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"Gonorrhea, syphilis, chlamydia, herpes,  
HIV positive, genital warts..."

# The most frequent agents of STD

1. Papillomaviruses
2. Chlamydiae
3. Yeasts

## Other common agents of STD:

HBV

HCV

HIV

HSV 2

*Mycoplasma & Ureaplasma*

*Gardnerella vaginalis*

*Klebsiella granulomatis*

*Trichomonas vaginalis*

*Sarcoptes scabiei*

*Phthirus pubis*

# Papillomaviruses

The **most frequent** agent of genital infections

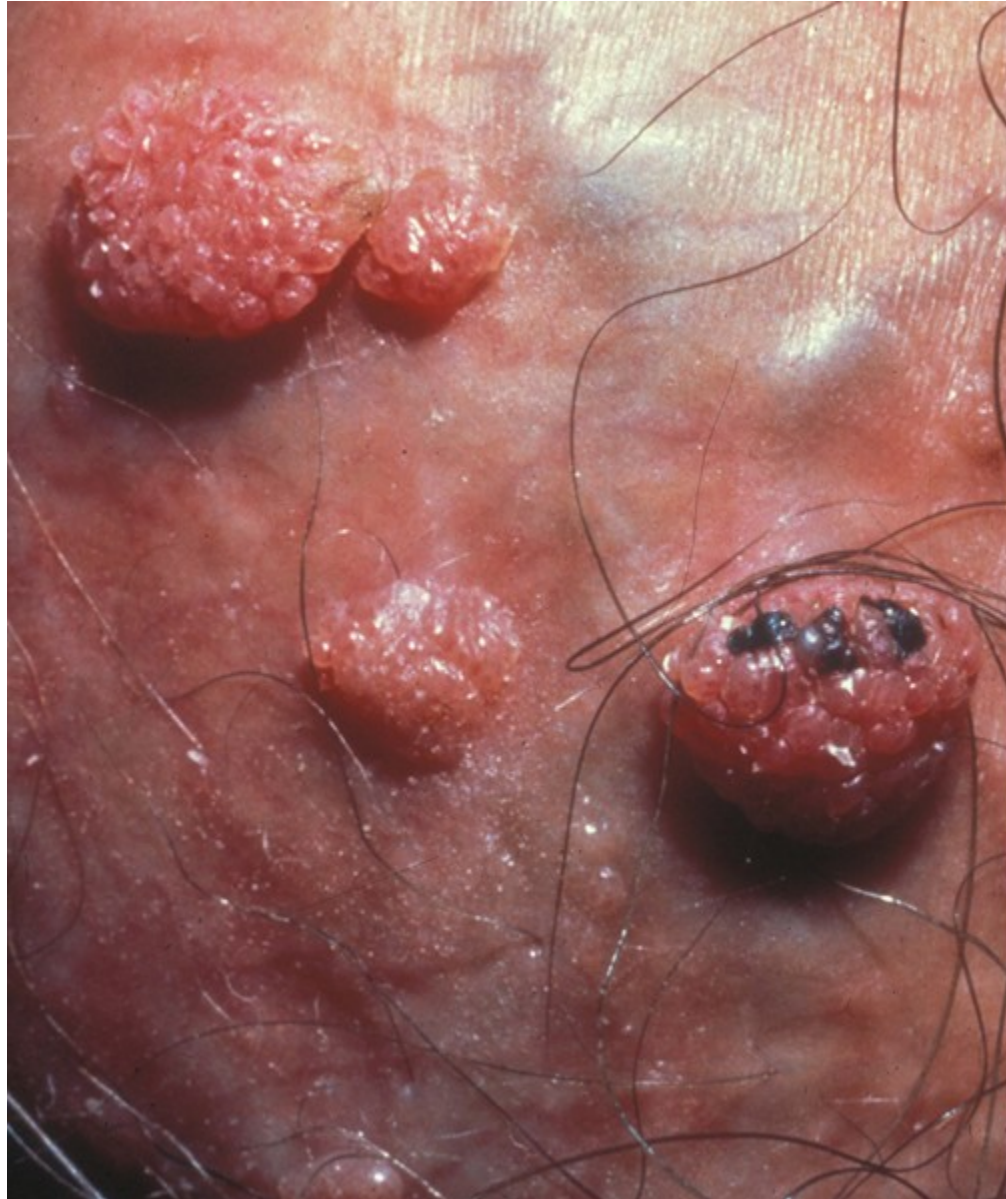
Genotypes 6, 11 and many other:  
both ♂ & ♀: **anogenital warts**  
(condylomata accuminata)

Genotypes 16, 18 and some other  
♀: infection of **cervix** → Ca

**Vaccination** against carcinogenic types!

Culture impossible – diagnostics performed  
using molecular methods

**Anogenital warts (condylomata accuminata)**



# Chlamydiae

**The second most frequent agent of genital inf.**

***Chlamydia trachomatis* serotypes D to K**

**♂: nongonococcal & postgonococcal  
urethritis**

**♀: cervicitis → blenorrhoea neonatorum**

**Therapy: macrolides and tetracyclines**

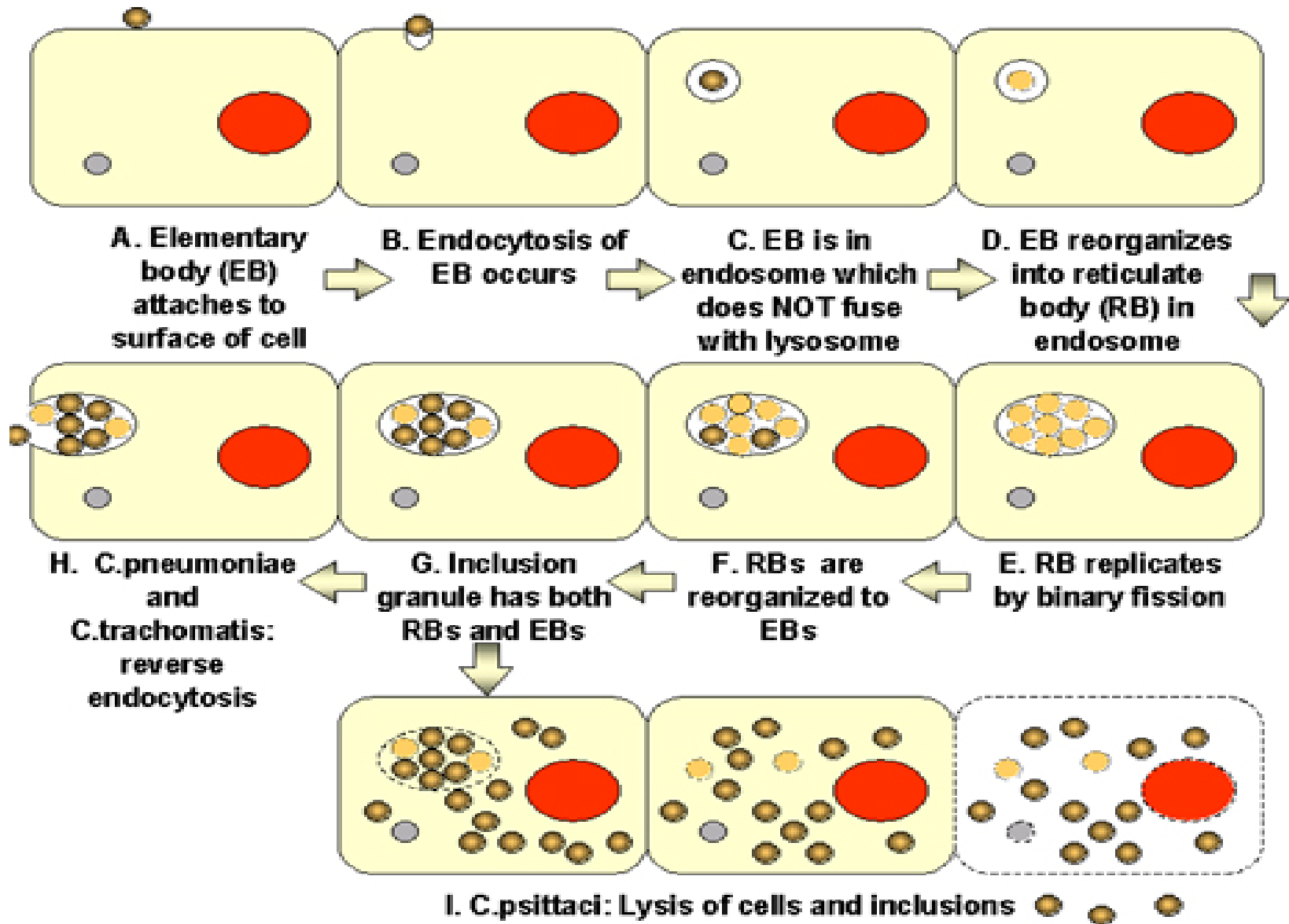
**Lab. dg: direct: detection of antigen**

**detection of DNA**

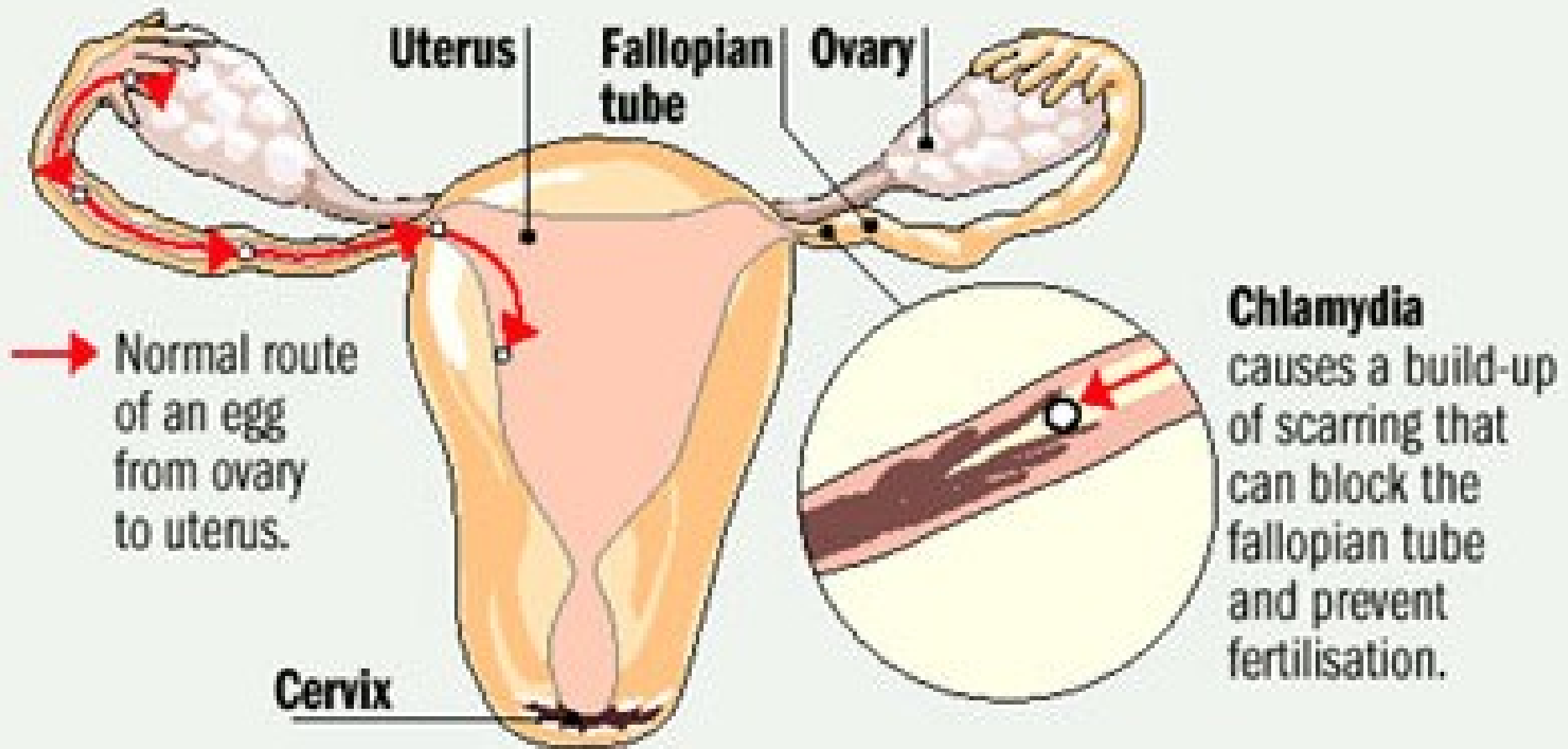
**culture (special cell culture)**

*indirect (serology): not very useful*

# The developmental cycle of Chlamydia

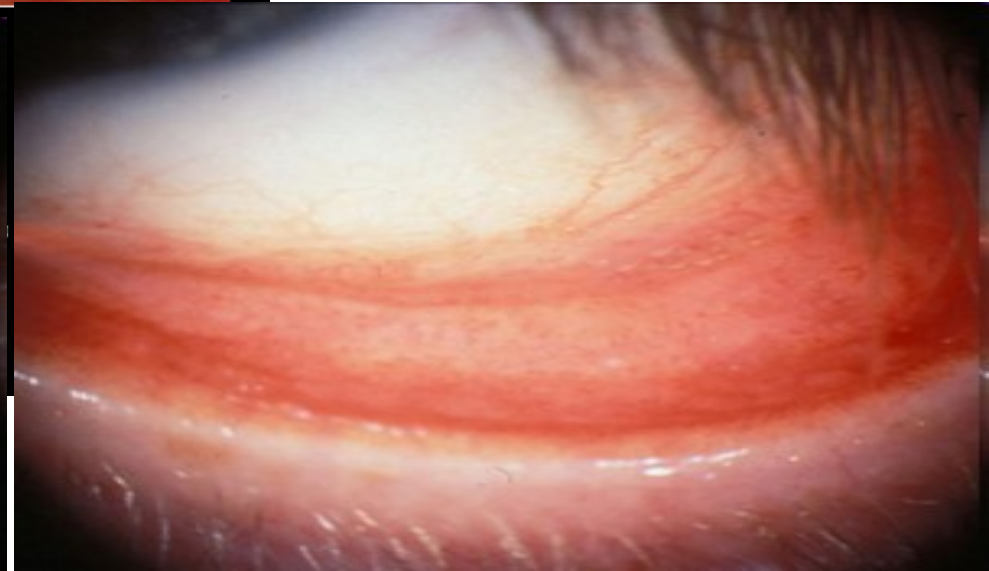
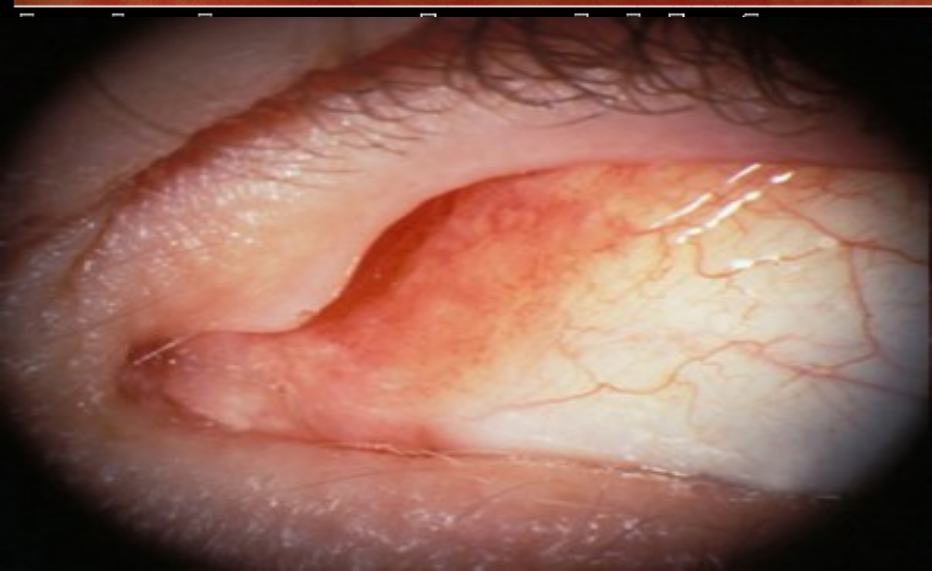


# CHLAMYDIA THE EFFECTS

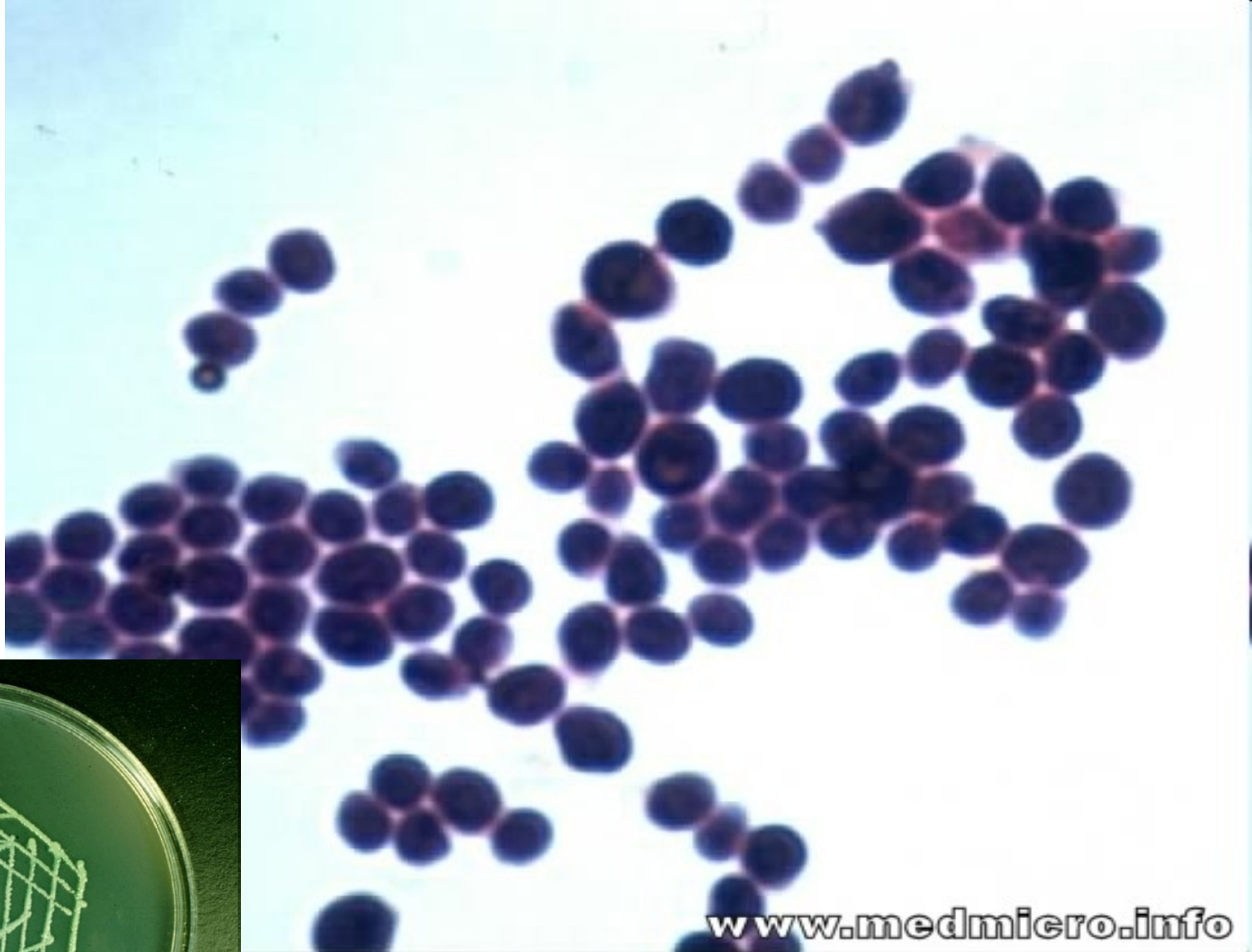




## Adult Chlamydial Conjunctivitis







[www.medmicro.info](http://www.medmicro.info)



[www.medmicro.info](http://www.medmicro.info)

# Yeasts

***Candida albicans*** (rarely other candidae)

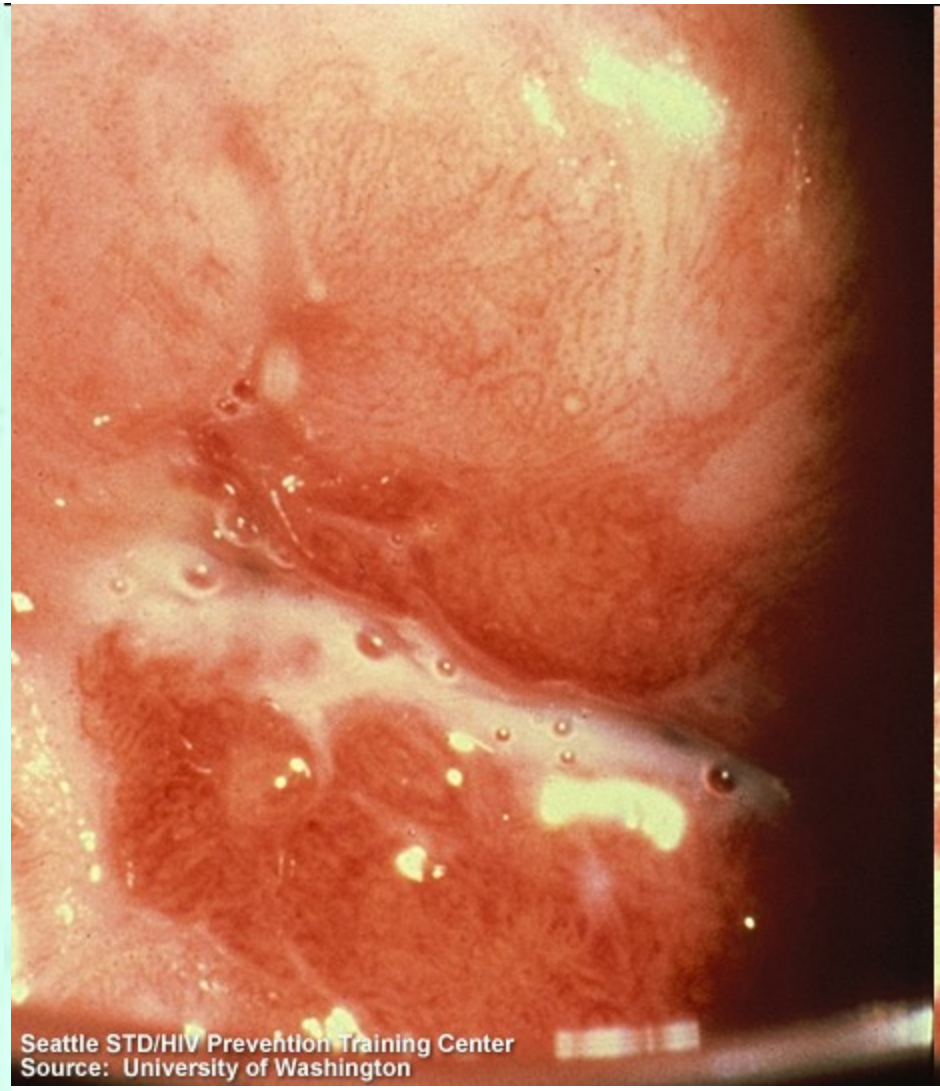
♂: balanoposthitis

♀: **vaginal mycosis** (candidosis,  
vulvovaginitis)

**Therapy:** topical imidazoles (clotrimazole)  
systemic triazoles (fluconazole)

**Lab. dg: microscopy**  
**culture** (Sabouraud agar)

# *Trichomonas vaginalis*



© CDC

Seattle STD/HIV Prevention Training Center  
Source: University of Washington

<http://depts.washington.edu>

# Trichomonads

*Trichomonas vaginalis* (a flagellate)

♂: 0 (rarely urethritis, usually asymptomatic carriers)

♀: **vaginitis**, cervicitis, urethritis

**Therapy:** metronidazole (both partners must be treated)

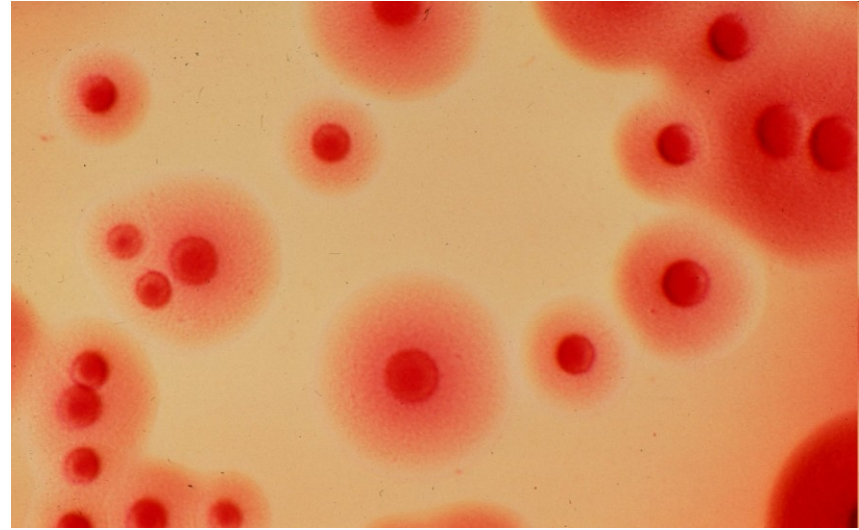
**Lab. dg:** direct only – **microscopy** (wet mount, Giemsa stained film) & **culture** on special media



# Mycoplasmas

*Mycoplasma hominis*

*Ureaplasma urealyticum*



♂ & ♀: **urethritis**

♀: **postpartum fever, PID?**

**Therapy:** macrolides and tetracyclines

**Lab. dg:** direct only – culture on special media

M. fermentans: [www.microbeworld.org](http://www.microbeworld.org)



# Gardnerellae

***Gardnerella vaginalis***

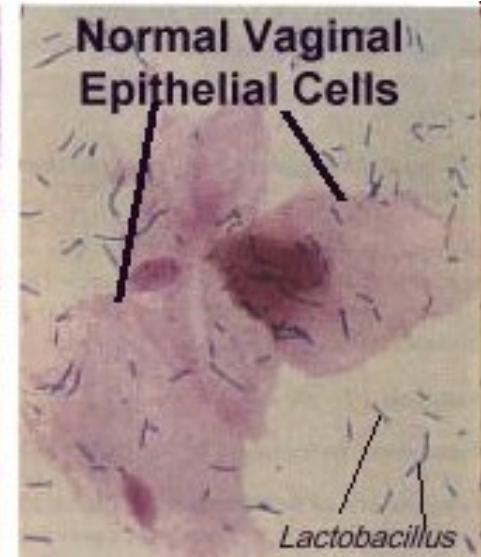
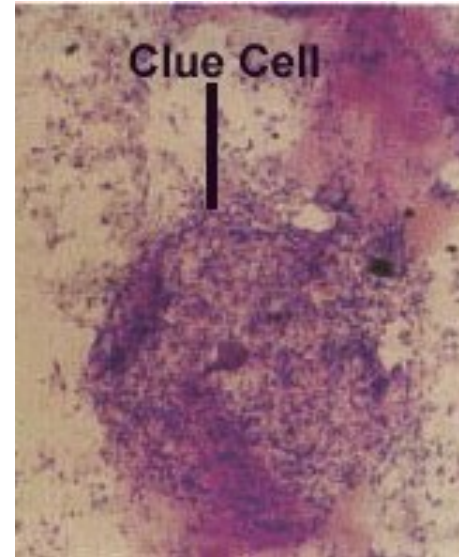
♂: 0

♀: bacterial vaginosis

**Therapy: metronidazole**

**Lab. dg: direct only –**

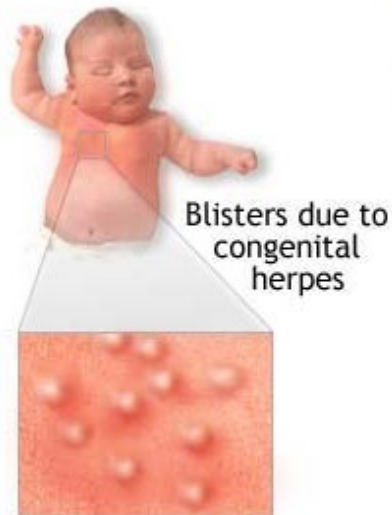
**fish odour test  
microscopy (clue cells)  
culture on special agar**



<http://www.atsu.edu>

# Viral agents of STD – HSV 2

Mother with active herpes infection (although active infection may not be apparent)



ADAM.

## Herpes simplex virus 2

♂ & ♀: **herpes genitalis**  
**primary**  
**recurrent**

**Therapy:** acyclovir

**Lab. dg:**

- isolation on a cell culture
- detection of DNA by PCR
- serology (useful in primary infection)



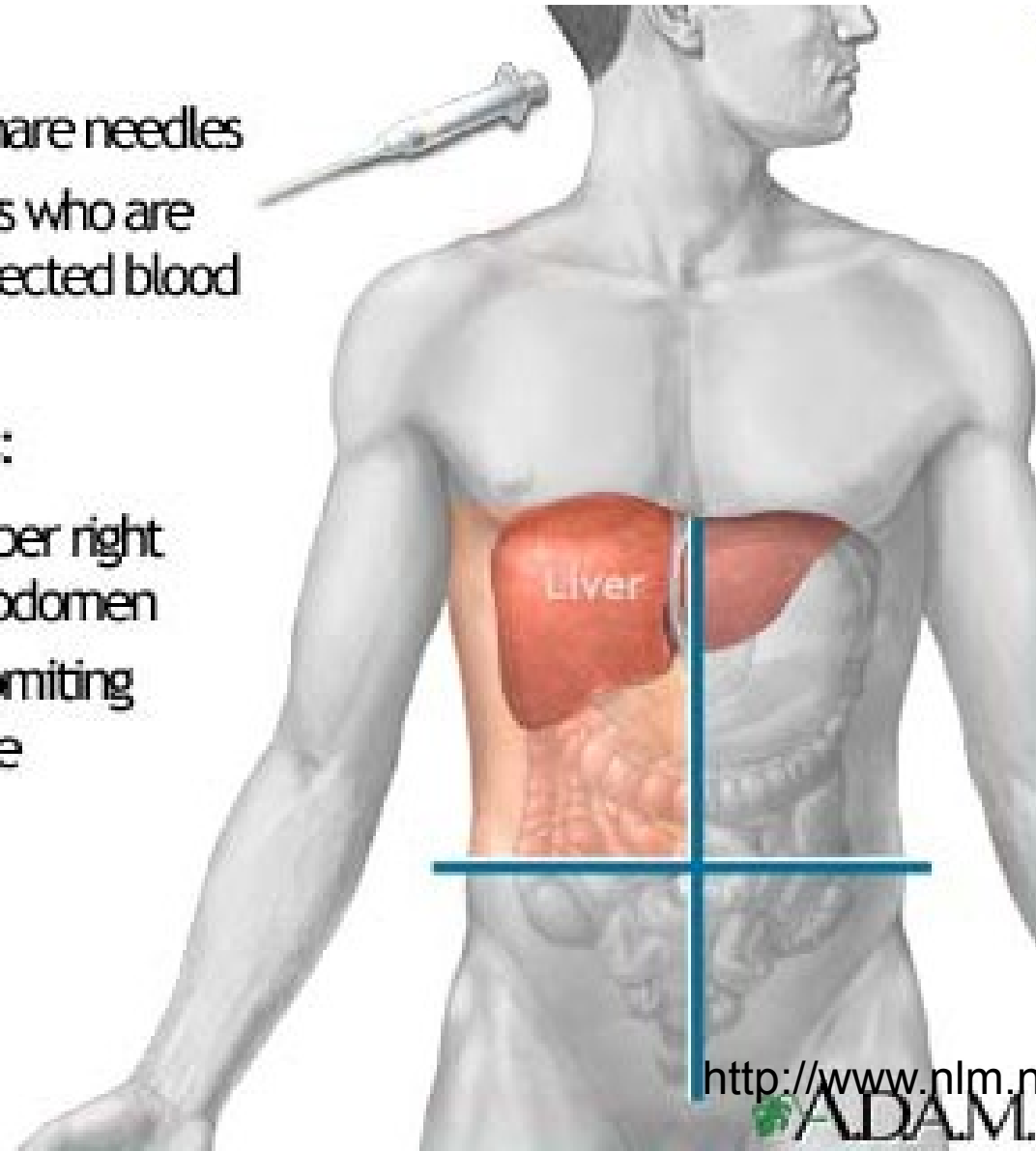
# Hepatitis B, C (VHB, VHC)

## Risk factors:

- people who share needles
- health workers who are exposed to infected blood

## Possible symptoms:

- pain in the upper right quadrant of abdomen
- nausea and vomiting
- loss of appetite
- jaundice
- fatigue
- itching



## Hepatitis C virus

(sexual transmission not excluded)

♂ & ♀: **viral hepatitis C**, acute and **chronic**

**Therapy:**

interferon + ribavirin

**Lab. dg:**

- detection of viral RNA
- detection of **antibodies** (anti-HCV)

## Hepatitis B virus

♂ & ♀: **viral hepatitis B**, acute and chronic

A recombinant vaccine (HBsAg)

**Therapy:** acute VHB: no medication, rest & diet  
chronic VHB: interferon

**Lab. dg:** detection of laboratory markers

HBsAg, anti-HBs

HBeAg, anti-HBe

anti-HBc

HBV DNA

# Viral agents of STD – HIV

**Human immunodeficiency virus (HIV-1 and HIV-2)**

♂ & ♀: **AIDS** (acquired immunodeficiency syndrome)

**Therapy: combination** of antiretrovirals  
(HAART = highly active antiretroviral treatment)

**Lab. dg:** detection of **antibodies** (& confirmation of positive findings)

special tests: detection of antigens

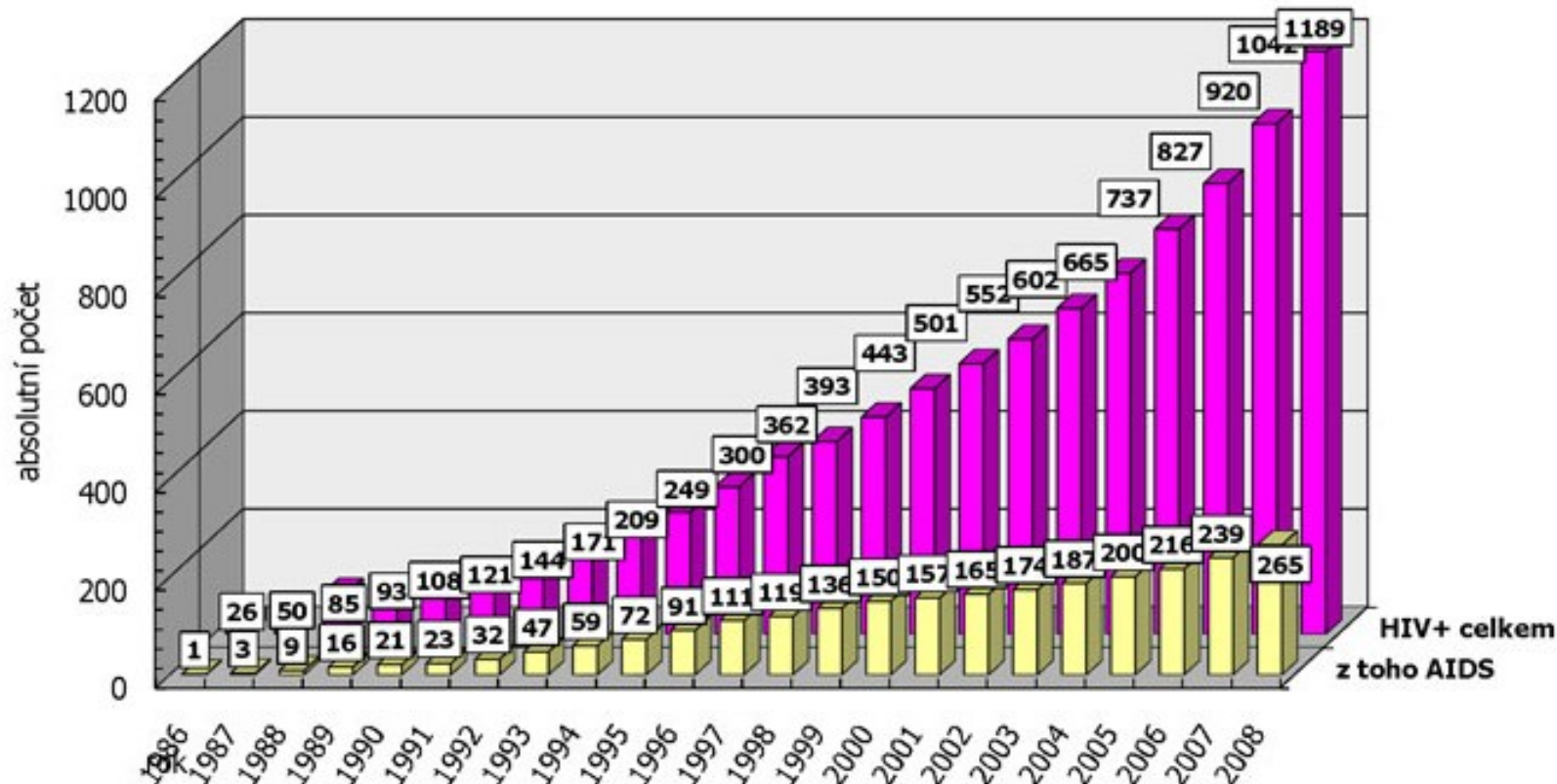
determination of viral load

# HIV / AIDS V ČESKÉ REPUBLICE

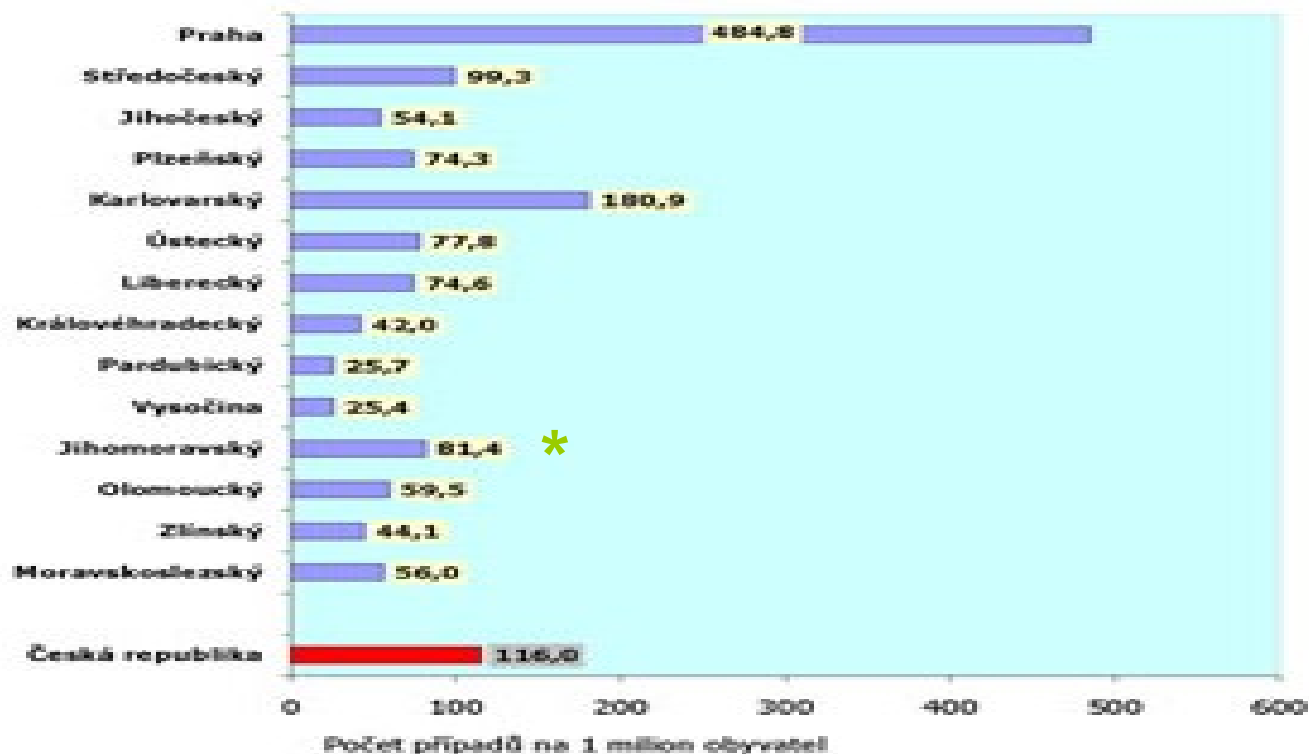
(jen občané ČR a cizinci s trvalým pobytem)

Kumulativní údaje ke dni

**31.12.2008**



## ROZDĚLENÍ HIV POZITIVNÍCH PŘÍPADŮ V ČR PODLE KRAJE BYDLIŠTĚ V DOBĚ PRVNÍ DIAGNÓZY HIV (jen občané ČR a cizinci s trvalým pobytem) Kumulativní údaje ke dni 31.12.2008



# Parasitic agents of STD

***Sarcoptes scabiei*** (itch mite)

♂ & ♀: **scabies** (mange)

**Therapy:** antiscabiotics  
(permethrine, lindane)

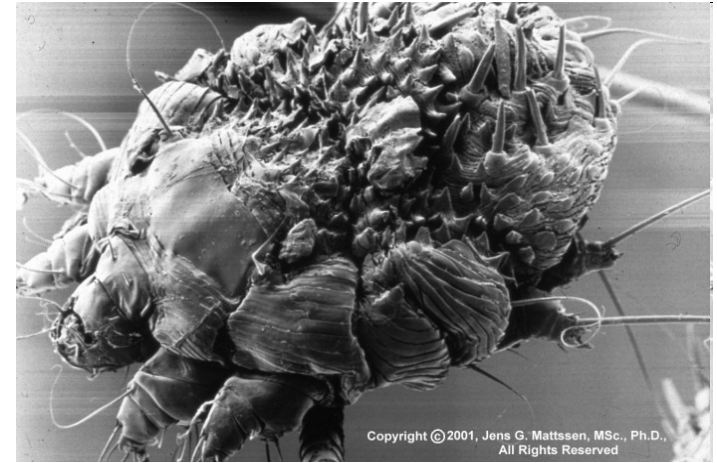
**Lab. dg:** microscopy from skin

***Phthirus pubis*** (pubic louse, crab louse)

♂ & ♀: **pediculosis pubis**  
(phthiriasis)

**Therapy:** lindane

**Lab. dg:** demonstration of lice or eggs





*Sarcoptes scabiei*

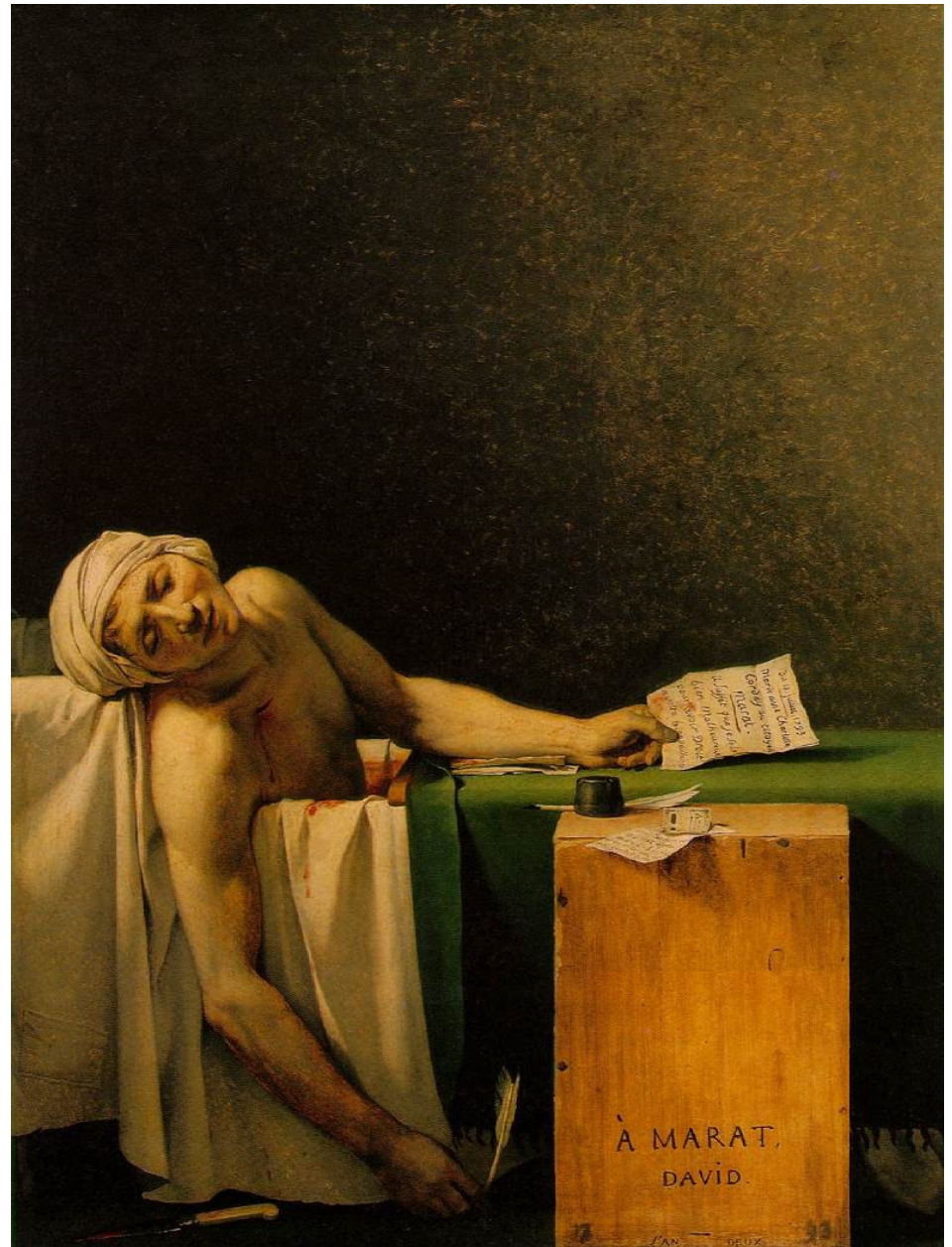


# Homework 5 – solution

Jacques-Louis David  
(1748-1825):  
**Death of Marat** (1783)

What is the connection between this painting and medicine?

- **Jean Paul Marat**, murdered by Charlotte Corday in 1793, was initially a physician
- He was run through when taking a bath for treatment his skin disorder (probably dermatitis herpetiformis Dühring)



# Homework 6

Who is the author of this painting and what is its name?

