The background of the slide is a light gray gradient, decorated with several realistic water droplets of various sizes. The droplets are rendered with soft shadows and highlights, giving them a three-dimensional appearance. They are scattered across the slide, with a higher concentration in the top-left and bottom-right corners.

SEXUALLY TRANSMITTED INFECTIONS (STI)

LYUDMYLA DEREVYANKO, M.D.

KYIV' MEDICAL UNIVERSITY OF UAPV

STIS: EXECUTIVE SUMMARY

- STIS ARE A MAJOR PUBLIC HEALTH PROBLEM WORLDWIDE, AFFECTING QUALITY OF LIFE AND CAUSING SERIOUS MORBIDITY AND MORTALITY.
- DIRECT IMPACT ON REPRODUCTIVE AND CHILD HEALTH THROUGH INFERTILITY, PREGNANCY COMPLICATIONS AND CANCERS
- INDIRECT IMPACT THROUGH THEIR ROLE IN FACILITATING SEXUAL TRANSMISSION OF HIV AND THUS THEY ALSO HAVE AN IMPACT ON NATIONAL AND INDIVIDUAL ECONOMIES.

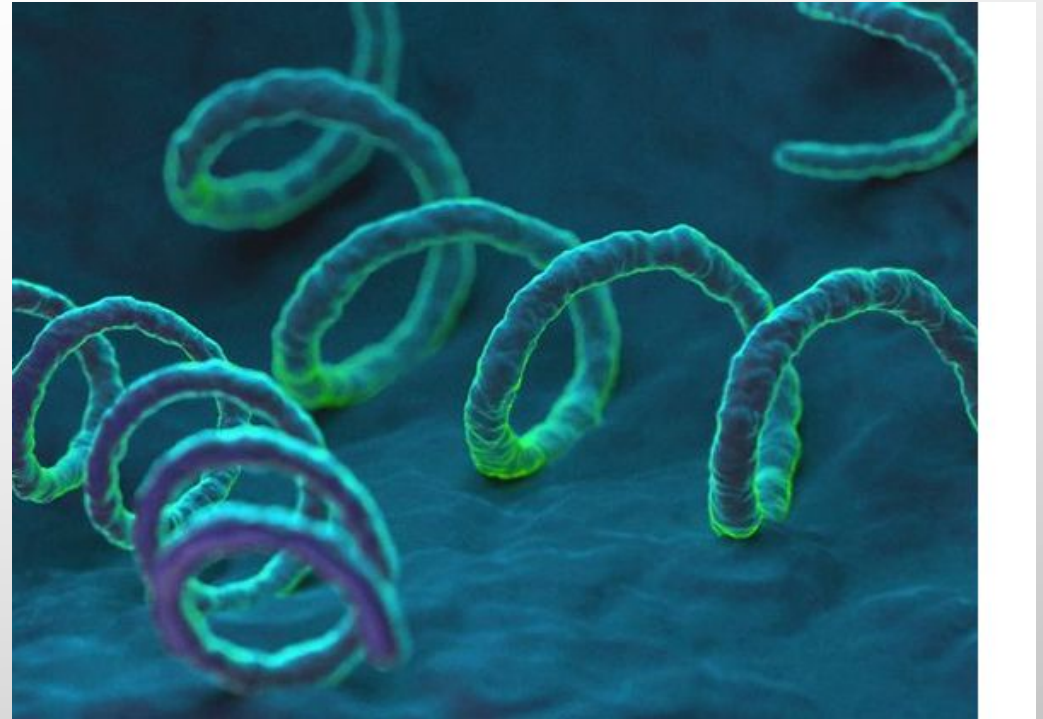
SEXUALLY TRANSMITTED INFECTIONS (STI)

- STIS ARE INFECTIONS THAT ARE SPREAD PRIMARILY THROUGH PERSON-TO-PERSON SEXUAL CONTACT. THERE ARE MORE THAN 30 DIFFERENT SEXUALLY TRANSMISSIBLE BACTERIA, VIRUSES AND PARASITES.
- OF THE 8 MOST COMMON STIS, 4 ARE CURRENTLY CURABLE: CHLAMYDIA, GONORRHEA, SYPHILIS, AND TRICHOMONIASIS. THE OTHER 4 ARE VIRAL INFECTIONS AND ARE INCURABLE: HEPATITIS B, HERPES, HIV, HPV.
- SEVERAL STIS, IN PARTICULAR HIV AND SYPHILIS, CAN ALSO BE TRANSMITTED
 - FROM MOTHER TO CHILD DURING PREGNANCY AND CHILDBIRTH
 - THROUGH BLOOD PRODUCTS OR TISSUE TRANSFER.

STI: KEY FACTS

- MORE THAN 1 MILLION STIS ARE ACQUIRED EVERY DAY WORLDWIDE.
- IN 2012 THERE ARE AN ESTIMATED 357 MILLION NEW STIS WITH 1 OF 4 STIS: CHLAMYDIA-131, GONORRHEA-78, SYPHILIS-5,6 AND TRICHOMONIASIS -142.4
- THE MAJORITY OF STIS HAVE NO SYMPTOMS OR ONLY MILD SYMPTOMS THAT MAY NOT BE RECOGNIZED AS AN STI.
- STIS SUCH AS HSV TYPE 2 AND SYPHILIS CAN INCREASE THE RISK OF HIV ACQUISITION.
- OVER 900 000 PREGNANT WOMEN WERE INFECTED WITH SYPHILIS RESULTING IN APPROXIMATELY 350 000 ADVERSE BIRTH OUTCOMES INCLUDING STILLBIRTH IN 2012.
- IN SOME CASES, STIS CAN HAVE SERIOUS REPRODUCTIVE HEALTH CONSEQUENCES BEYOND THE IMMEDIATE IMPACT OF THE INFECTION ITSELF (E.G., INFERTILITY OR MOTHER-TO-CHILD TRANSMISSION)
- DRUG RESISTANCE, ESPECIALLY FOR GONORRHEA, IS A MAJOR THREAT TO REDUCING THE IMPACT OF STIS WORLDWID

SYPHILIS: CAUSED BY *TREPONEMA PALLIDUM*



SYPHILIS: EPIDEMIOLOGY

- WHO ESTIMATES THAT 5.6 MILLION NEW CASES OF SYPHILIS OCCURRED AMONG ADOLESCENTS&ADULTS AGED 15–49 YEARS WORLDWIDE IN 2012 WITH A GLOBAL INCIDENCE RATE OF 1.5 CASES PER BOTH FOR 1000 FEMALES & MALES
- THE ESTIMATED 18 MILLION PREVALENT CASES OF SYPHILIS IN 2012 TRANSLATES TO A GLOBAL PREVALENCE OF 0.5% AMONG BOTH FEMALES AND MALES AGED 15–49 YEARS, WITH THE HIGHEST PREVALENCE IN THE WHO AFRICAN REGION
- IN 2012, AN ESTIMATED 350 000 ADVERSE PREGNANCY OUTCOMES WORLDWIDE WERE ATTRIBUTED TO SYPHILIS, INCLUDING 143 000 EARLY FETAL DEATHS/STILLBIRTHS, 62 000 NEONATAL DEATHS, 44 000 PRETERM/LOW-BIRTH-WEIGHT BABIES AND 102 000 INFECTED INFANTS.

SYPHILIS' MANIFESTATION

Stage	Clinical manifestation	Incubation period
<i>Primary</i>	Chancre, regional lymphadenopathy	3 weeks (21 days) (3-90 days)
<i>Secondary</i>	Rash, fever, malaise, lymphadenopathy, mucus lesions, condyloma lata, patchy or diffuse alopecia, meningitis, headaches, uveitis, retinitis	2-12 weeks (2 weeks-6 months)
<i>Latent</i>	Asymptomatic	Early: <2 year Late: ≥2 year

PRIMARY SYPHILITIC INFECTION.



SECONDARY SYPHILITIC INFECTION



SECONDARY SYPHILITIC INFECTION



SYPHILIS' MANIFESTATION

<i>Tertiary</i>		
Cardiovascular Syphilis	Aortic aneurysm, aortic regurgitation, coronary artery ostial stenosis	10-30 years
Neurosyphilis	Ranges from asymptomatic to symptomatic with headaches, vertigo, personality changes, dementia, ataxia, presence of Argyll Robertson pupil	< 2 years-20 years
Gumma	Tissue destruction of any organ; manifestations depend on site involved	1-46 years (most cases 15 years)

TERTIARY SYPHILIS



SYPHILIS' MANIFESTATION

<i>Congenital</i>		
Early	2/3 may be asymptomatic Fulminant disseminated infection, mucocutaneous lesions, osteocondritis, anemia, hepatosplenomegaly, neurosyphilis	Onset <2 years
Late	Interstitial keratitis, lymphadenopathy, hepatosplenomegaly, bone involvement, anemia, Hutchinson's teeth, neurosyphilis	Persistence >2 years after birth

THE WHO GLOBAL SURVEILLANCE CASE DEFINITION FOR CONGENITAL SYPHILIS

- A STILLBIRTH, LIVE BIRTH OR FETAL LOSS AT GREATER THAN 20 WEEKS OF GESTATION OR MORE THAN 500 G TO A SYPHILIS SEROPOSITIVE MOTHER WITHOUT ADEQUATE SYPHILIS TREATMENT; OR
- A STILLBIRTH, LIVE BIRTH OR CHILD UNDER 2 YEARS OF AGE WITH CLINICAL OR MICROBIOLOGICAL EVIDENCE OF SYPHILIS INFECTION
 - DEMONSTRATION BY DARK-FIELD MICROSCOPY OR DIRECT FLUORESCENT ANTIBODY TEST OF THE PRESENCE OF T. PALLIDUM IN THE UMBILICAL CORD, THE PLACENTA, NASAL DISCHARGE OR SKIN
 - DETECTION OF T. PALLIDUM SPECIFIC IGM;
 - INFANT WITH A POSITIVE NON-TREPONEMAL SEROLOGY TITRE AT LEAST FOUR-FOLD HIGHER THAN MOTHER'S TITRE

SYPHILIS' RISK FACTORS

- THOSE WHO HAVE HAD SEXUAL CONTACT WITH A KNOWN CASE OF SYPHILIS.
- MSM.
- SEX WORKERS.
- THOSE WITH STREET INVOLVEMENT/HOMELESS.
- INJECTION DRUG USERS.
- THOSE WITH MULTIPLE SEXUAL PARTNERS.
- THOSE WITH A HISTORY OF SYPHILIS, HIV AND OTHER STIS.
- THOSE ORIGINATING FROM OR HAVING SEX WITH AN INDIVIDUAL FROM A COUNTRY WITH A HIGH PREVALENCE OF SYPHILIS; IT SHOULD BE NOTED THAT SCREENING FOR SYPHILIS (USING A NON-TREPONEMAL TEST) IS ROUTINELY PERFORMED IN ALL IMMIGRATION APPLICANTS TO CANADA WHO ARE OLDER THAN 15 YEARS.
- SEXUAL PARTNERS OF ANY OF THE ABOVE.

SYPHILIS: LABORATORY DIAGNOSIS

- SYPHILIS DIAGNOSIS IS BASED ON THE PATIENT'S HISTORY, PHYSICAL EXAMINATION, LABORATORY TESTING AND SOMETIMES RADIOLOGY.
- THE AVAILABLE LABORATORY TESTS FOR DIAGNOSIS OF SYPHILIS INCLUDE DIRECT DETECTION METHODS (I.E. DARK- FIELD MICROSCOPY, DIRECT FLUORESCENT ANTIBODY TEST AND NUCLEIC ACID AMPLIFICATION TEST), SEROLOGY (TREPONEMAL AND NON-TREPONEMAL TESTS), AND EXAMINATION OF CEREBROSPINAL FLUIDS

SYRPHILIS:TREATMENT

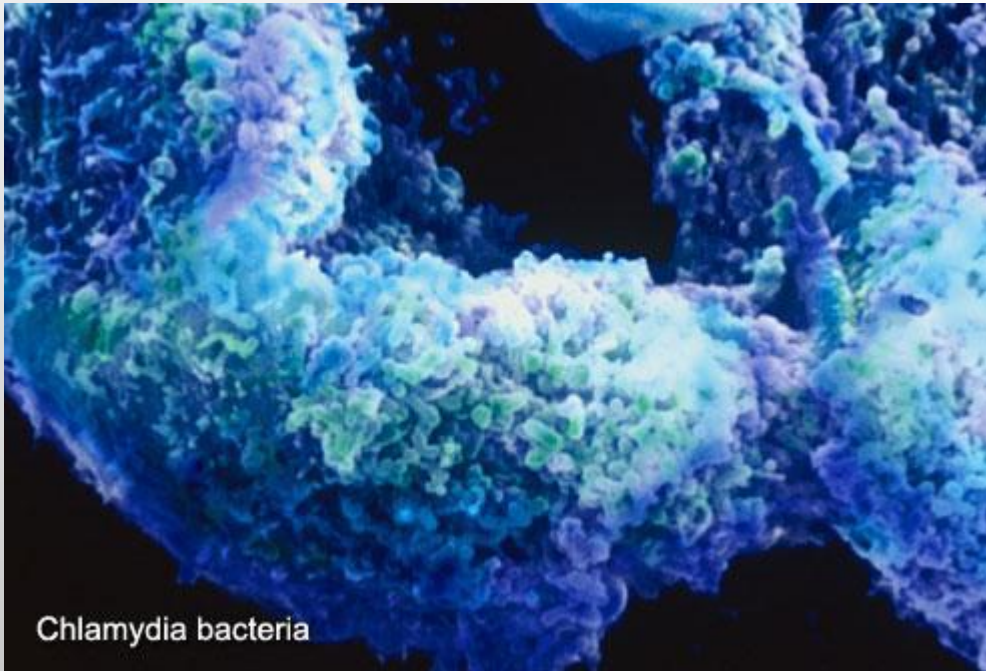
ЗОЛОТИМ СТАНДАРТОМ ЛІКУВАННЯ- ЗАЛИШАЄТЬСЯ ПЕНІЦИЛІН!

- **НАКАЗ № 312 ВІД 08.05.2009 «ПРО ЗАТВЕРДЖЕННЯ КЛІНІЧНИХ ПРОТОКОЛІВ НАДАННЯ МЕДИЧНОЇ ДОПОМОГИ ХВОРИМ НА ДЕРМАТОВЕНЕРОЛОГІЧНІ ЗАХВОРЮВАННЯ»**
- **НАКАЗ 23.10.2009 N 769 ПРО ЗАТВЕРДЖЕННЯ КЛІНІЧНОГО ПРОТОКОЛУ НАДАННЯ МЕДИЧНОЇ ДОПОМОГИ ДІТЯМ ІЗ ПІДОЗРОЮ НА ВРОДЖЕНИЙ СИФІЛІС**
- **[HTTP://WWW.WHO.INT](http://www.who.int) WHO GUIDELINES FOR THE TREATMENT OF *TREPONEMA PALLIDUM* (SYRPHILIS),WHO 2016.**

CHLAMYDIA' ETIOLOGY/ EPIDEMIOLOGY

- 3 BIOVARS OF C. TRACHOMATIS CAUSE GENITAL INFECTIONS, LYMPHOGRANULOMA VENEREUM (LGV) CAUSE
- GENITAL INFECTIONS, LYMPHOGRANULOMA VENEREUM (LGV) THAT AFFECTS LYMPHOID
- TISSUE), AND TRACHOMA (EYE INFECTION).

LYMPHOGRANULOMA VENEREUM (LGV)



CHLAMYDIA' EPIDEMIOLOGY

- WHO ESTIMATES THAT IN 2012, 131 MILLION NEW CASES OF CHLAMYDIA OCCURRED AMONG ADULTS AND ADOLESCENTS AGED 15–49 YEARS WORLDWIDE WITH A GLOBAL INCIDENCE RATE OF 38 PER 1000 FEMALES AND 33 PER 1000 MALES.
- THE ESTIMATED 128 MILLION PREVALENT CASES OF CHLAMYDIA RESULT IN AN OVERALL PREVALENCE OF 4.2% FOR FEMALES AND 2.7% FOR MALES, WITH THE HIGHEST PREVALENCE IN THE WHO REGION OF THE AMERICAS AND THE WHO WESTERN PACIFIC REGION
- UNDERDIAGNOSED BECAUSE THE MAJORITY OF INFECTED INDIVIDUALS ARE ASYMPTOMATIC
- INCUBATION PERIOD FROM TIME IS 2 TO 3 WEEKS, BUT CAN BE AS LONG AS 6 WEEKS.
- IN THE ABSENCE OF TREATMENT, INFECTION PERSISTS FOR MANY MONTHS.
- INDIVIDUALS INFECTED WITH *N.GONORRHOEAE* ARE OFTEN CO-INFECTED WITH *CHLAMYDIA*

CHLAMYDIA' RISK FACTORS

- SEXUAL CONTACT WITH A CHLAMYDIA-INFECTED PERSON
- A NEW SEXUAL PARTNER OR MORE THAN TWO SEXUAL PARTNERS IN THE PAST YEAR
- PREVIOUS SEXUALLY TRANSMITTED INFECTIONS (STIS)
- VULNERABLE POPULATIONS (E.G., INJECTION DRUG USERS, INCARCERATED INDIVIDUALS, SEX TRADE WORKERS, STREET YOUTH ETC.)

CHLAMYDIA' MANIFESTATIONS

Females	Males	Neonates and infants
<ul style="list-style-type: none">•Most often asymptomatic•Cervicitis•Vaginal discharge•Dysuria•Lower abdominal pain•Abnormal vaginal bleeding•Dyspareunia•Conjunctivitis•Proctitis (commonly asymptomatic)	<ul style="list-style-type: none">•Often asymptomatic•Urethral discharge•Urethritis•Urethral itch•Dysuria•Testicular pain•Conjunctivitis•Proctitis (commonly asymptomatic)	<ul style="list-style-type: none">•Conjunctivitis in neonates•Pneumonia in infants <6 months of age

CHLAMYDIA' MANIFESTATIONS



CHLAMYDIA' *MAJOR SEQUELAE*

Females	Males
<ul style="list-style-type: none">•Pelvic inflammatory disease•Ectopic pregnancy•Infertility•Chronic pelvic pain•Reiter syndrome	<ul style="list-style-type: none">•Epididymo-orchitis•Reiter syndrome

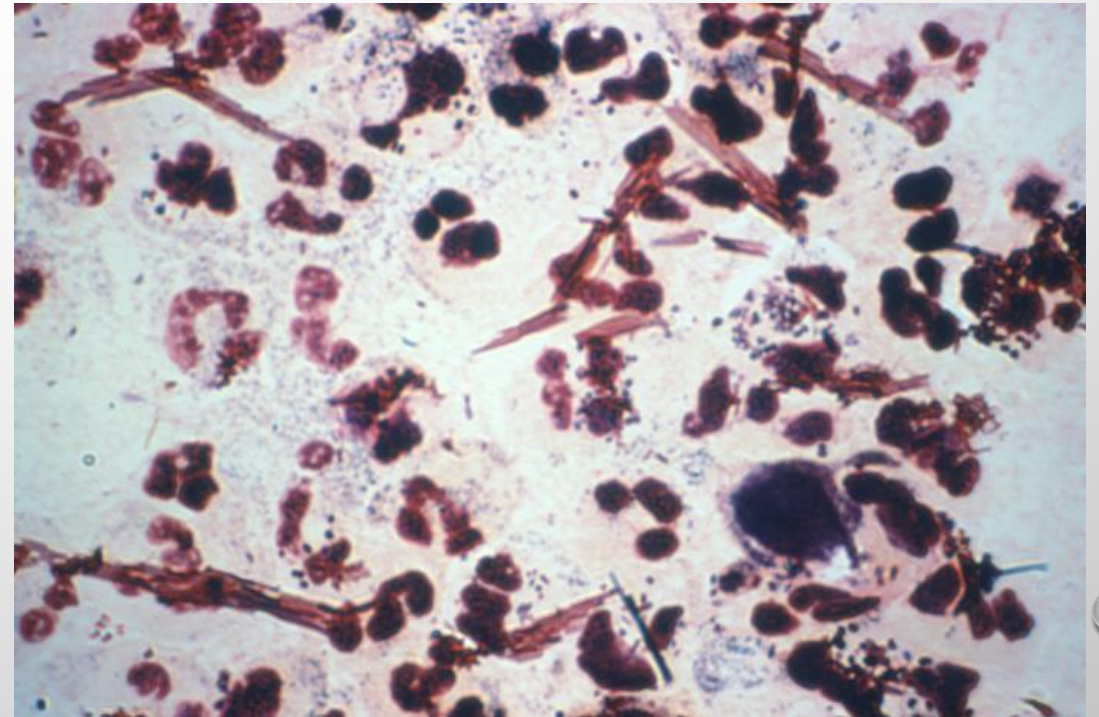
LABORATORY DIAGNOSIS OF CHLAMYDIYA

- NAATS (E.G.,PCR, TMA) ARE MORE SENSITIVE AND SPECIFIC THAN CULTURE, ENZYME IMMUNOASSAY (EIA) AND DIRECT FLUORESCENT ANTIBODY ASSAY (DFA).
- **CURRENTLY, ONLY CULTURE IS RECOMMENDED FOR THROAT SPECIMENS.**

TREATMENT

Preferred	Alternative
<ul style="list-style-type: none">• Doxycycline 100 mg PO bid for 7 days <p>OR</p> <ul style="list-style-type: none">• Azithromycin 1 g PO in a single dose if poor compliance is expected	<ul style="list-style-type: none">• Ofloxacin 300 mg PO bid for 7 days <p>OR</p> <ul style="list-style-type: none">• Erythromycin 2 g/day PO in divided doses for 7 days <p>OR</p> <ul style="list-style-type: none">• Erythromycin 1g/day PO in divided doses for 14 days

GONORRHOAE: ETIOLOGY CAUSED BY *NEISSERIA GONORRHOEAE*



GONORRHOEA:EPIDEMIOLOGY

- 2012, 78 MILLION NEW CASES OCCURRED AMONG ADOLESCENTS AND ADULTS 15–49 YEARS WORLDWIDE WITH A GLOBAL INCIDENCE RATE OF 19 PER 1000 FEMALES AND 24 PER 1000 MALES.
- CO-INFECTION WITH CHLAMYDIA TRACHOMATIS IS DETECTED IN 10–40%
- ANTIMICROBIAL RESISTANCE OF *NEISSERIA GONORRHOEAE*
- USUAL INCUBATION PERIOD IS 2–7 DAYS.
- INFECTION IS OFTEN ASYMPTOMATIC IN FEMALES AND SYMPTOMATIC IN MALES. IN BOTH MALES AND FEMALES, RECTAL AND PHARYNGEAL INFECTIONS ARE MORE LIKELY TO BE ASYMPTOMATIC

INDIVIDUALS AT RISK

- INDIVIDUALS WHO HAVE HAD SEXUAL CONTACT WITH A PERSON WITH A CONFIRMED OR SUSPECTED GONOCOCCAL INFECTION.
- INDIVIDUALS WHO HAVE HAD UNPROTECTED SEX WITH A RESIDENT OF AN AREA WITH HIGH GONORRHEA BURDEN AND/OR HIGH RISK OF ANTIMICROBIAL RESISTANCE.
- INDIVIDUALS WITH A HISTORY OF PREVIOUS GONOCOCCAL INFECTION; A CANADIAN PASSIVE SURVEILLANCE STUDY REPORTED RE-INFECTION TO BE AT LEAST 2 % PER YEAR.
- INDIVIDUALS WITH A HISTORY OF OTHER STIS, INCLUDING HIV.
- SEX WORKERS AND THEIR SEXUAL PARTNERS.
- SEXUALLY ACTIVE YOUTH < 25 YEARS OF AGE.
- STREET-INVOLVED YOUTH AND OTHER HOMELESS POPULATIONS.
- MEN WHO HAVE UNPROTECTED SEX WITH MEN.
- INDIVIDUALS WHO HAVE HAD SEX WITH MULTIPLE PARTNERS.

GONORRHEA

PENILE SYMPTOMS



CERVIX



GONORRHOEA: MANIFESTATIONS

Neonates and infants	Children	Youth and adults		
		Females	Males	Females and males
Ophthalmia neonatorum	Urethritis	Cervicitis	Urethritis	Pharyngeal infection
Conjunctivitis	Vaginitis	Pelvic inflammatory disease	Epididymitis	Conjunctivitis
Sepsis	Conjunctivitis	Urethritis		Proctitis
Disseminated gonococcal infection*	Pharyngeal infection	Perihepatitis		Disseminated gonococcal infection* (arthritis, dermatitis, endocarditis, meningitis)
	Proctitis	Bartholinitis		
	Disseminated gonococcal infection*			

GONORRHOEA: SYMPTOMS

Females	Males
<ul style="list-style-type: none">• Vaginal discharge• Dysuria• Abnormal vaginal bleeding• Lower abdominal pain• Deep dyspareunia• Rectal pain and discharge with proctitis Footnote *	<ul style="list-style-type: none">• Urethral discharge• Dysuria• Urethral itch• Testicular pain and/or swelling or symptoms of epididymitis• Rectal pain and discharge with proctiti

GONORRHOEA: MAJOR SEQUELAE

emales	Males
<ul style="list-style-type: none">•Pelvic inflammatory disease•Infertility•Ectopic pregnancy•Chronic pelvic pain•Reactive arthritis (oculo-urethro-synovial syndrome)•Disseminated gonococcal infection Footnote *	<ul style="list-style-type: none">•Epididymo-orchitis•Reactive arthritis (oculo-urethro-synovial syndrome)•Infertility (rare)•Disseminated gonococcal infection Footnote *

GONORRHOEA:LABORATORY DIAGNOSIS

- N. GONORRHOEAE CAN BE DIAGNOSED BY CULTURE OR NUCLEIC ACID AMPLIFICATION TESTS (NAATS) AND, IN SOME INSTANCES, GRAM STAIN (URINE, VULVOVAGINAL, CERVICAL AND URETHRAL SWABS)
- NAATS HAVE A SENSITIVITY OF OVER 90%, WHICH IS HIGHER THAN FOR CULTURE (> 85%)
- CULTURES SHOULD BE DONE IN PARALLEL WITH NAATS TO ALLOW FOR SUSCEPTIBILITY TESTING.

GONORRHEA MAY SOON BECOME RESISTANT TO ALL
ANTIBIOTICS AND UNTREATABLE

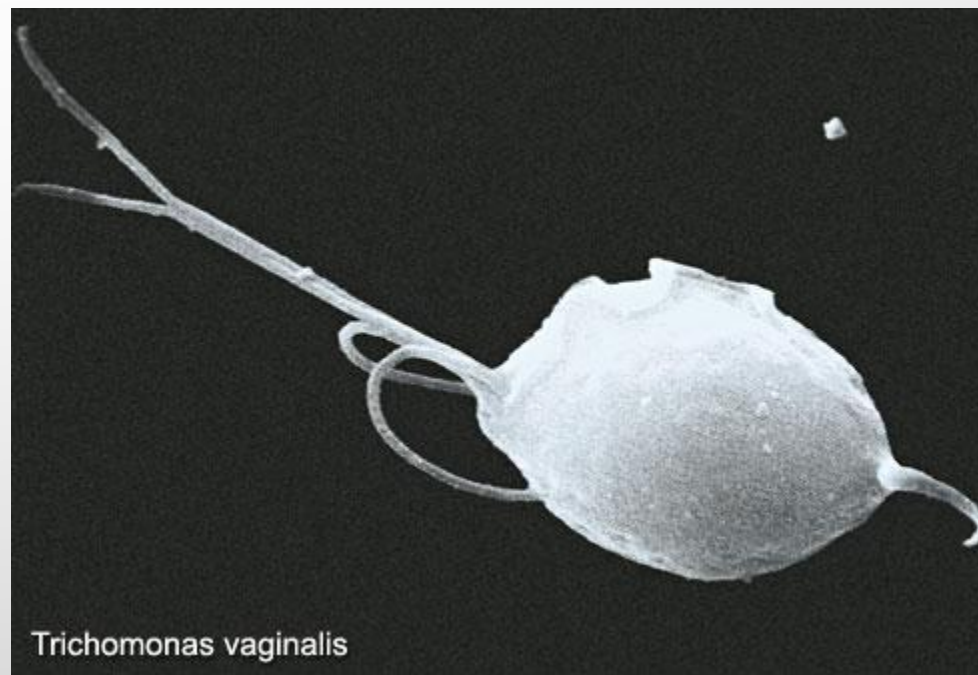
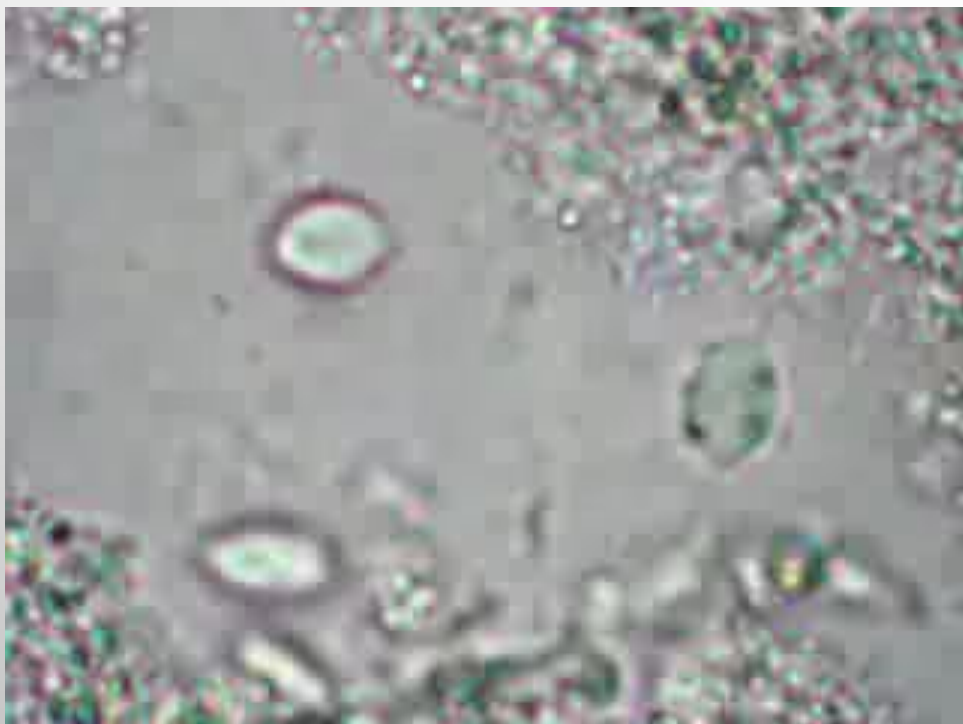


GENITAL AND ANORECTAL GONOCOCCAL INFECTIONS:TRETMENT WHO, STI GUIDELINE,2016

- DUAL THERAPY (ONE OF THE FOLLOWING)
 - CEFTRIAZONE 250 MG INTRAMUSCULAR (IM) PLUS AZITHROMYCIN 1 G ORALLY(SINGLE DOSE)
 - CEFIXIME 400 MG ORALLY PLUS AZITHROMYCIN 1 G ORALLY AS A SINGLE DOSE
- SINGLE THERAPY (ONE OF THE FOLLOWING, BASED ON RECENT LOCAL RESISTANCE DATA CONFIRMING SUSCEPTIBILITY TO THE ANTIMICROBIAL):
 - CEFTRIAZONE 250 MG IM AS A SINGLE DOSE
 - CEFIXIME 400 MG ORALLY AS A SINGLE DOSE
 - SPECTINOMYCIN 2 G IM AS A SINGLE DOSE.

TRICHOMONIASIS

CAUSED BY *TRICHOMONAS VAGINALIS*, A PROTOZOA



DIAGNOSTIC FEATURES AND LABORATORY DIAGNOSIS

Sexual transmission	Sexually transmitted
Predisposing factors	Multiple partners
Symptoms	Vaginal discharge Itch Dysuria 10–50% asymptomatic
Signs	Off-white or yellow, frothy discharge Erythema of vulva and cervix (“strawberry cervix”)
Vaginal pH	>4.5
Wet mount	Motile flagellated protozoa (38–82% sensitivity) ^T
Gram stain	PMNs Trichomonads
Whiff test	Negative
Preferred treatment	Metronidazole Treat partner

TREATMENT OF TRICHOMONIASIS

- **METRONIDAZOLE 2 G PO IN A SINGLE DOSE**
- **METRONIDAZOLE 500 MG PO BID FOR 7 DAYS**
- EFFICACY 82–88% FOR BOTH REGIMENS; INCREASES TO 95% IF PARTNER ALSO TREATED
- INTRAVAGINAL METRONIDAZOLE GEL IS NOT EFFECTIVE

- **NOTE:**

PATIENTS SHOULD NOT DRINK ALCOHOL DURING AND FOR 24 HOURS AFTER ORAL THERAPY WITH METRONIDAZOLE BECAUSE OF A POSSIBLE DISULFIRAM (ANTABUSE) REACTION.

CONSIDERATION FOR OTHER STIS

- IN A CASE OF TRICHOMONIASIS, OTHER STIS NEED TO BE CONSIDERED. IF APPROPRIATE, BASED ON THE PATIENT'S AND PARTNER'S RISK FACTORS (AND IMMUNIZATION STATUS IN THE CASE OF HEPATITIS B), SPECIMENS CAN BE TAKEN FOR THE FOLLOWING:
- GONORRHEA&CHLAMYDIA
- SYPHILIS
- HIV INCREASED RISK ACQUISITION AND TRANSMISSION
- HEPATITIS B

WHEN USED CORRECTLY AND CONSISTENTLY,
CONDOMS ARE ONE OF THE MOST EFFECTIVE
METHODS OF PROTECTION AGAINST STIS.

