

Chlamydia and other Sexually
Transmitted Infections (STI):
changing aspects

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Sexually Transmitted Infections (STI)

Known for many centuries

Urethritis

Vaginitis and Cervicitis

Genital ulcers

Other STI's

Sexually Transmitted Infections

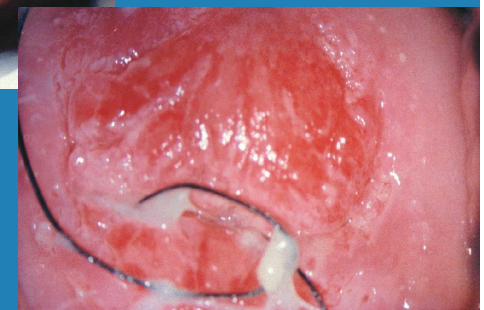
Urethritis

Chlamydia trachomatis;
Neisseria gonorrhoeae;
other microorganisms



Cervicitis

Chlamydia trachomatis;
Neisseria gonorrhoeae



Sexually Transmitted Infections

Vaginitis

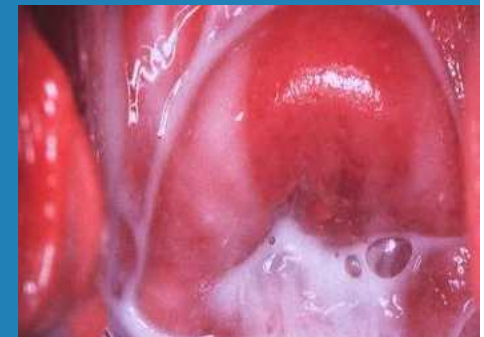
Candidosis
(*Candida species*)



Trichomonosis
(*Trichomonas vaginalis*)



Bacterial vaginosis
(*Gardnerella vaginalis*,
anaerobes,
mycoplasma sp)



Sexually Transmitted Infections

Genital ulcers

Syphilis

(*Treponema pallidum*)

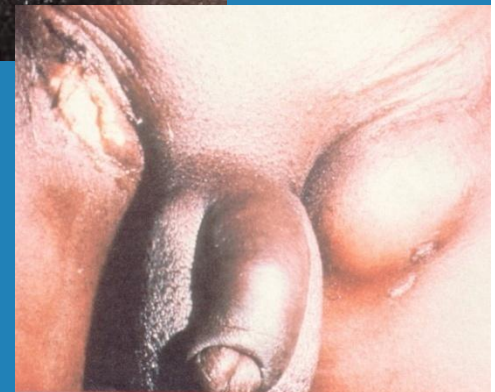
Chancroid

(*Haemophilus ducreyi*)

Lymphogranuloma

venereum

(*Chlamydia trachomatis*)



Sexually Transmitted Infections

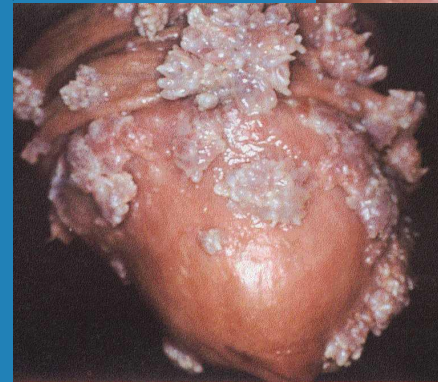
Genital ulcers

Granuloma inguinale
(*Klebsiella granulomatis*)

Genital Herpes
(*Herpes Simplex Virus*
1,2)

Other

Human Papilloma Virus
Molusco contagiosum
Body and pubic lice



STI complications

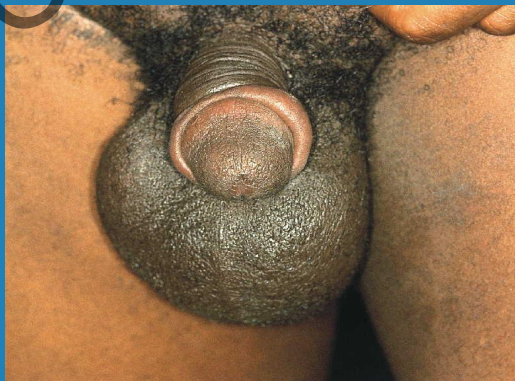
Conjunctivitis



Disseminated gonococcal infection



Epididymo-orchitis



Corneal opacity



STI complications in pregnant women and in the neonate

Pelvic inflammatory disease

Infertility

Infections of pregnant women

Infections of the neonate

Other





Have STI changed?

Prevalence

Clinical signs and symptoms/re
emergence/new clinical entities

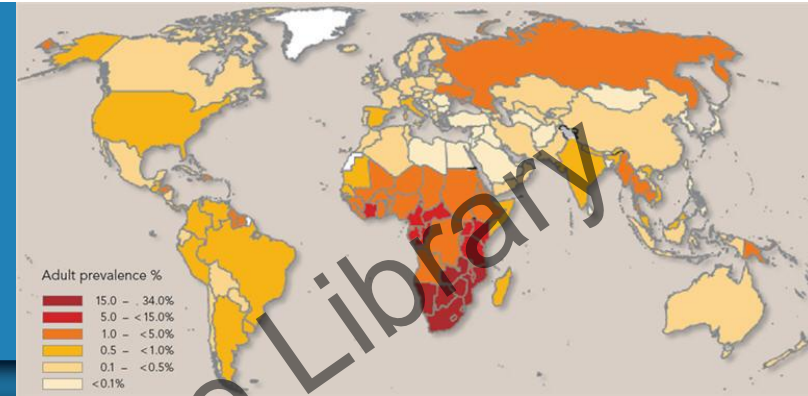
Complications

Laboratory diagnosis

Antibiotic resistance

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Prevalence



38.5 million people [range: 33.4-46.0 million] living with HIV in 2005
From: <http://www.who.int/hiv/facts/hiv2005/en/index.html>

340 million new cases/year of curable STI

One million infected with STI/day

2007 – HIV

33 million people infected

4.3 million new infections

STI increase – why?

No increase in transmission

Improved STI knowledge

Public

Health professionals

Higher sensitivity of STI tests

Molecular biology techniques

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STI increase – why?

Increase in transmission

Mobility

Acceptability

Contraceptives availability

Treatment delay

Poor sexual partners notification

Insufficient prevention campaigns

Unsafe sex

Talking difficulties

STI increase – why?

Asymptomatic infections

Insufficient STI knowledge

Public / Health professionals

Behaviour changes

Age of 1st sexual experience / Number of sexual partners / Multiple sexual contacts

HIV/STI co-infection – increased transmission

Have STI changed?

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emergence/new clinical entities

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Clinical signs and symptoms/re - emergence/new clinical entities

Mycoplasma genitalium

HIV associated ??? genital mycoplasmas

Lymphogranuloma venereum

STI clinical signs and HIV

Clinical signs and symptoms/re-emergence/new clinical entities

Lymphogranuloma venereum

Etiological agent

Chlamydia trachomatis – 15 serotypes

A-C – ocular infections

D-K – oculo-genital infections

L1- L3 – LGV (higher virulence)

Transmission

Sexual (anal, vaginal, oral)

Lymphogranuloma venereum (LGV)

Endemic

Africa; Asia; South America;
Caribbean

Industrialized countries

Low incidence
Imported cases

Clinical characteristics

Genital ulcer - 25-33%
Inguinal adenopathies
Proctitis



Lymphogranuloma venereum (LGV)

L2

2003

Netherlands – Rotterdam

HIV bisexual

HIV homosexual (2)

Multiple sexual partners

Proctitis

LGV L2

Other european countries

Canada, Australia, New Zealand

Lymphogranuloma venereum (LGV) L2

Characteristics

Proctitis

HIV

Hepatitis C

High risk sexual behaviour

Asymptomatic patients

C. trachomatis L2b

Have STI changed?

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Complications

Salpingitis

Pelvic inflammatory disease

Neurosyphilis and HIV

HPV and HIV

Herpes and HIV

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Have STI changed?

Prevalence

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Complications

Laboratory diagnosis

Antibiotic resistance

Laboratory diagnosis

Chlamydia trachomatis

Neisseria gonorrhoeae

Sensitivity

Screening

Mycoplasma genitalium

PCR identification

syndromes

association with clinical



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Chlamydia Trachomatis laboratory diagnosis

	Advantages	Disadvantages
Tissue culture	Specificity +++++ Sensitivity ++++	Expensive Well trained staff Only genital exsudate
DIF	Economic, quick Sensitivity +++ Sensitivity ++++	Well trained staff Only genital exsudate
LCR , PCR	Urine Sensitivity +++++ Sensitivity +++++ Quick	Expensive Difficult to evaluate cure Screening
ELISA	Automatized Sensitivity ++ Sensitivity ++++	Only genital exsudate
Serology	Good method	Salpingitis, PID, LGV

Neisseria gonorrhoeae laboratory diagnosis

PCR techniques

Low specificity— low prevalence

Other *Neisseria* sp

Lactobacilli

Sensitivity

Real - Time

Sensitivity - 92 – 99.6 % - (16S rRNA)

Specificity – 94 – 100 % - (16S rRNA)

Mycoplasma genitalium

Culture

Low sensitivity

Serology

Low specificity and sensitivity

PCR Techniques

Low specificity and sensitivity

Target gene

16S ribosomal RNA gene ;MgPaadhesingene

Experienced technologist

Rapid tests

Characteristics of an ideal rapid test

ASSURED Criteria

A = Affordable

S = Sensitive

S = Specific

U = User-friendly (easy to perform, few steps)

R = Robust and rapid (results in less than 30 m)

E = Equipment free

D = Deliverable to those who need them

Rapid tests



STOP CHAIN OF TRANSMISSION

- Syphilis
- Gonorrhoea
- Chlamydial infections

Rapid tests - syphilis

Total blood

No refrigeration needed

Results in 30 minutes

Sensitivity – 76 – 100%

Specificity – 83 – 100%

Rapid tests – *N. gonorrhoeae* and *C. trachomatis*

***Neisseria gonorrhoeae* – cervical swabs**

Sensitivity – 46.4 – 73.6%

Specificity – 86.2 – 93.6%

Comparison with PCR or specific media

***Chlamydia trachomatis* – ChI rapid test vaginal swab**

Sensitivity – 83.5%

Specificity – 98.9%



Have STI changed?

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Complications

Laboratory diagnosis

Antibiotic resistance

Antibiotic resistance

No antibiotic resistance in most STI bacteria

Important problem

Neisseria gonorrhoeae

Azithromycin – 1% (England) → 31.2% (Austria)

Ceftriaxone – 1% (Itália) → 4.8% (Suécia)

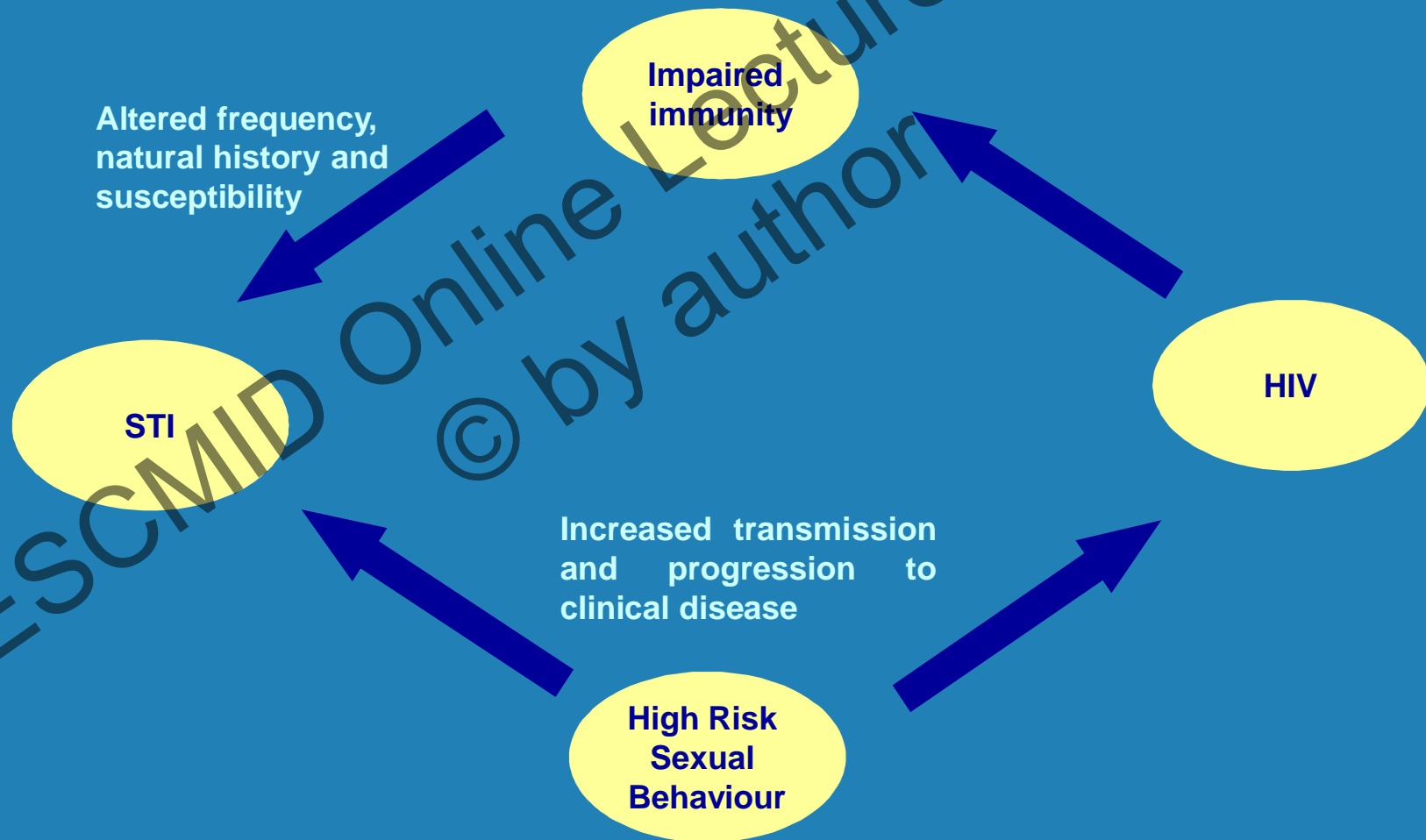
Ciprofloxacin – 98% (China) → 4.1% (United States)

Penicilin – 76% (Russia) → 6.5% (United States)

Increasing resistance

Herpes simplex virus – 4% → 7.8%

Interaction between HIV and other STI





HIV/STI co - infection

Increased HIV transmission
Clinical signs and symptoms
Disease Progression
Therapy

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Increased HIV transmission

Ulcerative STI

Syphilis

Chancroid

Lymphogranuloma venereum

Herpes

Non ulcerative STI

Chlamydia trachomatis; *Neisseria gonorrhoeae*

Bacterial vaginosis; trichomonosis

Genital Ulcer Disease (GUD) and HIV Transmission

STI

Risk

GUD

2.4 – 18.2

Syphilis

1.8 – 9.9

Herpes

1.9 – 8.5

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NON - ULCERATIVE STD AND HIV TRANSMISSION

STI	Risk
Chlamydia	3.2 – 5.7
Gonorrhoea	3.8 – 8.9
Trichomoniasis	2.7

Syndromic Treatment of Genital Ulcers and Rates of Lesional HIV Shedding by Ulcer Aetiology

	N° Shedding/Total N° in Group (%)		
	Initial	Day 7	Day 14
Chancroid	33/41 (81%)	17/41 (42%)	7/41 (17%)
Herpes	11/14 (79%)	10/14 (67%)	-
Mixed Herpes/Others	8/9 (89%)	8/9 (89%)	-

Effect of Antibiotics/Valacyclovir Treatment on HIV Shedding in Genital Herpes

	n	Mean CD4 ⁺ Count (Range)	Cont. Lesional % Shedding at Day 7	Cont. Lesional % Shedding at Day 14
Antibiotics alone	12	396 (238 – 787)	83%	42%
Valacyclovir	11	315 (129 – 836)	55%	9%

Clinical signs and symptoms

Syphilis

Non – HIV patient



HIV patient



Clinical signs and symptoms

Genital warts in HIV positive patients

Increased HPV prevalence

Low grade

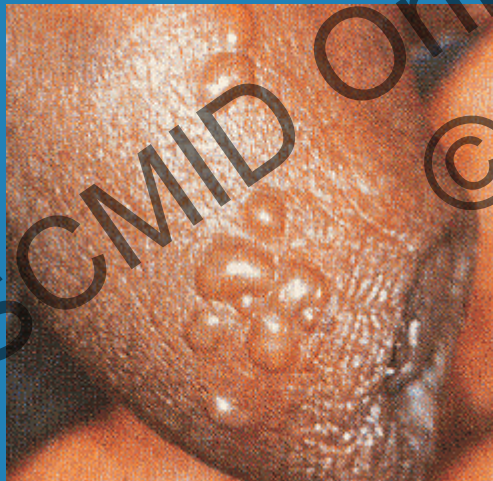
High grade



Clinical signs and symptoms

Genital herpes

Non – HIV patient



HIV patient



Conclusions

Epidemiology, clinical syndromes, laboratory diagnosis, complications and treatment of STI have changed during the last years

HIV plays a main role in STI changes

STI increase HIV transmission

Therefore, STI control is a priority intervention for the prevention of HIV and HIV prevention will allow a better control of STI