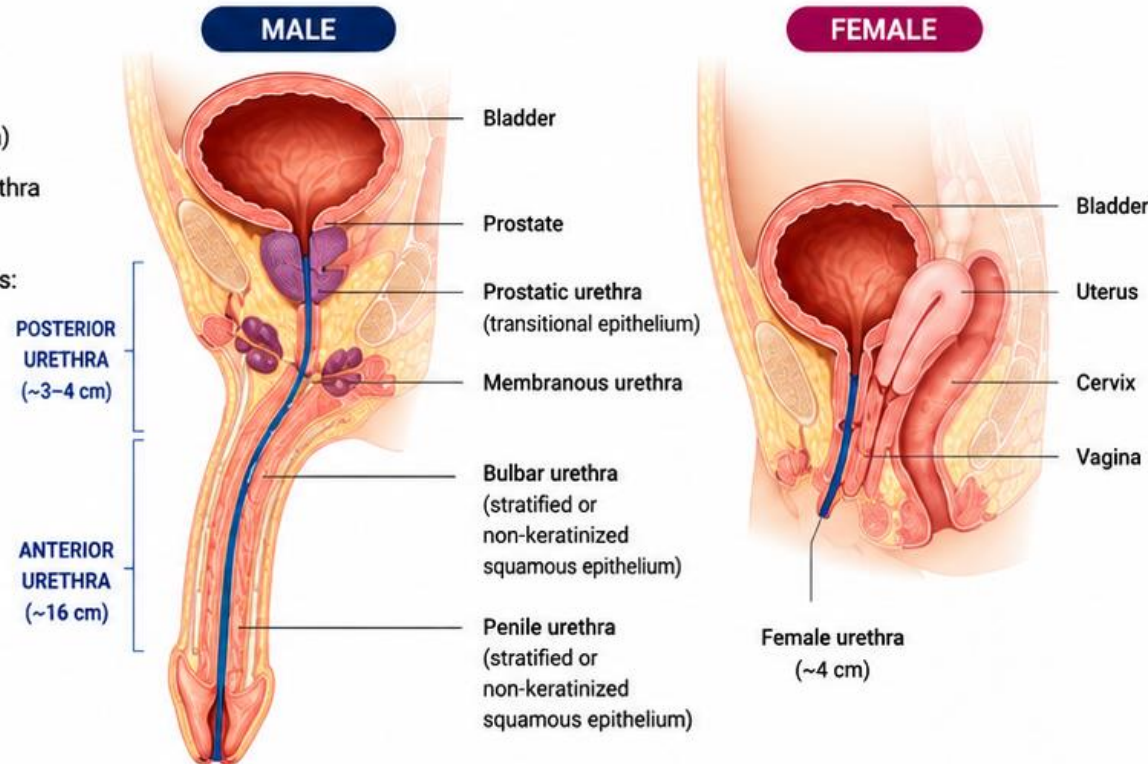
FEMALE URETHRA (~4 cm)

- Short, close to the vagina and anus: increased risk of cross-contamination
- The female urethra is often masked by an associated cervicitis



CLINICAL CONSEQUENCES

- In men: externalized urethral discharge and visible → early diagnosis usually easier
- In women: often pauci-symptomatic → delayed diagnosis and increased risk of pelvic complications



KEY MESSAGE

The short length of the female urethra and its proximity to the vagina explain the high frequency of associated cervicitis and the often silent nature of infection in women.

LENGTH COMPARISON



Male urethra
~20 cm



Female urethra
~4 cm



KEY ANATOMICAL POINTS



Stratified or non-keratinized squamous epithelium
In the anterior (penile/bulbar) urethra.



Transitional epithelium
In the posterior (prostatic and membranous) urethra.



Accessory glands
Littre's glands and Cowper's (bulbourethral) glands: bacterial reservoirs.



Anatomical proximity
In women: proximity of the vagina and anus → increased risk of cross-contamination.

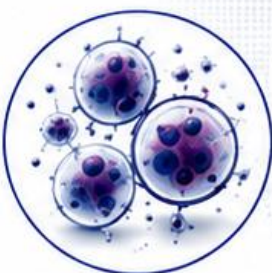
A substantial global burden (WHO)

Estimated annual incidence of the main STIs causing urethritis in individuals aged 15–49 years

New cases
per year (millions)

160
120
80
40
0

129
million



Chlamydia trachomatis

Most frequently
curable bacterial
STI worldwide

82
million



Neisseria gonorrhoeae

Incidence continues
to increase since 2010,
including in countries
with high income

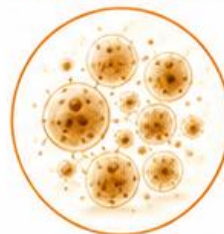
156
million



Trichomonas vaginalis

Most common
non-viral STI

10–35%
of NGU due to
chlamydial agents



Mycoplasma genitalium

Overall prevalence
1–2%, responsible for
10 to 35% of NGU
cases not due to
chlamydia

COMMON RISK FACTORS



Age < 25 years



Multiple
sexual partners



Inconsistent
condom use



History of
STI



Sex work
(HSW)



KEY MESSAGE

The four leading causes of urethritis
account for several hundred million
new cases each year worldwide:
urethritis is a **major
public health concern.**



ABOUT THESE DATA

- WHO global estimates (most recent estimates 2021–2023).
- Figures represent new cases per year among individuals aged 15–49 years.



BACTERIAL AGENTS

C. trachomatis, *N. gonorrhoeae*,
M. genitalium



PARASITIC AGENT

T. vaginalis

Regional Trends and Antimicrobial Resistance



France / Europe

(Public health, ECDC)

- Continuous increase in reported gonorrhoea cases since 2013, particularly among MSM.
- Emergence of *N. gonorrhoeae* strains with reduced susceptibility to ceftriaxone remains rare (sporadic cases).



North Africa / Morocco

- Bacterial STIs are likely underreported; sentinel surveillance systems are being developed.
- Access to NAAT/PCR testing varies according to healthcare settings and laboratory capacity.



United States (CDC)

- Gonorrhoea incidence has increased by more than 60% since 2014.
- Doxycycline post-exposure prophylaxis (doxy-PEP) recommended since 2024 for selected populations at high risk.

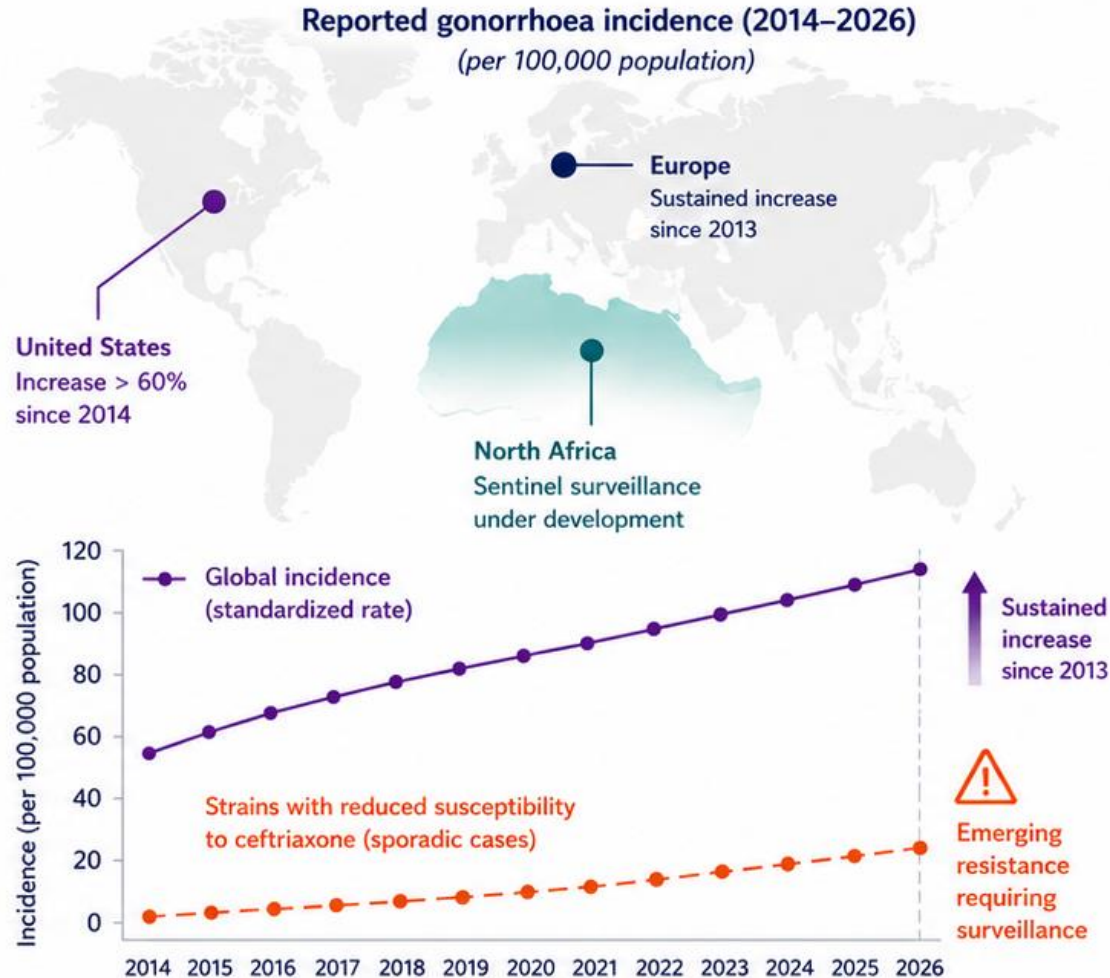


A Major Challenge: Antimicrobial Resistance

- *N. gonorrhoeae* is a WHO priority pathogen due to its ability to develop antimicrobial resistance.
- Progressive resistance has reduced the usefulness of several antibiotic classes, including fluoroquinolones and azithromycin, which are no longer recommended as preferred options.

Reported gonorrhoea incidence (2014–2026)

(per 100,000 population)



COMMON RISK FACTORS



Age < 25 years



Multiple sexual partners



Inconsistent condom use



History of STIs



High-risk sexual practices (e.g., MSM)



KEY MESSAGE

Ceftriaxone remains the cornerstone of treatment for uncomplicated gonorrhoea; strict adherence to current dosing recommendations and ongoing antimicrobial-resistance surveillance are essential to preserve its effectiveness and limit the emergence of resistance.



ABOUT THESE DATA

- Based on WHO global estimates (most recent estimates 2021–2023 according to the pathogen).
- Figures represent estimated new cases per year among individuals aged 15–49.



BACTERIAL AGENTS

C. trachomatis, *N. gonorrhoeae*, *M. genitalium*

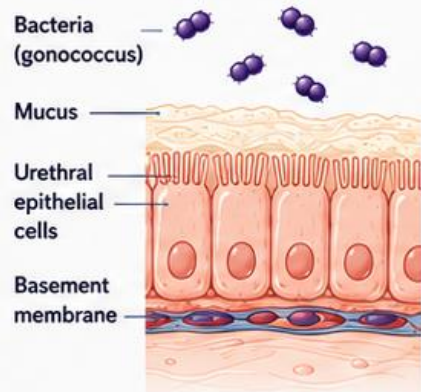


PARASITIC AGENT

T. vaginalis

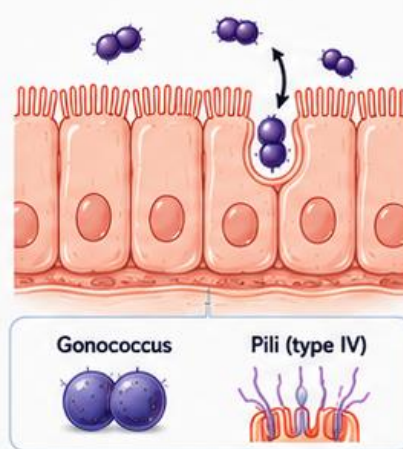
How does infection cause urethral inflammation?

1 Inoculation



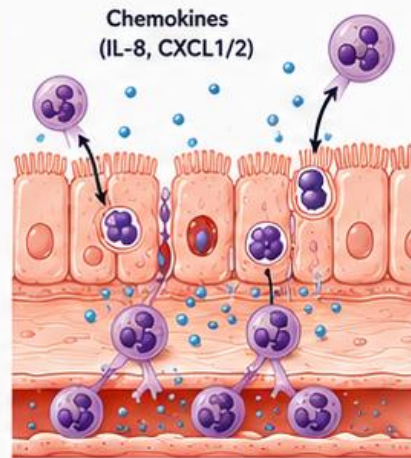
- Mucosal exposure during unprotected sexual contact (vaginal, anal, or oro-genital).
- Introduction of pathogens into the urethral mucosa.

2 Epithelial adhesion and invasion



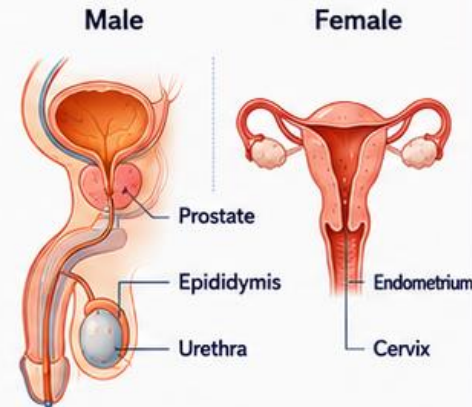
- *N. gonorrhoeae*: pili and Opa proteins promote adhesion to and invasion of epithelial cells.
- *C. trachomatis*: obligate intracellular life cycle (elementary body → reticulate body) within vacuoles.

3 Local inflammatory response



- Recruitment of polymorphonuclear neutrophils (PMNs).
- Purulent or mucopurulent urethral discharge.
- Release of pro-inflammatory cytokines (IL-8 in particular, TNF- α , IL-1 β).

4 Potential extension



- By contiguous spread: epididymis and prostate in men; endometrium and upper genital tract in women.
- Hematogenous spread (rare): disseminated gonococcal infection (arthritis, dermatitis, endocarditis...).



KEY MESSAGE

The intensity of the inflammatory response varies according to the pathogen: gonococcal infection triggers an intense, rapid neutrophilic response, whereas *Chlamydia* and *Mycoplasma genitalium* cause a milder, often paucisymptomatic inflammation.



KEY POINTS TO REMEMBER



Adhesion and invasion promote the persistence of infection.



The local inflammatory response is predominantly neutrophilic.



Extension may lead to urogenital and systemic complications.

MAIN CAUSATIVE AGENTS



Neisseria gonorrhoeae

- Gram-negative diplococcus
- Acute, intense, often purulent inflammation



Chlamydia trachomatis

- Obligate intracellular bacterium
- Often mild or subtle inflammation



Trichomonas vaginalis

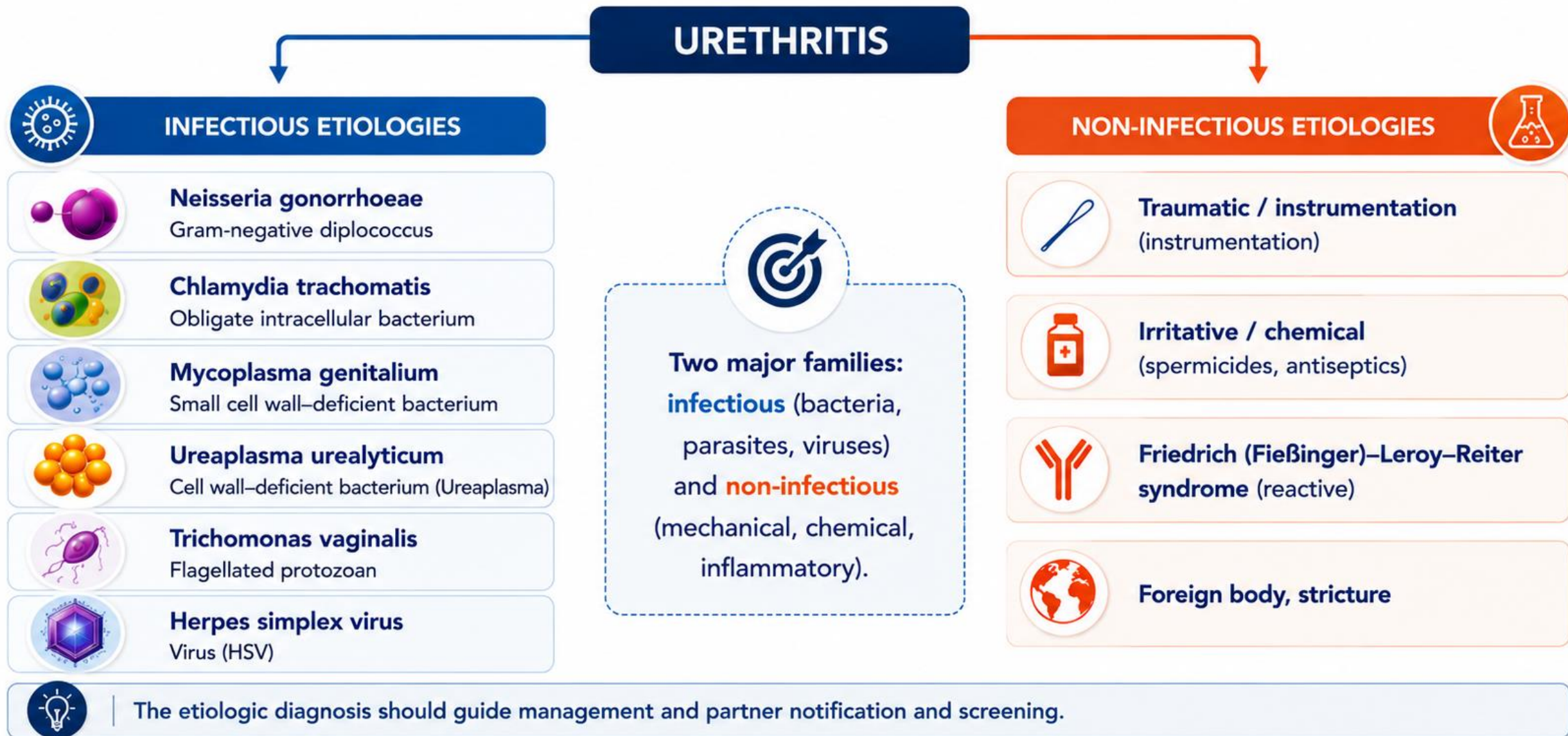
- Flagellated protozoan
- Most common non-viral STI



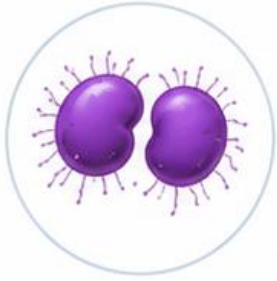
Mycoplasma genitalium

- Small cell wall-deficient bacterium
- Often mild, persistent, or paucisymptomatic inflammation

Overview of the causes of urethritis



Neisseria gonorrhoeae (gonococcus)



Bacteriology

- Gram-negative intracellular diplococcus (coffee bean-shaped)
- Strictly human pathogen, highly contagious (transmission > 50% per single exposure)



Incubation

- Short: 2 to 7 days



Typical clinical features

- Abundant purulent urethral discharge, yellow-green
- Dysuria, sometimes with intense burning sensation (“hot-piss”)



Key trends 2024–2026

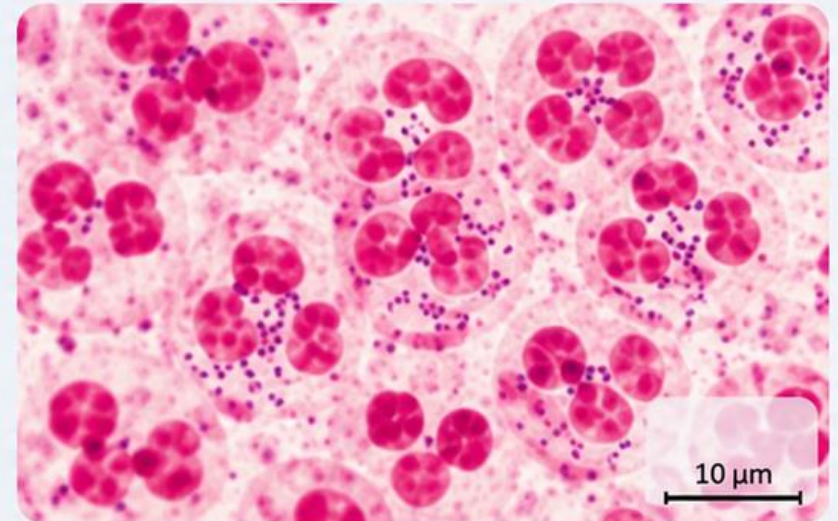
- Global increase in incidence
- Progressive decrease in susceptibility to ceftriaxone: sporadic cases reported in Europe and Asia-Pacific



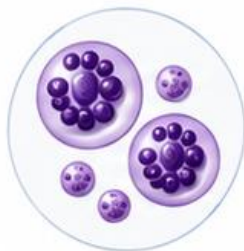
KEY MESSAGE

The gonococcus is the leading cause of uncomplicated purulent urethral discharge: its high pathogenic potential and increasing risk of resistance require microbiological confirmation with systematic susceptibility testing.

Gram stain showing typical intracellular Gram-negative diplococci (PMNs: polymorphonuclear neutrophils).



Chlamydia trachomatis



BACTERIOLOGY

- Obligate intracellular bacterium (serovars D à K for urogenital strains)
- Strictly human pathogen



INCUBATION

- Long and variable: 1 to 3 weeks



TYPICAL CLINICAL FEATURES

- Clear or moderate urethral discharge, often mucous (“mucous drip”)
- Up to 50% of cases asymptomatic in men, > 70% in women



KEY POINTS

- Leading bacterial cause of silent genital tract infertility
- Systematic screening recommended in at-risk individuals, even if asymptomatic

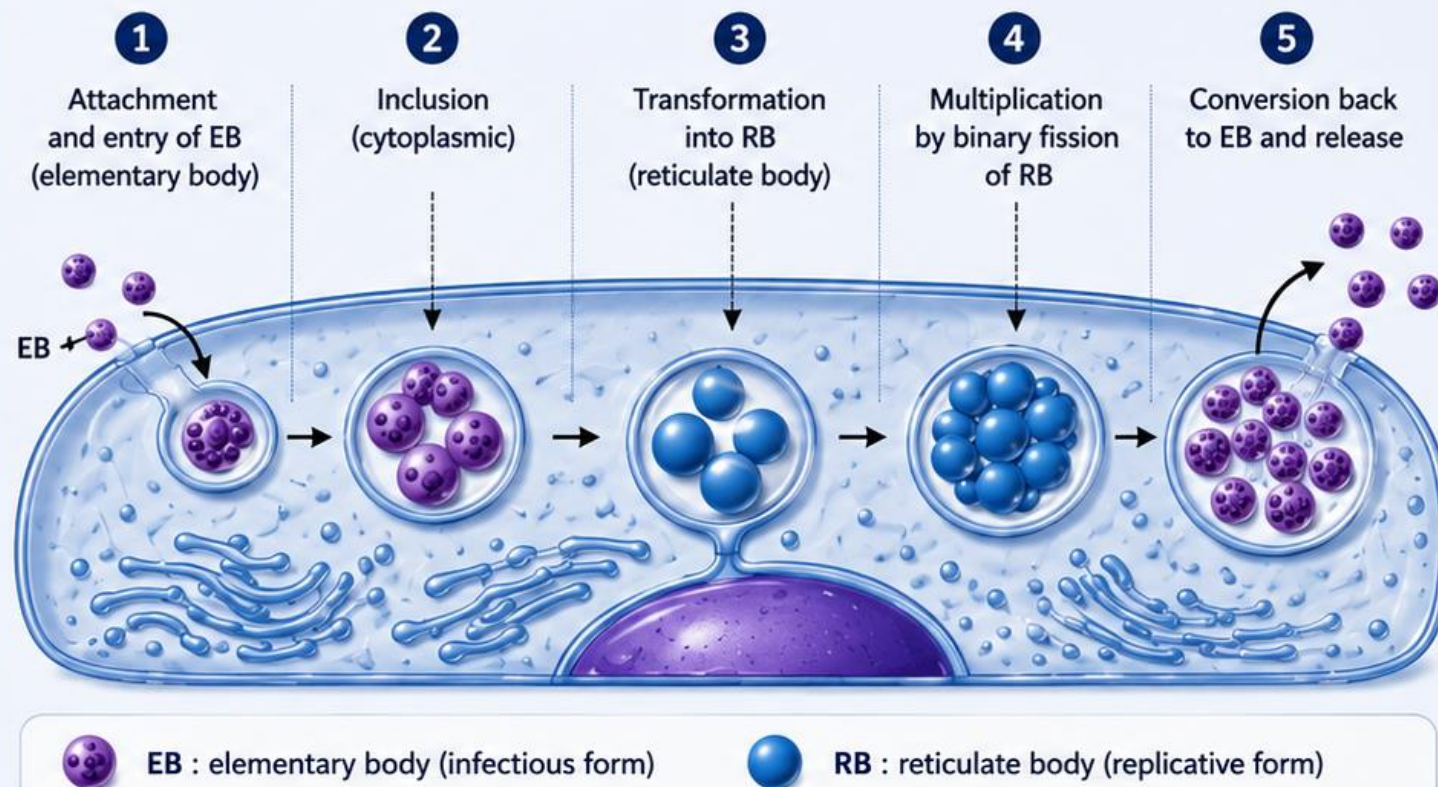


KEY MESSAGE

The characteristically silent nature of *Chlamydia trachomatis* infection is a major challenge for screening, beyond the clinical framework of symptomatic urethritis alone.



INTRACELLULAR DEVELOPMENT CYCLE OF CHLAMYDIA TRACHOMATIS



Mycoplasma genitalium



BACTERIOLOGY

- Small, self-replicating bacterium known to be resistant to beta-lactams (beta-lactam antibiotics)



EPIDEMIOLOGICAL IMPORTANCE

- Responsible for 10 to 35% of non-gonococcal non-chlamydial urethritis



CLINICAL FEATURES

- Similar to Chlamydia: scant discharge, moderate dysuria
- Possible association with cervicitis or pelvic inflammatory disease in women



MAJOR ISSUE: RESISTANCE TO MACROLIDES

- Systematic surveillance of macrolide resistance mutations (WHO GLASS/U.S. STI 2021) in case of positive diagnosis
- Resistance-guided therapy (resistance-guided treatment)



Mycoplasma genitalium
~0.2–0.3 μm



KEY MESSAGE

The diagnosis of *Mycoplasma genitalium* should be systematic: it is accompanied by a search for macrolide resistance mutations, as this determines the choice between azithromycin and moxifloxacin.

- Sterol-rich membrane
- Small size
- Resistance to beta-lactams

SHORT DIAGNOSTIC AND THERAPEUTIC ALGORITHM

Symptoms of urethritis / cervicitis



PCR
Mycoplasma genitalium



Resistance test for macrolides
(23S rRNA mutation test)



SUSCEPTIBLE



Axithromycin
1.5 g (total dose) in split doses

RESISTANT



Moxifloxacin
400 mg/day for 7–10 days



Test-of-cure recommended 3 to 4 weeks after treatment in case of persistent symptoms or risk factors.

Ureaplasma urealyticum and Mycoplasma hominis



PARTICULAR MICROBIOLOGICAL STATUS

- Common commensals of the lower urogenital tract in healthy and asymptomatic individuals



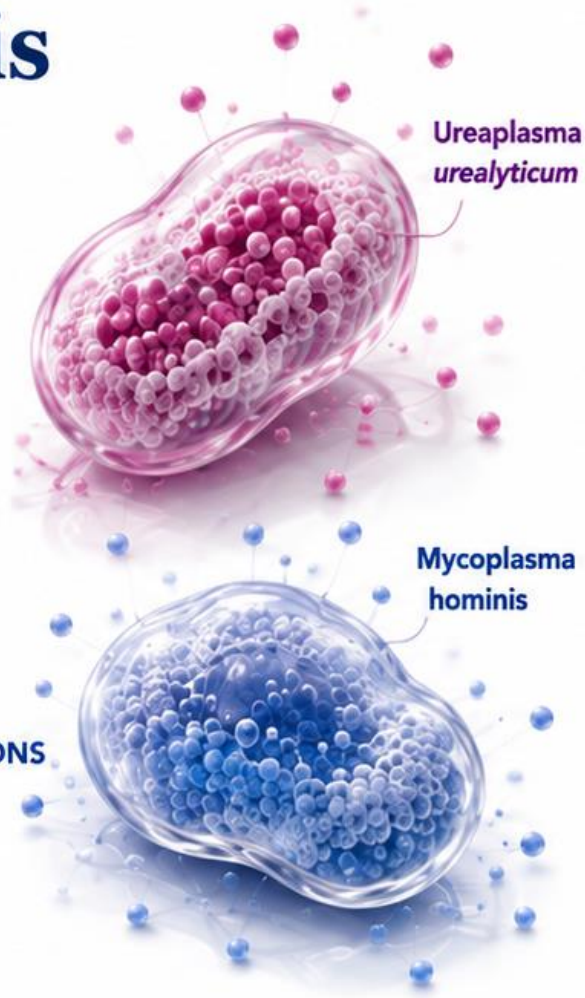
DISCUSSED PATHOGENICITY

- Ureaplasma parvum: most often a common, non-pathogenic commensal
- Ureaplasma urealyticum with high bacterial load: possible involvement in UGNs in certain cases and in some documents



POSITION OF EUROPEAN RECOMMENDATIONS (IUSTI 2018)

- Screening not recommended in asymptomatic individuals
- Search for in persistent UGNs after exclusion of the main causes



KEY MESSAGE

Do not treat an isolated detection of Ureaplasma or Mycoplasma hominis in an asymptomatic individual: treatment exposes the subject to unnecessary antibiotic selection pressure.



SYNTHETIC COMPARISON

	Ureaplasma parvum	Ureaplasma urealyticum	Mycoplasma hominis
Status	Common commensal	Common commensal	Common commensal
Pathogenicity	Not retained	Possible if high bacterial load	Possible (often associated with vaginosis)
Association with UGNs	Weak / not documented	Possible in certain cases	Possible in certain cases
Management	No systematic screening	Search if persistent UGNs	Search if persistent UGNs



ESSENTIAL MESSAGE: Screening and treatment are not indicated except in cases of persistent symptoms after exclusion of other etiologies.

Trichomonas vaginalis



PARASITOLOGY

- Unicellular flagellated protozoan, STI, the most common non-viral worldwide



CLINICAL FEATURES IN MEN

- Often asymptomatic or mild urethritis
- Scant, clear or mucoid discharge, possible urethral pruritus



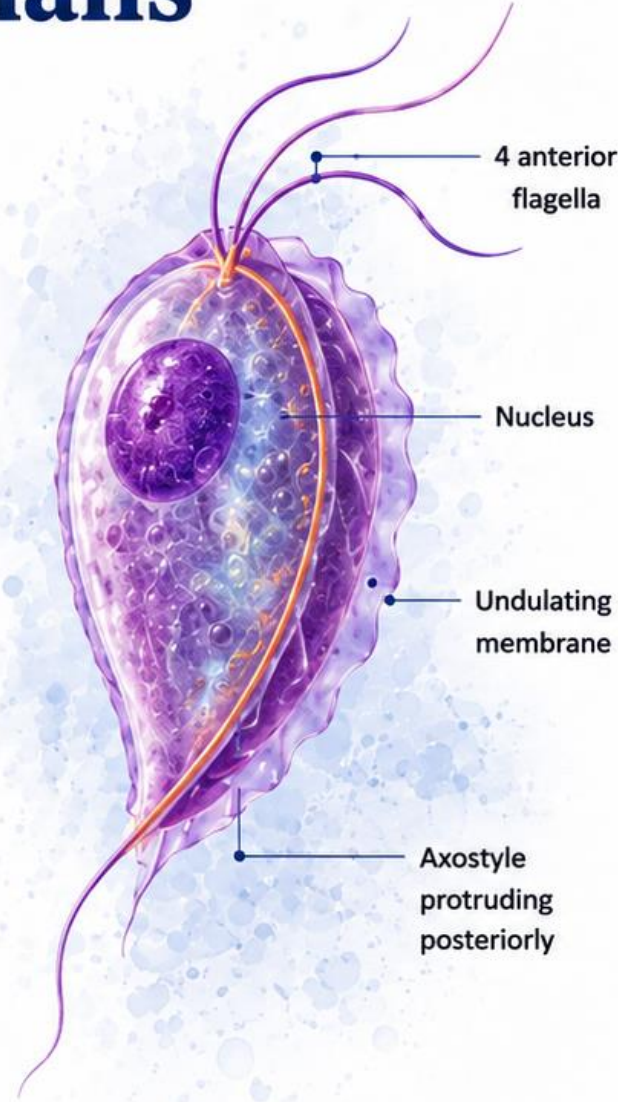
CLINICAL FEATURES IN WOMEN

- Frothy yellow-green discharge, malodorous; vulvo-vaginitis, “strawberry cervix” or speculum appearance



DIAGNOSIS

- NAAT (PCR): reference method, higher sensitivity than direct microscopy
- Fresh mount examination possible in women (parasite motility)



KEY MESSAGE

In men, *Trichomonas vaginalis* infection is frequently asymptomatic and underdiagnosed: screen all at-risk individuals, including asymptomatic partners, especially when leukorrhea is present.

Microscopic image of a motile Trichomonas vaginalis in wet mount, associated with a clinical photo of “strawberry cervix” on speculum exam.



Trichomonas vaginalis
in wet mount (×400)



“Strawberry cervix”
on speculum exam

Herpes simplex virus (HSV-1, HSV-2)



CLINICAL PRESENTATION

- Herpetic urethritis: intense dysuria, burning, sometimes disproportionate to discharge
- Search for vesicles or genital ulcers associated with (meat, glans, prepuce)



KEY FEATURES

- May be the sole manifestation of a herpetic primary infection
- Frequent inguinal adenopathies, possible pseudo-flu syndrome in primary infection

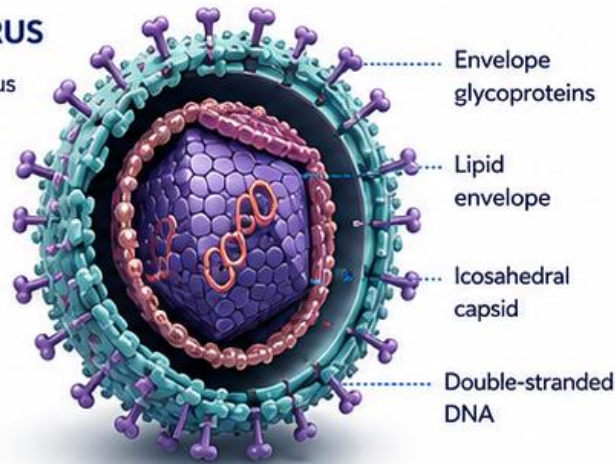


DIAGNOSIS

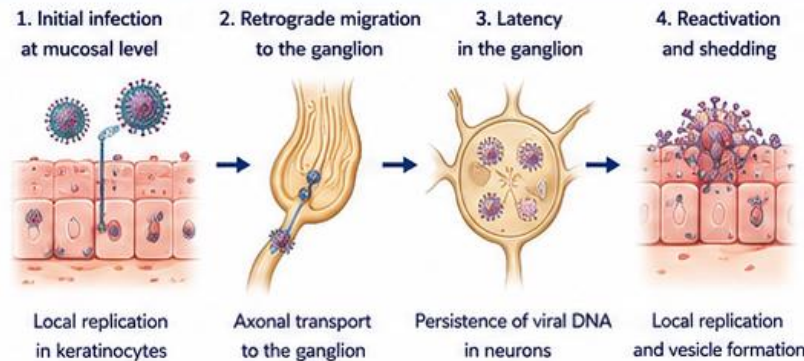
- PCR (HSV) on swab of a lesion or mucous membrane: reference method
- Type-specific serology (IgG) as 2nd intention in case of diagnostic doubt

THE VIRUS

- Herpes simplex virus
- Double-stranded DNA
- Envelope
- 2 types: HSV-1, HSV-2



PHYSIOPATHOLOGY



KEY MESSAGE

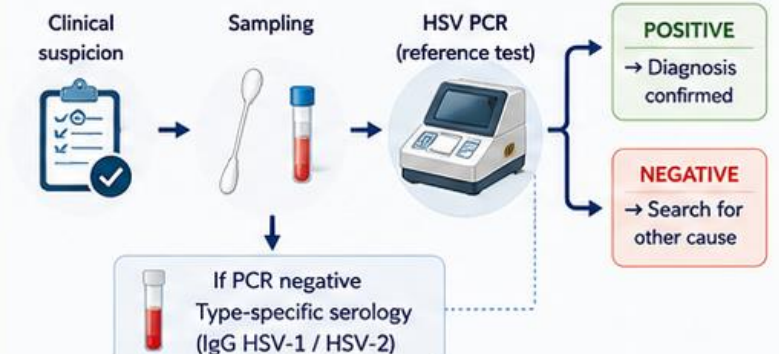
Severe dysuria with skin lesions, especially vesicles, or inguinal adenopathy and/or painful ulcers are suggestive of herpetic urethritis.

TYPICAL CLINICAL MANIFESTATIONS



Primary infection: fever, headache, possible myalgias

DIAGNOSTIC ALGORITHM



Screening and treatment in primary infection: reduce duration of symptoms, complications and risk of transmission.

Noninfectious causes of urethritis



■ Traumatic / iatrogenic urethritis

- Urethral catheterization, endoscopic instrumentation, traumatic masturbation



■ Irritative / chemical urethritis

- Local spermicides, antiseptics, harsh soaps, lubricants



■ Reiter's syndrome (reactive arthritis)

- Classic triad: urethritis + conjunctivitis + arthritis, after urethritis due to Chlamydia or enteric bacteria
- HLA-B27 predisposition



■ Local mechanical causes

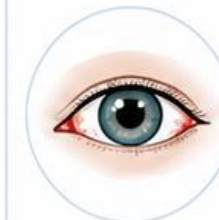
- Urethral stricture, foreign body, urethral lithiasis



KEY MESSAGE

A negative microbiological work-up in a NGU requires a search for a noninfectious cause, particularly traumatic, irritative, or Reiter's syndrome, in case of articular or ocular involvement.

REITER'S SYNDROME (REACTIVE ARTHRITIS): CLINICAL TRIAD



Conjunctivitis

red eye,
lacrimation



Urethritis

dysuria,
discharge



Arthritis

pain,
swelling



Frequent infectious triggers

Chlamydia trachomatis

Enterobacteriaceae (*Yersinia*, *Salmonella*, *Shigella*, *Campylobacter*...)

Comparative table of the main etiologies

Agent	Incubation	Discharge	Asymptomatic rate	Diagnosis	Key features
 <i>N. gonorrhoeae</i>	 2–7 days	 Purulent, abundant	 Low (H)	 Gram stain + culture + PCR	 Emerging resistance
 <i>C. trachomatis</i>	 1–3 weeks	 Clear, scant	 High (>50%)	 PCR (NAAT)	 Leading cause of infertility
 <i>M. genitalium</i>	 Variable	 Scant	 High	 PCR + macrolide resistance test	 Macrolide resistance
 <i>U. urealyticum</i>	 Variable	 Minimal	 Very high	 PCR (2nd intention)	 Often commensal
 <i>T. vaginalis</i>	 5–28 days	 Mucoid	 High (H)	 PCR / Direct microscopy	 Treatment H ± F
 <i>HSV</i>	 2–14 days	 Scant	 Variable	 PCR on lesion	 Severe dysuria, vesicles



KEY MESSAGE: This table should be memorized: it helps guide the diagnostic strategy and anticipate probable treatment before laboratory results are available.

Acute urethritis in men



■ Functional signs

- Urethral discharge (hemorrhagic): spontaneous or induced by milking the urethra
- Dysuria, burning sensation
- Urethral pruritus, sensation of heat



■ Systematic clinical examination

- Inspection of the meatus (erythema, edema)
- Characterize the discharge: color, amount, consistency
- Bilateral palpation of testes and epididymis
- Search for inguinal lymphadenopathy
- Complete cutaneous–mucosal examination (associated lesions, conjunctivitis, arthritis)



■ Two major clinical patterns

- Purulent frank discharge → suggests gonococcus
- Clear/scant discharge or isolated dysuria → suggests a nongonococcal urethritis (NGU)



KEY MESSAGE

The aspect of the discharge may guide but never rules out co-infection: systematic microbiological sampling remains essential, whatever the clinical presentation.

GONOCOCCUS

Purulent discharge,
yellow-green



NGU (nongonococcal)

Clear, mucous-like
discharge



Specific forms: women, asymptomatic, extragenital



■ In women

- Urethritis often associated with or masked by cervicitis (leukorrhea, postcoital bleeding)
- Dysuria that may be confused with a bladder cystitis
- Systematic speculum examination: purulent cervical discharge, fragile and hemorrhagic cervix



■ Asymptomatic forms

- Frequent, especially for *Chlamydia* and *M. genitalium*
- Never exclude transmission or risk of complications



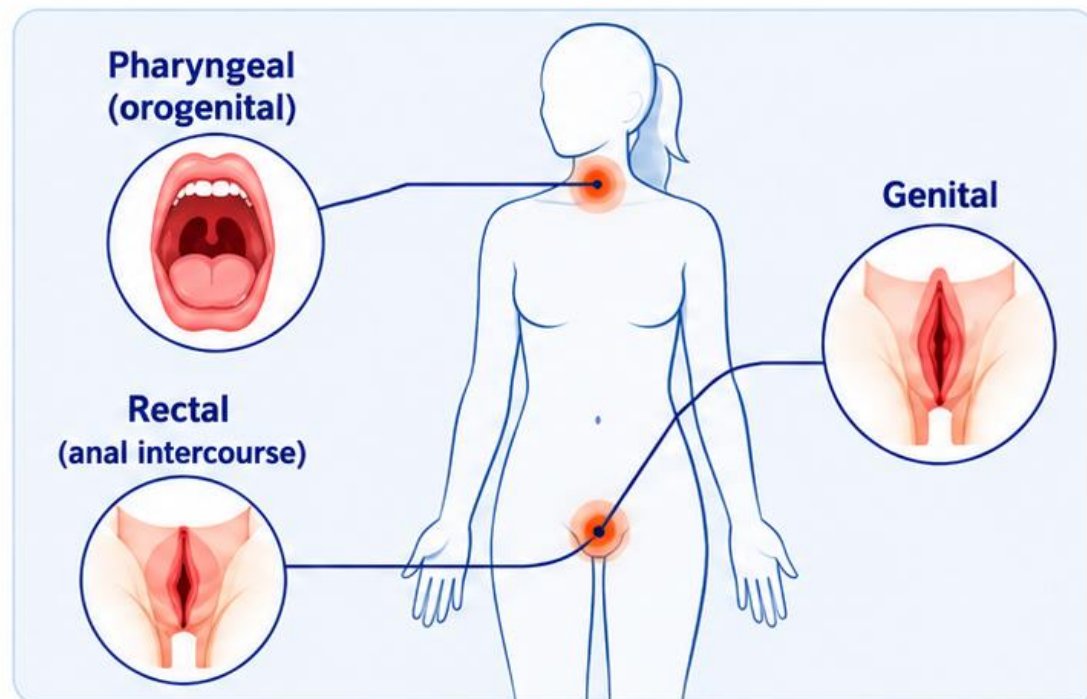
■ Extragenital sites to look for

- Pharyngeal (orogenital contact): most often asymptomatic
- Rectal (anal intercourse): possible discharge, tenesmus, pain



KEY MESSAGE

In women and in asymptomatic or extragenital forms, only a **targeted systematic screening** allows accurate diagnosis: **don't wait for symptoms** to propose a test.



Structured history-taking and clinical examination



1 History-taking

- Time since onset of symptoms from the last at-risk exposure
- Partner characteristics (number, sex, known STI status)
- Sexual practices (oral, vaginal, anal) and condom use
- History of personal STIs and of partner(s)
- Vaccination status (hepatitis B) and HIV serology



2 Physical examination

- Complete genital examination (meatus, glands, scrotum, perineum, inguinal region)
- Extragenital examination as indicated: oral cavity, anal region
- Look for systemic signs: fever, arthralgia, conjunctivitis



3 Objective

- Confirm the syndrome, guide sampling and decide on the most likely treatment



KEY MESSAGE

A complete and non-judgmental sexual history, taken in confidence, is essential. A thorough physical examination is needed to establish the diagnosis and guide sampling sites.



VISUAL CHECKLIST



Time since last at-risk exposure



Partner(s) and known STI status



Sexual practices and condom use



Vaccination (HBV) and HIV serology



Complete genital examination



Oral cavity

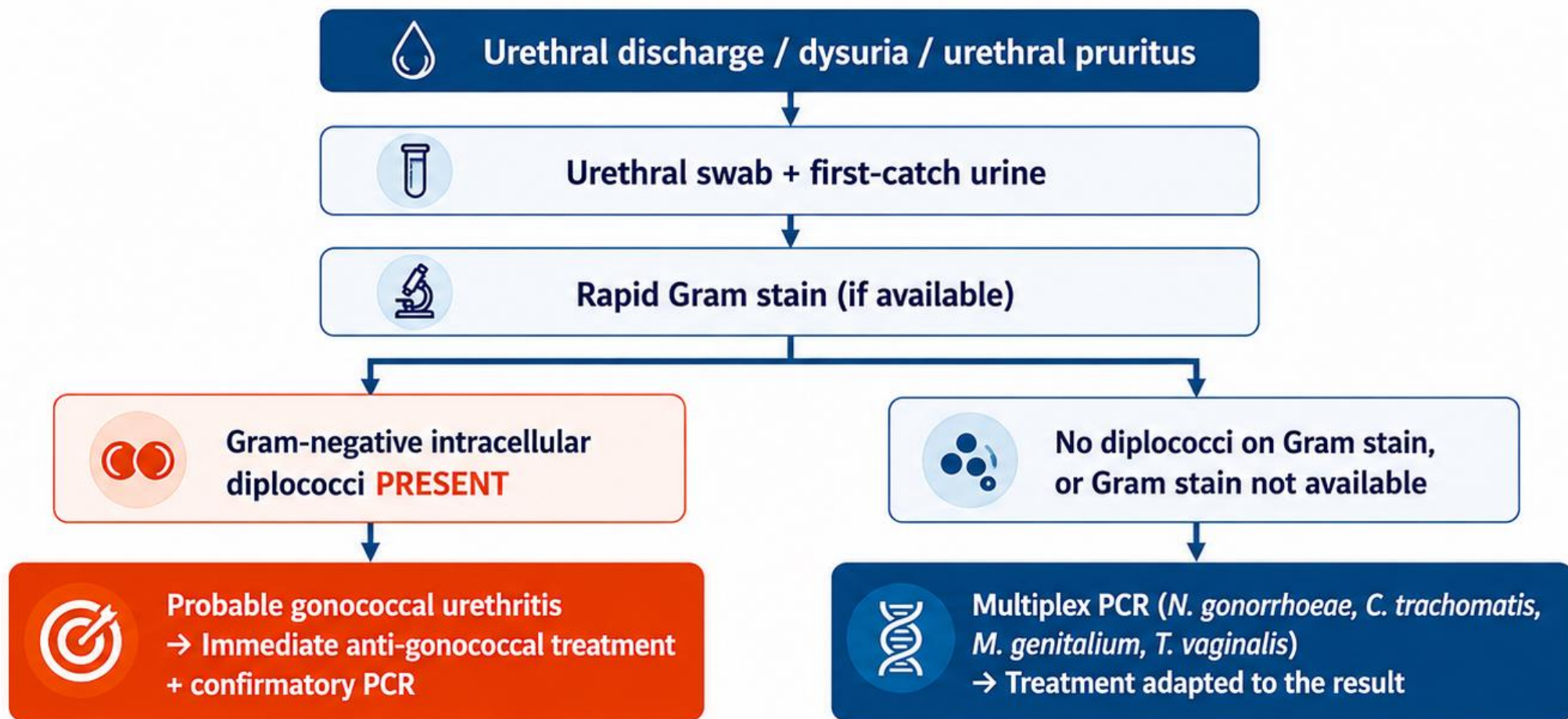


Anal region



Systemic signs (fever, arthralgia, conjunctivitis)

Diagnostic algorithm for suspected urethritis



If the rapid Gram stain shows Gram-negative diplococci with intracellular location, this remains the pivotal step that guides immediate probabilistic treatment.

Specimens and laboratory techniques



1. Urethral specimen

- Endo-urethral swab (2–3 cm) taken at a distance from the last micturition (> 1 h)
- Swab for Gram stain + culture on selective medium (chocolate agar / Thayer-Martin)



2. NAAT / Multiplex PCR

- On first-catch urine or urethral swab : reference technique, sensitivity and specificity > 95%
- Simultaneous detection of *N. gonorrhoeae*, *C. trachomatis*, *M. genitalium* (+ macrolide resistance), *T. vaginalis*



3. Culture with antibiogram

- Essential in case of suspected gonococcal infection: the only method allowing antibiogram and resistance surveillance



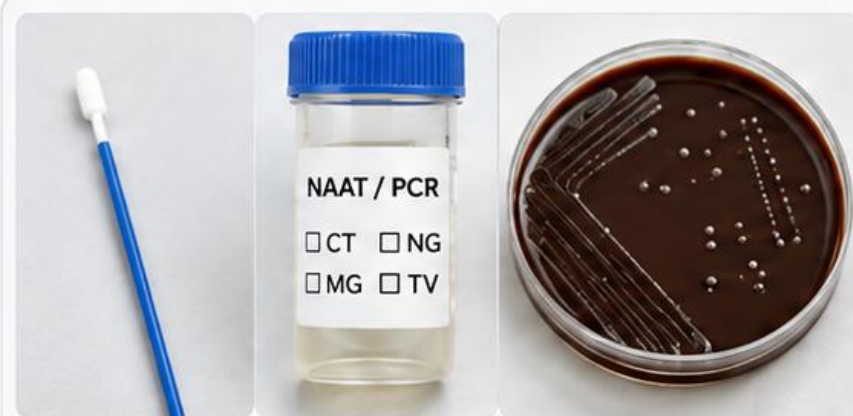
4. Systematic STI assessment

- HIV, syphilis (TPHA-VDRL), hepatitis B and C serologies
- According to practices: pharyngeal and anal specimens



KEY MESSAGE

PCR and culture are complementary and not interchangeable: PCR rapidly identifies the agent, while culture provides the antibiogram, which is essential in case of gonococcal infection.



Endo-urethral swab

NAAT / PCR tube (first-catch urine)

Chocolate agar (Thayer-Martin)

Treatment of uncomplicated gonococcal urethritis



1. Recommended treatment (CDC 2021, updated)

- Ceftriaxone 500 mg IM single dose (1 g if body weight ≥ 150 kg)



2. If Chlamydia not excluded

- Associate doxycycline 100 mg twice daily for 7 days



3. If allergy to cephalosporins

- Gentamicin 240 mg IM + azithromycin 2 g orally, single dose (*advice from specialists*)



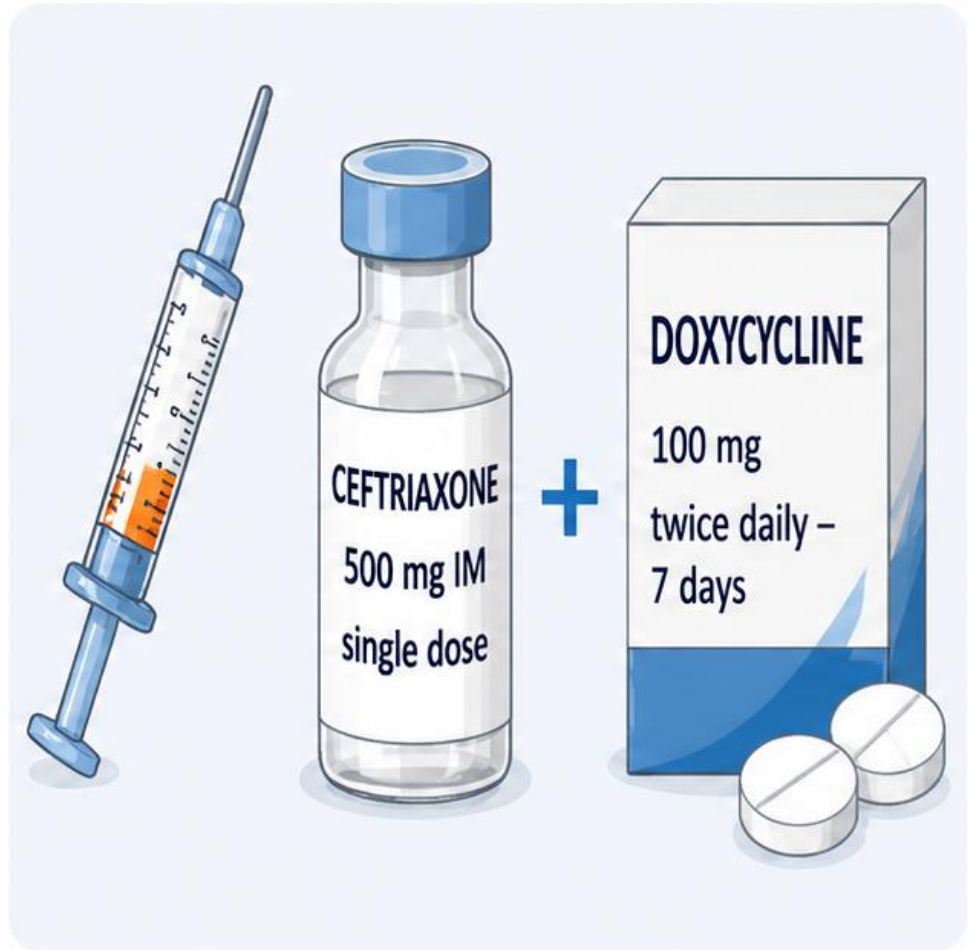
4. French guidelines (HAS, 2025 update)

- Ceftriaxone 1 g IM fixed dose, monotherapy; add doxycycline only if Chlamydia not excluded
- Return to Asia-Pacific guidelines: ceftriaxone 1 g + azithromycin 2 g



5. Key points

- Azithromycin not recommended alone; treat partner(s); abstinence for 7 days



Treatment of non-gonococcal urethritis



Chlamydia trachomatis (recommended treatment CDC 2021)

- Doxycycline 100 mg orally, twice daily for 7 days (reference treatment)
- Alternative: azithromycin 1 g orally, single dose (lower efficacy, especially rectal)
- In pregnant women: azithromycin 1 g, single dose



Mycoplasma genitalium (IUSTI 2021 – resistance-guided treatment)

- Without known macrolide resistance: azithromycin 500 mg day 1, then 250 mg days 2–5
- With macrolide resistance: moxifloxacin 400 mg orally once daily for 7 days
- Doxycycline as “doxy wash-out”: 7 days before azithromycin (reduces bacterial load)



Trichomonas vaginalis (CDC 2021)

- Men: metronidazole 2 g orally, single dose
- Women: metronidazole 500 mg orally, twice daily for 7 days (superior to single dose)



NGU with no identified agent

- Doxycycline 100 mg orally, twice daily for 7 days, as probable treatment



KEY MESSAGE: Always check for potential drug interactions, contraindications (pregnancy for doxycycline and moxifloxacin), and allergy history before prescribing.

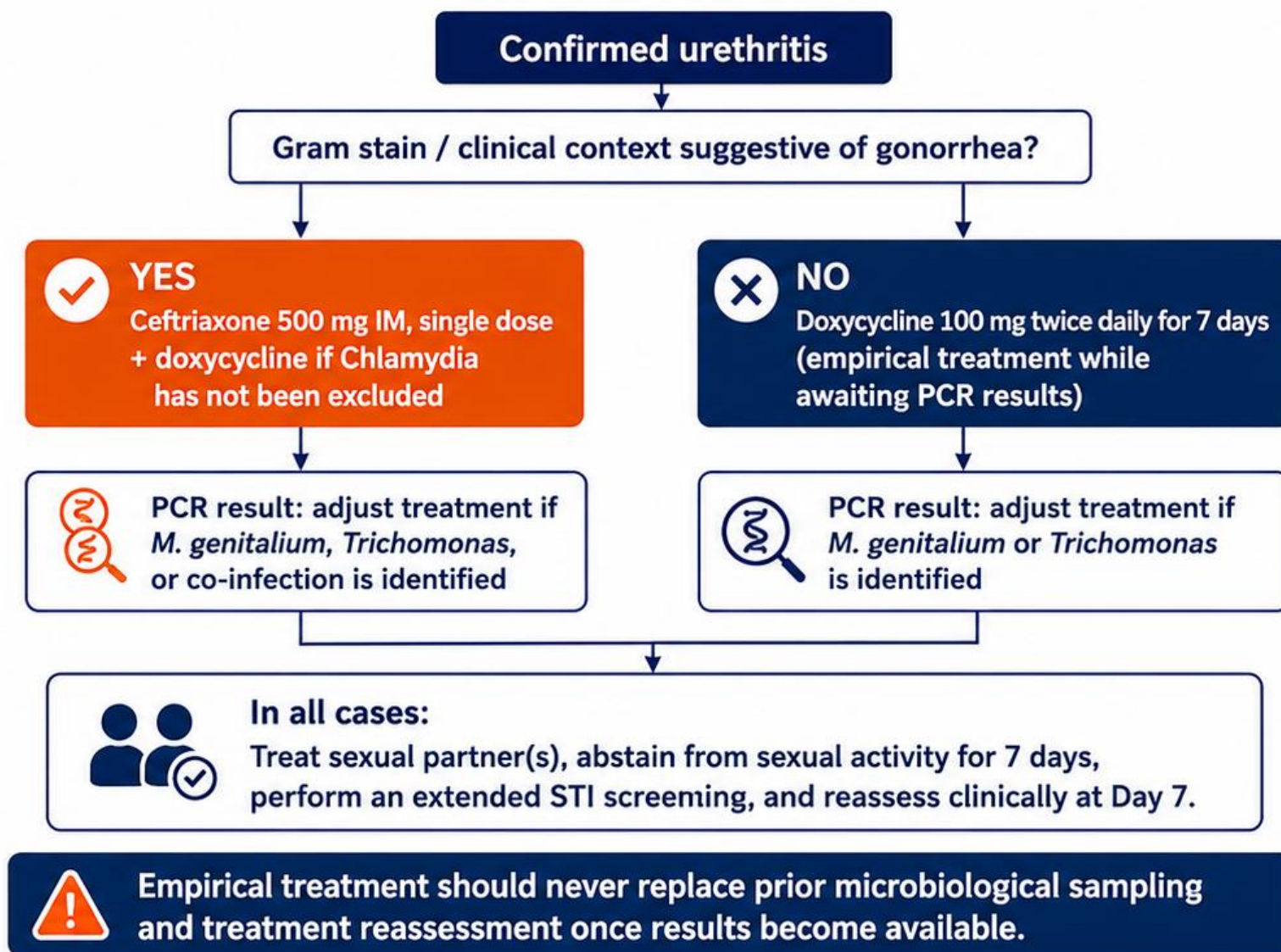
Summary table of antibiotics

 Indication	 Molecule	 Dosage	 Duration
 Uncomplicated gonococcal infection (CDC)	Ceftriaxone	500 mg IM (1 g if ≥ 150 kg)	Single dose
 Uncomplicated gonococcal infection (HAS 2025, France)	Ceftriaxone	1 g IM, fixed dose	Single dose
 Chlamydia trachomatis	Doxycycline	100 mg orally twice daily	7 days
 Chlamydia (alternative / pregnancy)	Azithromycin	1 g orally	Single dose
 M. genitalium – macrolide sensitive	Azithromycin	500 mg day 1 then 250 mg/day	5 days
 M. genitalium – macrolide resistant	Moxifloxacin	400 mg/day	7 days
 Trichomonas – men	Metronidazole	2 g orally	Single dose
 Trichomonas – women	Metronidazole	500 mg twice daily	7 days
 NGU with no identified agent	Doxycycline	100 mg twice daily	7 days



KEY MESSAGE : Always check for potential drug interactions, contraindications (pregnancy for doxycycline and moxifloxacin), and allergy history before prescribing.

Overall Treatment Algorithm



Partner notification and treatment



■ Timeframe for partner notification

- 60 days prior to symptom onset or diagnosis date
- If unknown, the most recent partner
- If still unknown, the most recent partner in date



■ Notification options

- Patient-delivered notification (counseling and support by the provider)
- Provider-assisted notification or through public health services (according to available resources)



■ Partner evaluation and treatment

- Clinical evaluation and systematic testing whenever possible
- Presumptive treatment ("expedited partner therapy") recommended by CDC if consultation is not possible
- Use the same therapeutic regimen as for the index case based on the identified pathogen



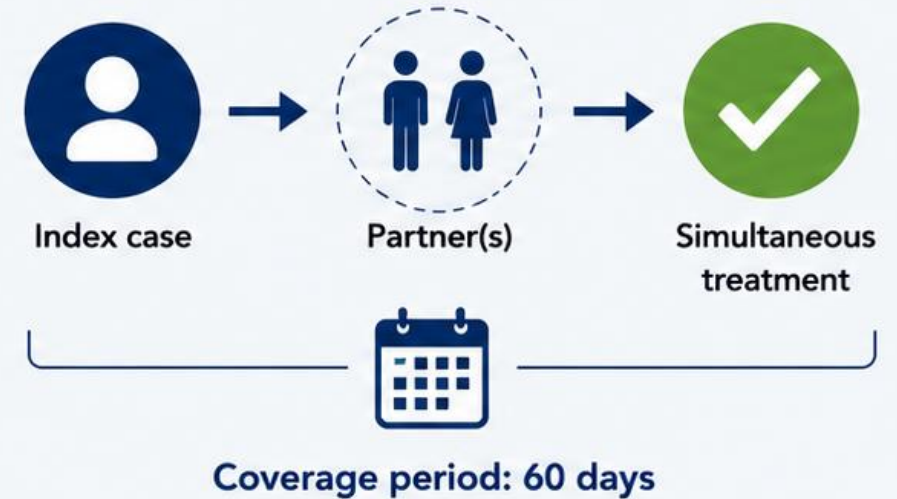
■ Doxy-PEP (CDC update 2024)

- Doxycycline 200 mg as a single dose within 72 hours after unprotected sexual exposure
- Indicated in MSM and transgender women with a history of bacterial STI in the past 12 months



KEY MESSAGE

No treatment of the index case is complete without partner management: it is what prevents reinfection ("ping-pong") and interrupts the chain of transmission.



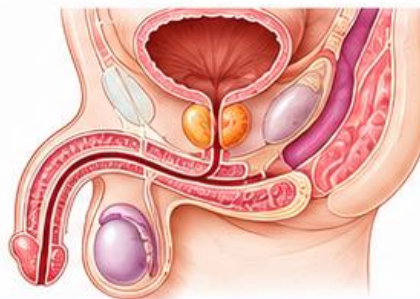
13. COMPLICATIONS

Complications in the absence of adequate treatment



In men

- Acute epididymo-orchitis
- Acute prostatitis
- Urethral stricture (long-term)
- Infertility (rare but documented)



In women

- Cervicitis then salpingitis / pelvic inflammatory disease (PID)
- Tubal infertility, extra-uterine pregnancy
- Chronic pelvic pain



Common to both sexes

- Fitz-Hugh–Curtis syndrome (reactive arthritis)
- Disseminated gonococcal infection: septic arthritis, pustular rash, rarely endocarditis or meningitis



Septic arthritis



Pustular dermatitis



(Rare) endocarditis



(Rare) meningitis



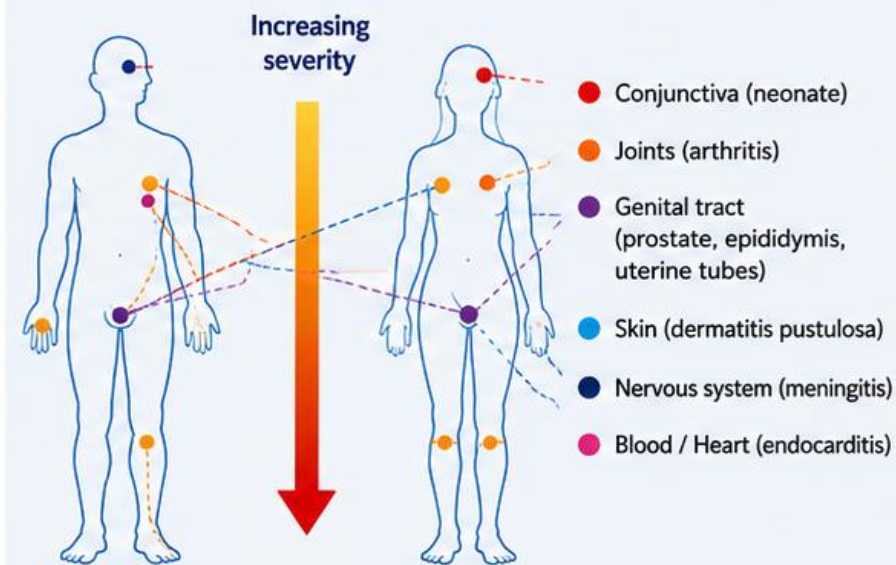
Vertical transmission

- Conjunctivitis (ophthalmia neonatorum) in newborns during passage through an infected mother's birth canal



KEY MESSAGE

The most severe complications — tubal infertility, disseminated gonococcal infection — are avoidable with early diagnosis and appropriate treatment: this is the strongest argument for partner management.



Prevention of sexually transmitted infections

01



PRIMARY PREVENTION

- Consistent and correct use of condoms (external or internal)
- Reduction in the number of partners, communication with partner(s)
- Systematic hepatitis B vaccination; discuss HPV vaccination



02



REGULAR SCREENING

- People at risk: < 25 years sexually active, multiple partners, MSM, history of STIs
- Risk-based frequency (every 3 to 12 months depending on recommendations)



03



TARGETED CHEMOPROPHYLAXIS

- Doxy-PEP: discuss with people at high risk of recurrence (see partner slide)



04



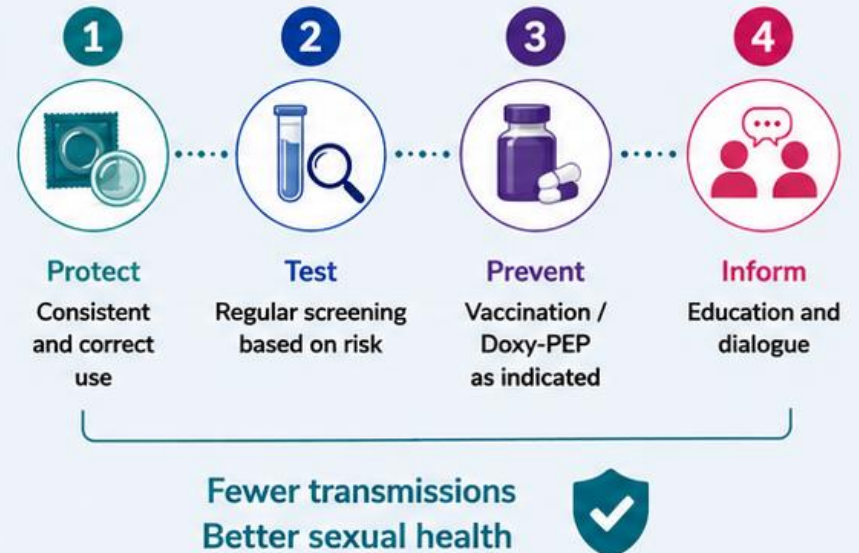
THERAPEUTIC AND SEXUAL EDUCATION

- Clear, non-judgmental, age-appropriate information tailored to the individual and their context
- Role of the general practitioner and dermatologist-venereologist in awareness and education



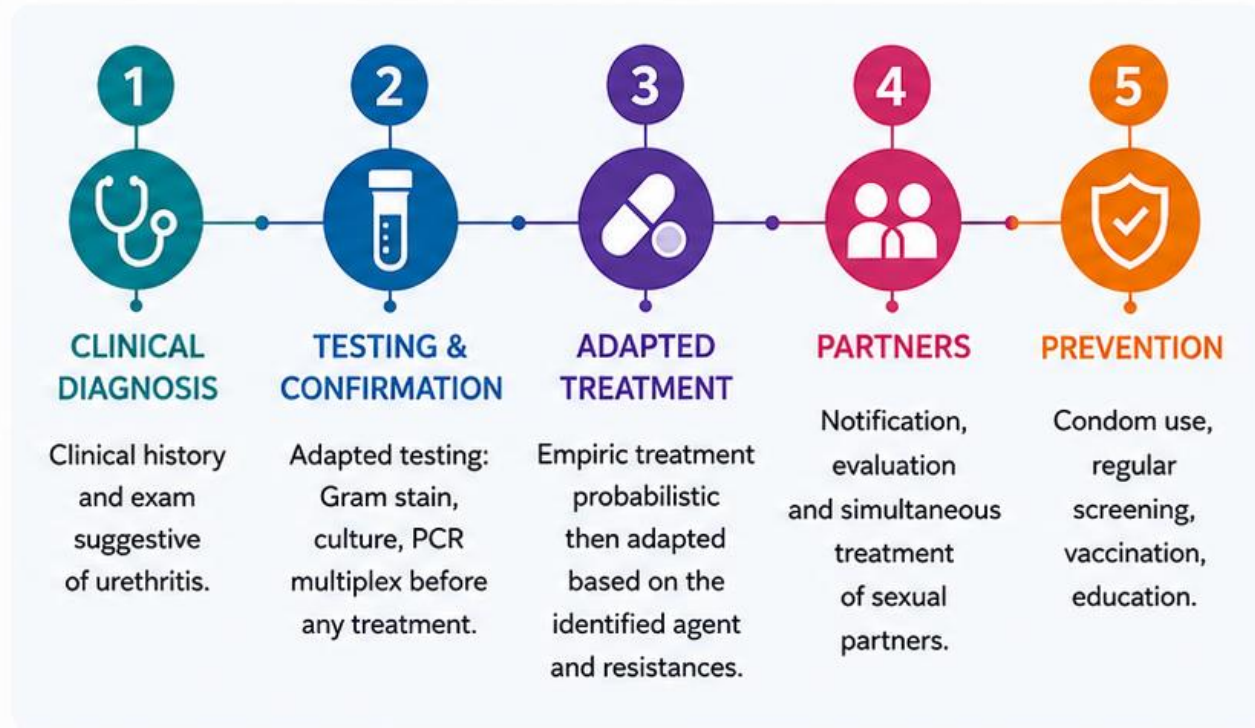
KEY MESSAGE

Prevention combines behavioral tools, regular screening and testing, population-level chemoprophylaxis when appropriate: it relies above all on a healthcare provider–patient trust relationship.



The 8 key messages to remember

- 01  **Urethritis is a syndrome, not a diagnosis:** always look for the cause.
- 02  **Two major categories:** gonococcal (purulent discharge) and non-gonococcal.
- 03  **Microbiological testing** (Gram stain, culture, PCR multiplex) should ideally guide treatment.
- 04  **Ceftriaxone 500 mg IM single dose** = first-line treatment for gonorrhea; never azithromycin alone.
- 05  **Doxycycline 100 mg twice daily for 7 days** = first-line treatment for Chlamydia trachomatis and non-gonococcal urethritis.
- 06  **Mycoplasma genitalium** requires testing for macrolide resistance before treatment.
- 07  **Partner management and extended STI screening** are inseparable from the index case treatment.
- 08  **Prevention** (condom use, regular screening, education) remains the most effective weapon.



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