Sexually transmitted diseases

Kolářová M., EPI Autumn 2017

More than 30 different bacterias, viruses and parasites are known to be transmitted through sexual contact.

Eight of these pathogens are linked to the greatest incidence of sexually transmitted diseases.

Of these 8 infections:

- 4 are currently curable: **syphillis, gonorrhoea, chlamydia and trichomoniasis.**
- the other 4 are viral infections and are incurable: **hepatitis B, herpes simplex virus (HSV or herpes), HIV, and human papillomavirus (HPV).**

Symptoms or disease due to the incurable viral infections can be reduced or modified through treatment.

- STIs are spread predominantly by sexual contact, including vaginal, anal and oral sex.
- Some STIs can also be spread through non-sexual means such as via blood or blood products.
- Many STIs—including chlamydia, gonorrhoea, primarily hepatitis B, HIV, and syphilis—can also be transmitted from mother to child during pregnancy and childbirth and through breastfeeding.

- A person can have an STI without having obvious symptoms of disease.
- Common symptoms of STIs include:

- vaginal discharge,
- urethral discharge or burning in men,
- genital ulcers,
- and abdominal pain.

Key facts

- More than 1 million STIs are acquired every day.
- Each year, there are estimated 357 million new infections with 1 of 4 STIs:

✓ chlamydia (131 million),
✓ gonorrhoea (78 million),
✓ syphilis (5.6 million) and
✓ trichomoniasis (143 million).

More than 500 million people are living with genital HSV (herpes) infection.

At any point in time, more than 290 million women have an HPV infection, one of the most common STIs.

- STIs like herpes and syphilis can increase the risk of HIV acquisition three-fold or more.
- Mother-to-child transmission of STIs can result in stillbirth, neonatal death, low-birth-weight and prematurity, sepsis, pneumonia, neonatal conjunctivitis, and congenital deformities. Over 900 000 pregnant women were infected with syphilis resulting in approximately 350 000 adverse birth outcomes including stillbirth in 2012.
- HPV infection causes 528 000 cases of cervical cancer and 266 000 cervical cancer deaths each year.
- STIs such as gonorrhoea and chlamydia are major causes of pelvic inflammatory disease (PID) and infertility in women.

Vaccines

- Safe and highly effective vaccines are available for 2 STIs: **hepatitis B and HPV.**

These vaccines have represented major advances in STI prevention. The vaccine against hepatitis B is included in infant immunization programmes in 93% of countries and has already prevented an estimated 1.3 million deaths from chronic liver disease and cancer.

- HPV vaccine is available as part of routine immunization programmes in 65 countries, most of them high- and middle-income.

HPV vaccination could prevent the deaths of more than 4 million women over the next decade in low- and middle-income countries, where most cases of cervical cancer occur, if 70% vaccination coverage can be achieved.

- Research to develop vaccines against **herpes and HIV** is advanced, with several vaccine candidates in early clinical development.

Research into vaccines for **chlamydia, gonorrhoea, syphilis** and **trichomoniasis** is in earlier stages of development.

Other biomedical interventions

- Other biomedical interventions to prevent some STIs include adult male circumcision and microbicides.
- Male circumcision reduces the risk of heterosexually acquired HIV infection in men by approximately 60% and provides some protection against other STIs, such as herpes and HPV.
- Tenofovir gel, when used as a vaginal microbicide, has had mixed results in terms of the ability to prevent HIV acquisition, but has shown some effectiveness against HSV-2.

SYPHILIS

Etiology: The bacterium *Treponema pallidum.* It is susceptible to the environment

The source of infection

After an incubation period of 10 to 90 days (three weeks on average) clinical symptoms appear: at first a primary lesion at the site of infection (chancre), then a series of eruptions on mucous membranes and skin (secondary syphilis), followed by long periods of latency (latent or tertiary syphilis). If untreated, many years after the initial infection, tertiary syphilis lesions might finally appear (visceral, multi-organ involvement, including serious vascular and neurological damage).

Route of transmission

By direct contact through infectious exudates of infected persons - most commonly through sexual intercourse (saliva, sperm, blood, vaginal secret).

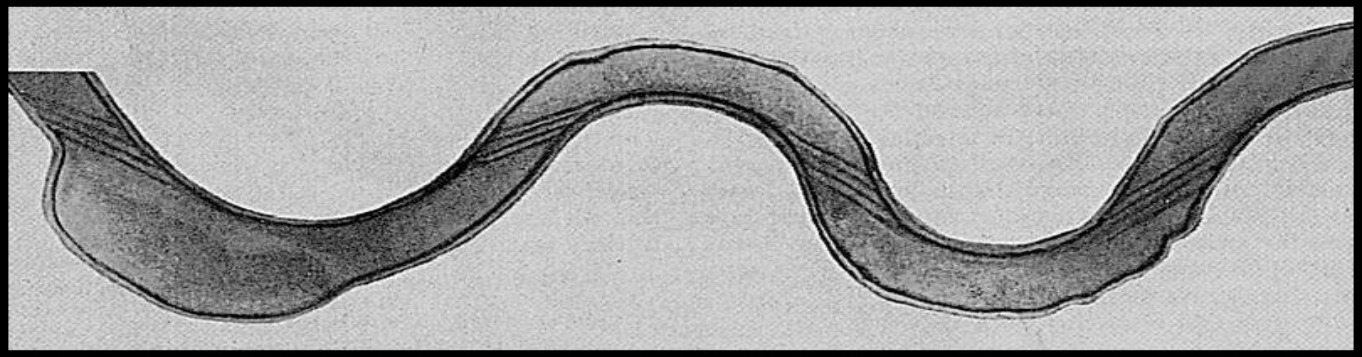
Transmission by blood transfusion - a blood donor in a seronegative stage.

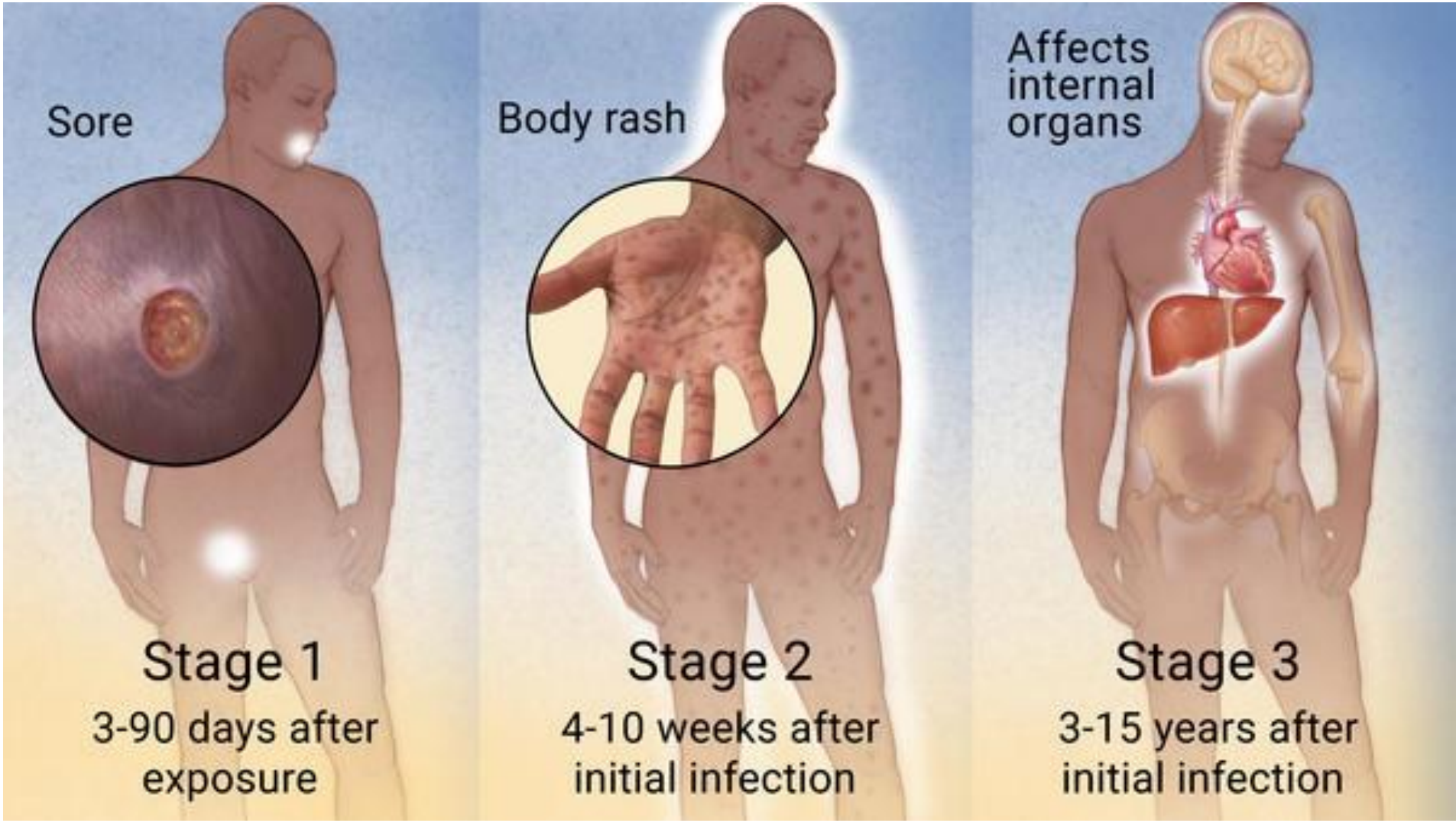
Susceptibility

Transplacental transmission or intranatal infection – (congenital syphilis).

Preventive measures:
Health education aimed at young people. Active search for persons with latent syphilis , and adequate treatment. Serologic examination of females in the early stage of gravidity - prevention of congenital syphilis

Helical structure of *Treponema pallidum* with the periplasmic flagella.





Secondary syphilis with typical skin rash.

SYPHILIS (*Treponema pallidum*)

- **Clinical Criteria**
- — Primary syphilis

Any person with one or several (usually painless) chancres in the genital, perineal, anal area or mouth or pharyngeal mucosa or elsewhere extragenitally

- — Secondary syphilis

Any person with at least one of the following five:

- — Diffuse maculo-papular rash often involving palms and soles
- — Generalised lymphadenopathy
- — Condyloma lata
- — Enanthema
- — Allopetia diffusa
- — Early latent syphilis (< 1 year)

A history of symptoms compatible with those of the earlier stages of syphilis within the previous 12 months

- — Late latent syphilis (> 1 year)

Any person meeting laboratory criteria (specific serological tests)

- **Laboratory Criteria**
- At least one of the following four laboratory tests:

— Demonstration of *Treponema pallidum* in lesion exudates or tissues by dark-field microscopic examination

— Demonstration of *Treponema pallidum* in lesion exudates or tissues by DFA test

— Demonstration of *Treponema* in lesion exudates or tissues by PCR

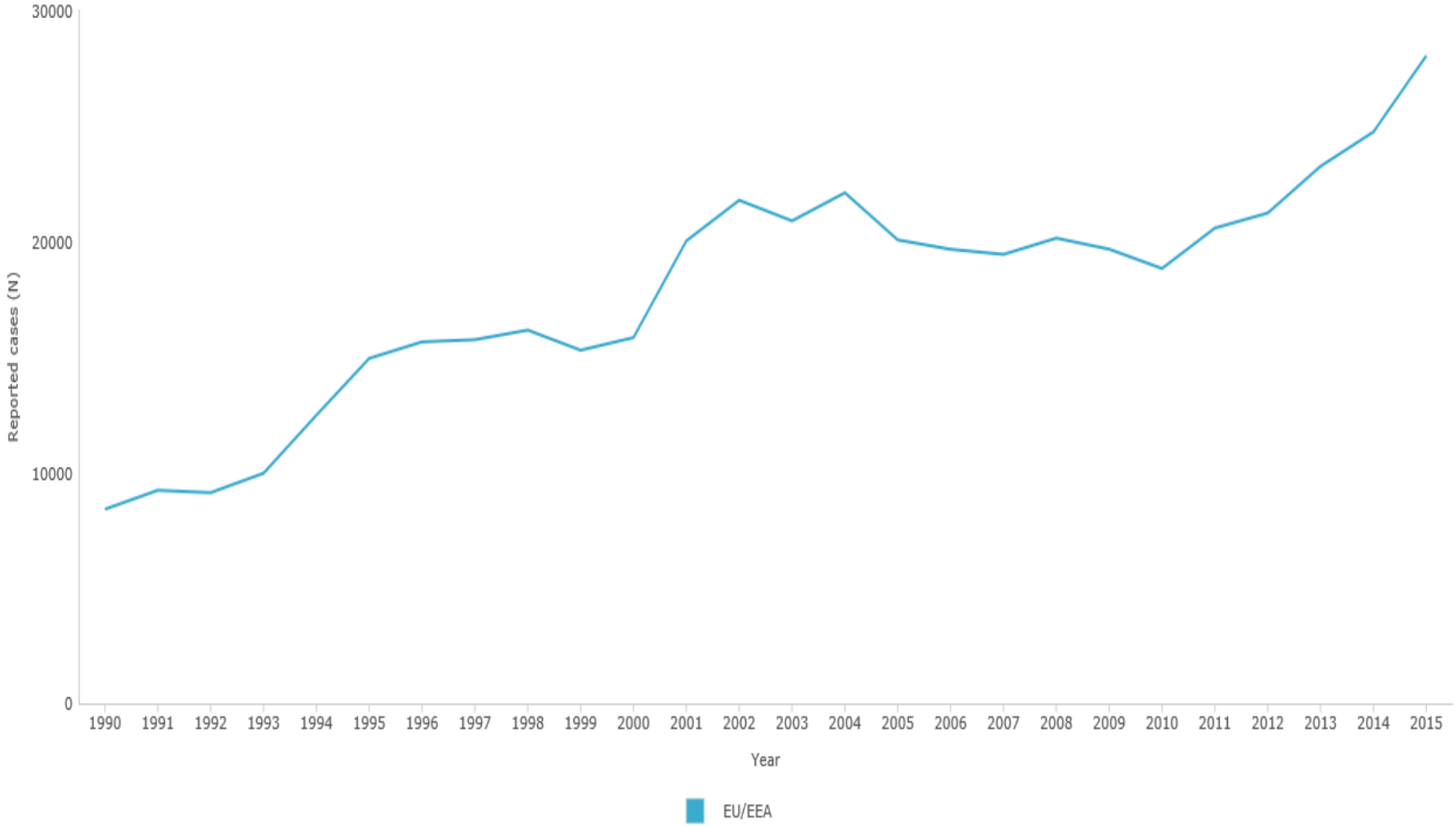
— Detection of *Treponema pallidum* antibodies by screening test (TPHA, TPPA or EIA) AND additionally detection of Tp-IgM antibodies (by IgM-ELISA, IgM immunoblot or 19S-IgM-FTA-abs) — confirmed by a second IgM assay

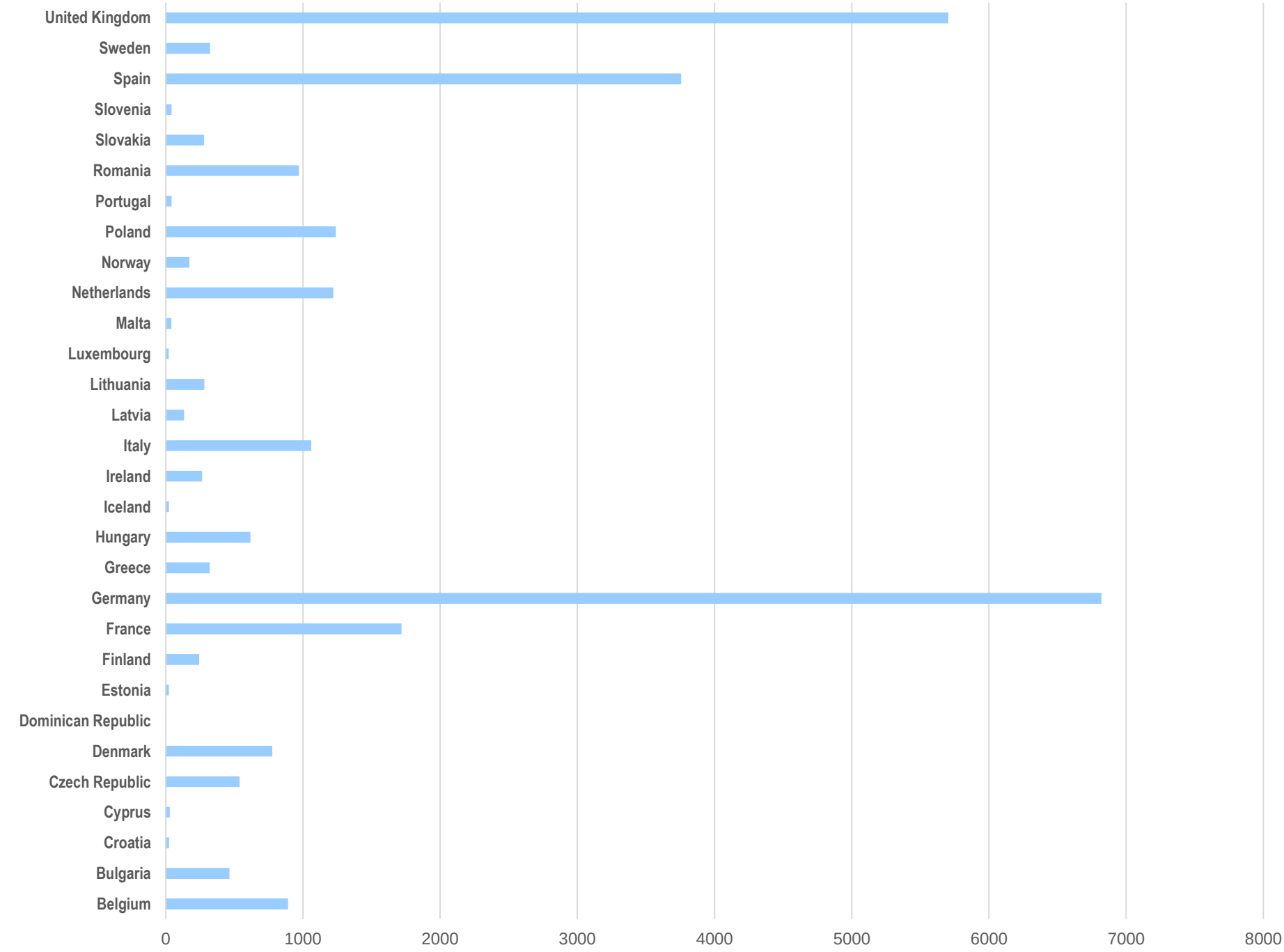
- **Epidemiological Criteria**
- — Primary/secondary syphilis
- An epidemiological link by human to human (sexual contact)
- — Early latent syphilis (< 1 year)
- An epidemiological link by human to human (sexual contact) within the 12 previous months

- **Case Classification**
- A. **Possible case** NA
- B. **Probable case**
- Any person meeting the clinical criteria and with an epidemiological link
- C. **Confirmed case**
- Any person meeting the laboratory criteria for case confirmation

Surveillance Atlas of Infectious Diseases

Syphilis | Confirmed cases | Reported cases | 2015




United Kingdom
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Ireland
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Denmark
Czech Republic
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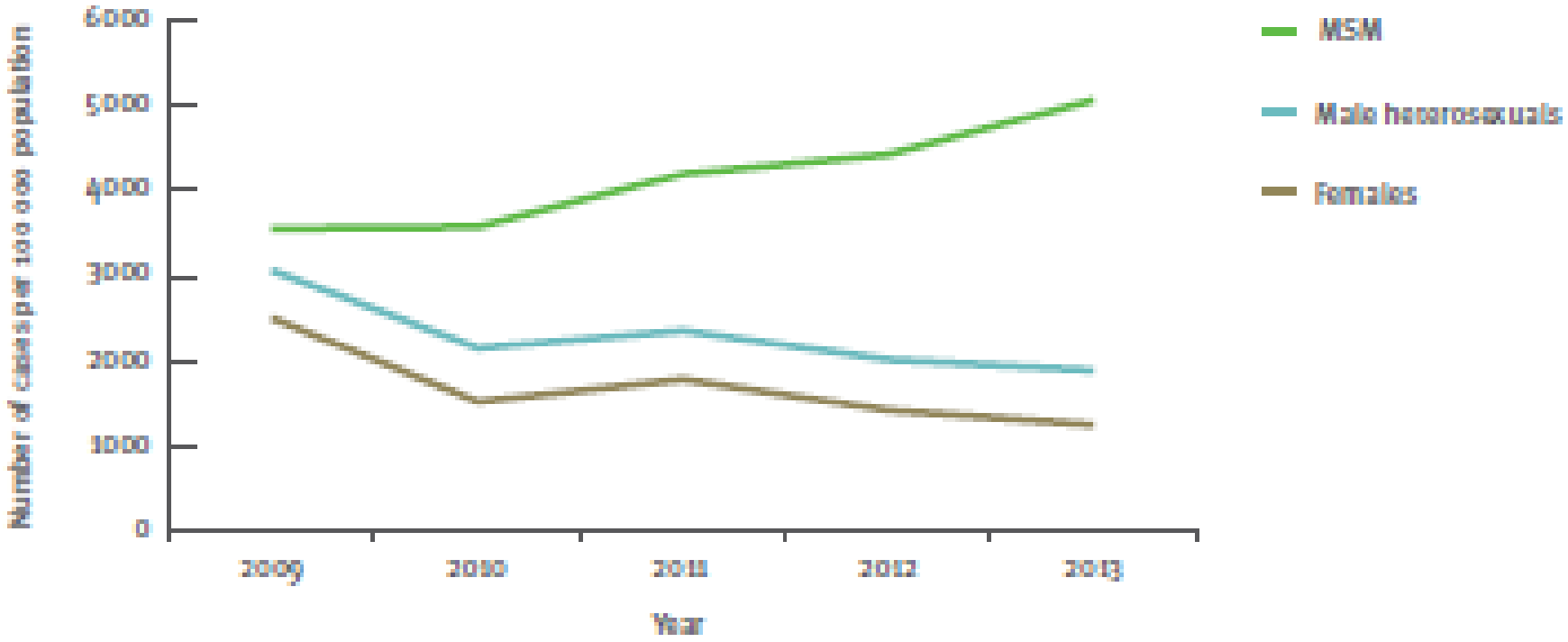
Trend in the number syphillis cases by transmission category, EU/EEA, 2009-2013



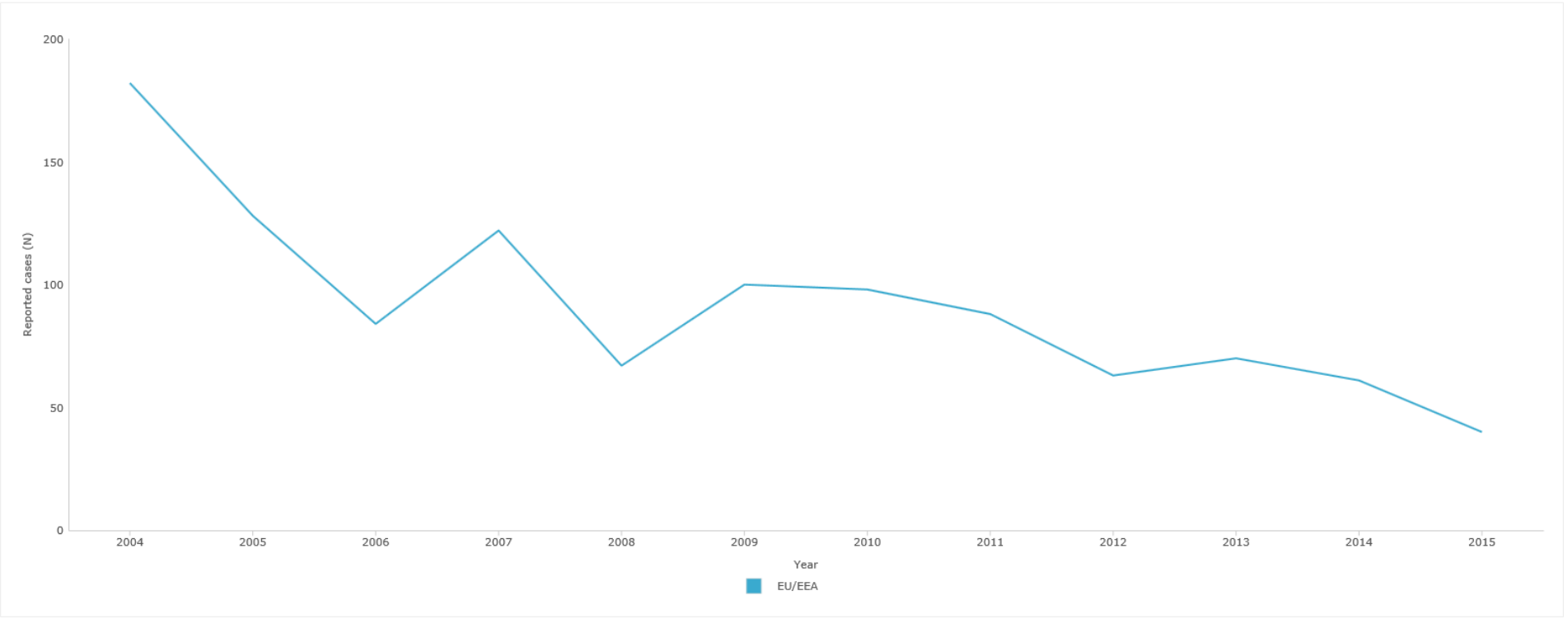
Note: Includes data from the Czech Republic, Denmark, France, Greece, Ireland, Latvia, Lithuania, Malta, the Netherlands, Norway, Romania, Slovenia, Sweden and the United Kingdom.

SYPHILIS, CONGENITAL AND NEONATAL (*Treponema pallidum*)

- **Clinical Criteria**
- Any infant < 2 years of age with at least one of the following 10:
- — Hepatospenomegaly
- — Mucocutaneous lesions
- — Condyloma lata
- — Persistent rhinitis
- — Jaundice
- — Pseudoparalysis (due to periostitis and osteochondritis)
- — Central nervous involvement
- — Anaemia
- — Nephrotic syndrome
- — Malnutrition
- **Laboratory Criteria**
- — Laboratory criteria for case confirmation
- At least one of the following three:
- — Demonstration of *Treponema pallidum* by dark field microscopy in the umbilical cord, the placenta, a nasal discharge or skin lesion material
- — Demonstration of *Treponema pallidum* by DFA-TP in the umbilical cord, the placenta, a nasal discharge or skin lesion material
- — Detection of *Treponema pallidum* — specific IgM (FTA-abs, EIA)
- AND a reactive non-treponemal test (VDRL, RPR) in the child's serum
- — Laboratory criteria for a probable case
- At least one of the following three:
- — Reactive VDRL-CSF test result
- — Reactive non-treponemal and treponemal serologic tests in the mother's serum
- — Infant's non-treponemal antibody titre is four-fold or greater than the antibody titre in the mother's serum
- **Epidemiological Criteria**
- Any infant with an epidemiological link by human to human transmission (vertical transmission)
- **Case Classification**
- A. **Possible case** NA
- B. **Probable case**
- Any infant or child meeting the clinical criteria and with at least one of the following two:
- — An epidemiological link
- — Meeting the laboratory criteria for a probable case
- C. **Confirmed case**
- Any infant meeting the laboratory criteria for case confirmation

Surveillance Atlas of Infectious Diseases

Syphilis, congenital | **Confirmed cases** | **Reported cases** | **2015**



Gonorrhoea

Etiology:

Neisseria gonorrhoeae bacteria..

The source of infection

- Women may experience a yellow or bloody discharge and find urination painful. However, many women with gonorrhoea will have no or mild symptoms. Men may experience a burning sensation when urinating and a pus-like discharge from the penis.
- It may take anywhere from three to 14 days after sexual contact with an infected person to develop symptoms. However, some infected people may not develop any symptoms but can still transmit the infection to sexual partners. Untreated cases may remain infectious from six months to more than one year.

Route of transmission

Gonorrhoea is transmitted through sexual contact including sex without using a condom, vaginal intercourse, anal and oral sex. During sexual intercourse, gonorrhoea is more likely to be transmitted from men to women than from women to men. The infection can also be transmitted from mother-to-child during childbirth.

Susceptibility

General

Preventive measures:

Using a condom and avoiding risky sexual behaviours, like having lots of partners, can protect against getting STIs, including gonorrhoea.

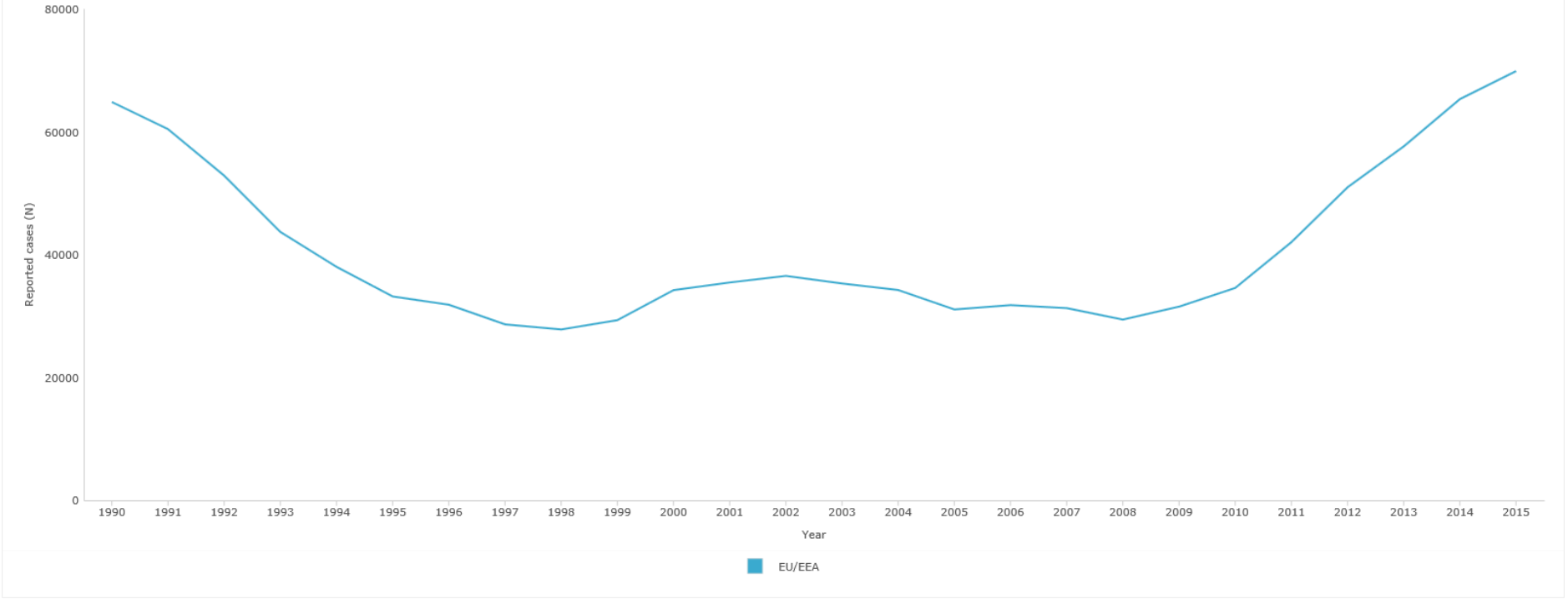
GONORRHOEA (*Neisseria gonorrhoeae*)

- **Clinical Criteria**
- Any person with at least one of the following eight:
- — Urethritis
- — Acute salpingitis
- — Pelvic inflammatory disease
- — Cervicitis
- — Epididymitis
- — Proctitis
- — Pharyngitis
- — Arthritis
- OR
- Any newborn child with conjunctivitis
- **Laboratory Criteria**
- At least one of the following four:
- — Isolation of *Neisseria gonorrhoeae* from a clinical specimen
- — Detection of *Neisseria gonorrhoeae* nucleic acid in a clinical specimen
- — Demonstration of *Neisseria gonorrhoeae* by a non-amplified nucleic acid probe test in a clinical specimen
- — Microscopic detection of intracellular gram negative diploccocci in a urethral male specimen

- **Epidemiological Criteria**
- An epidemiological link by human to human transmission (sexual contact or vertical transmission)
- **Case Classification**
- A. **Possible case** NA
- B. **Probable case**
- Any person meeting the clinical criteria and with an epidemiological link
- C. **Confirmed case**
- Any person meeting the laboratory criteria

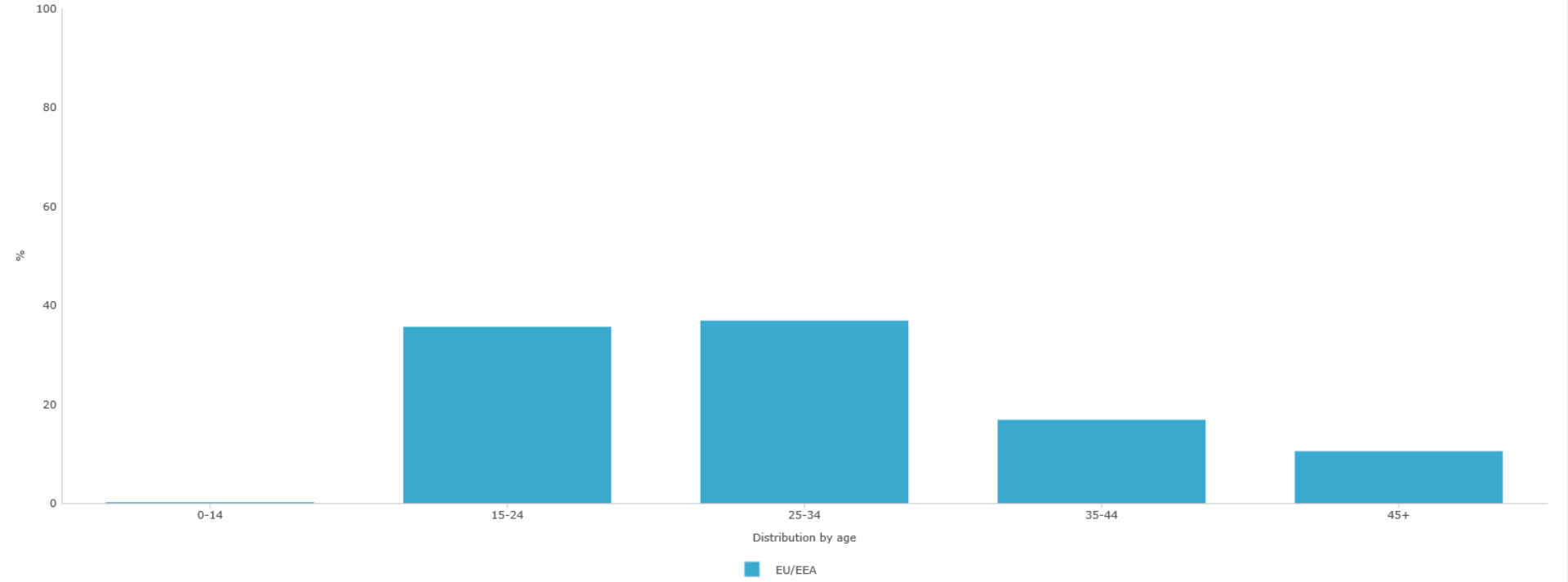
Surveillance Atlas of Infectious Diseases

Gonorrhoea | Disease surveillance | Confirmed cases | Reported cases | 2015

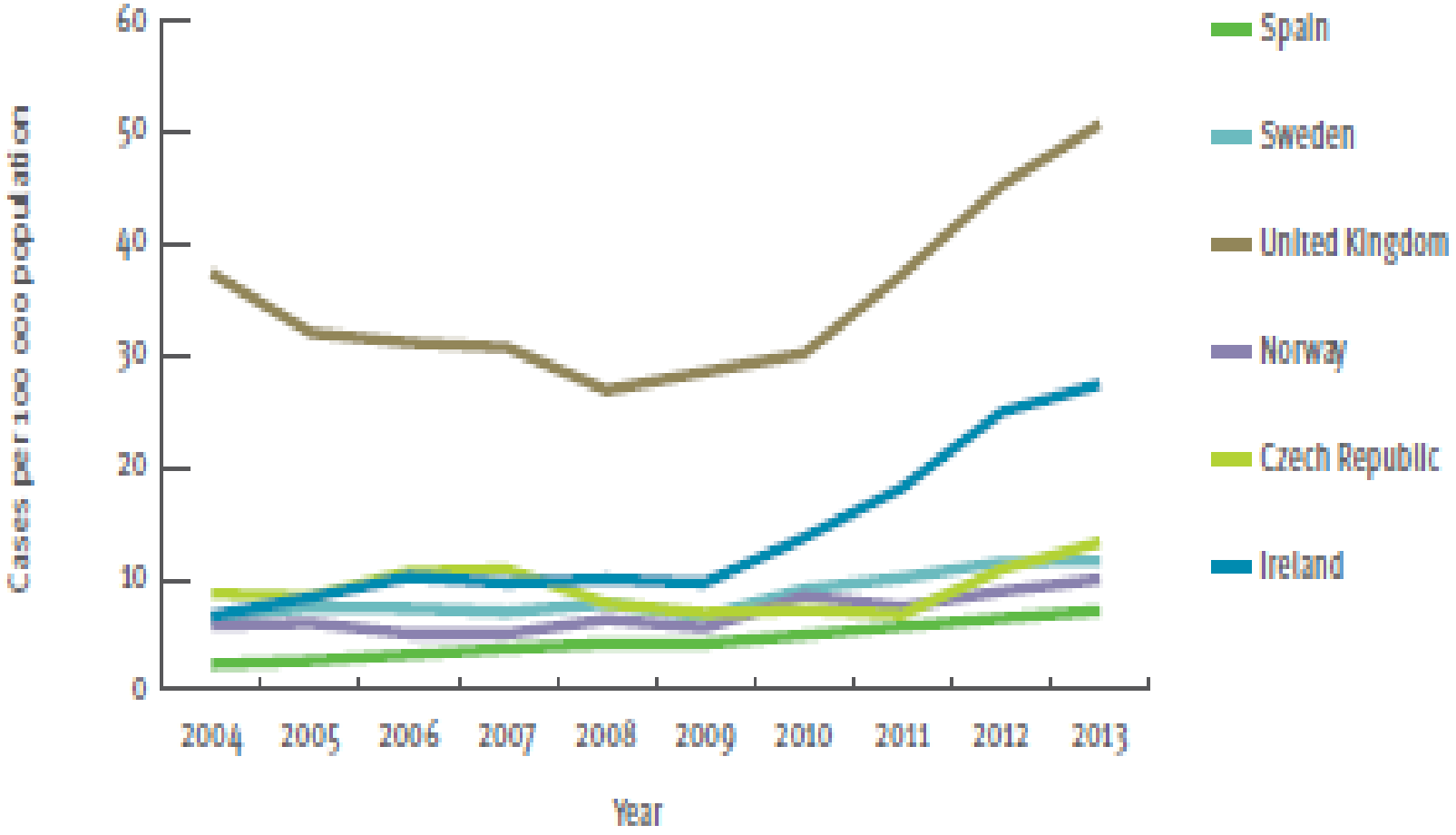


Surveillance Atlas of Infectious Diseases

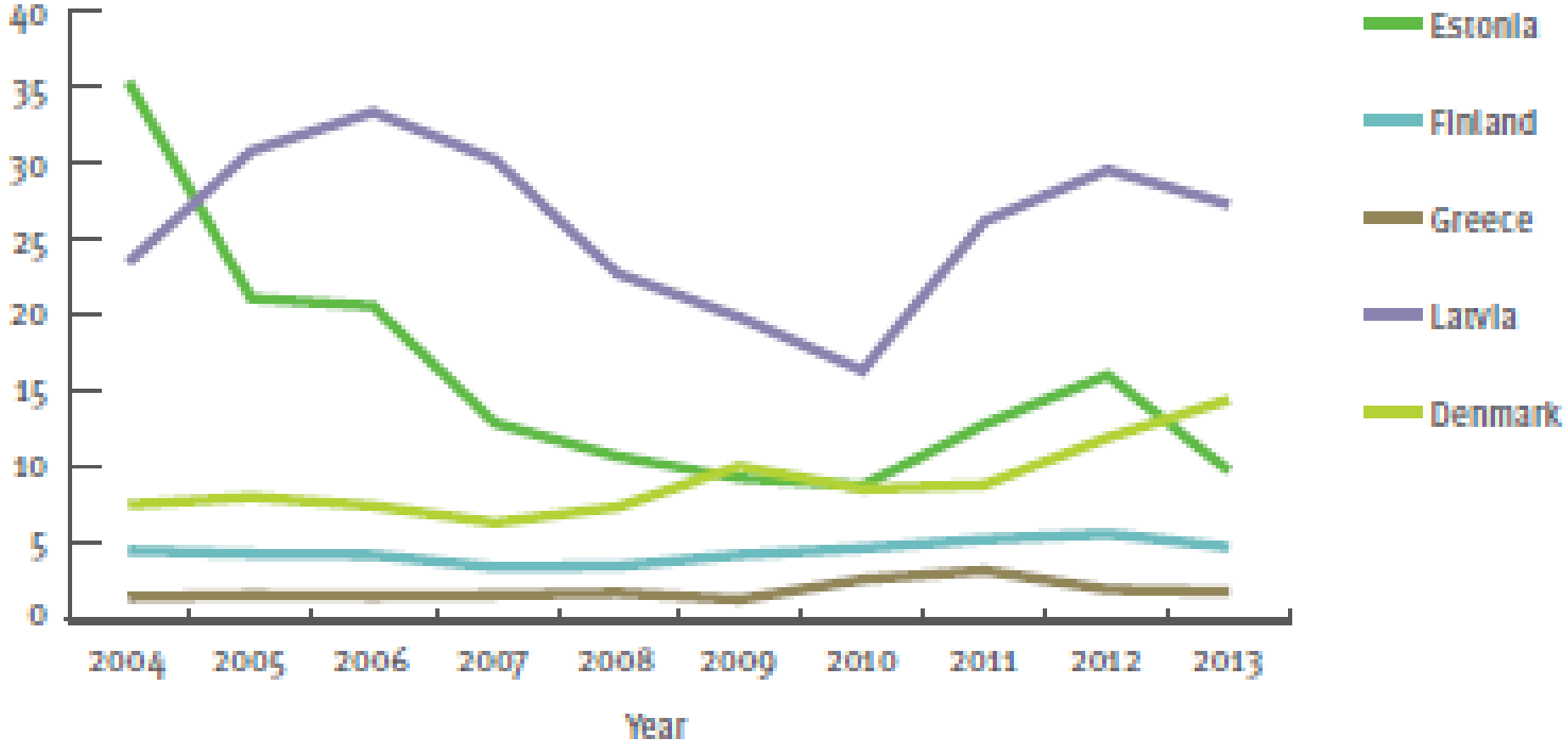
Gonorrhoea | Disease surveillance | Confirmed cases | Reported cases | 2015



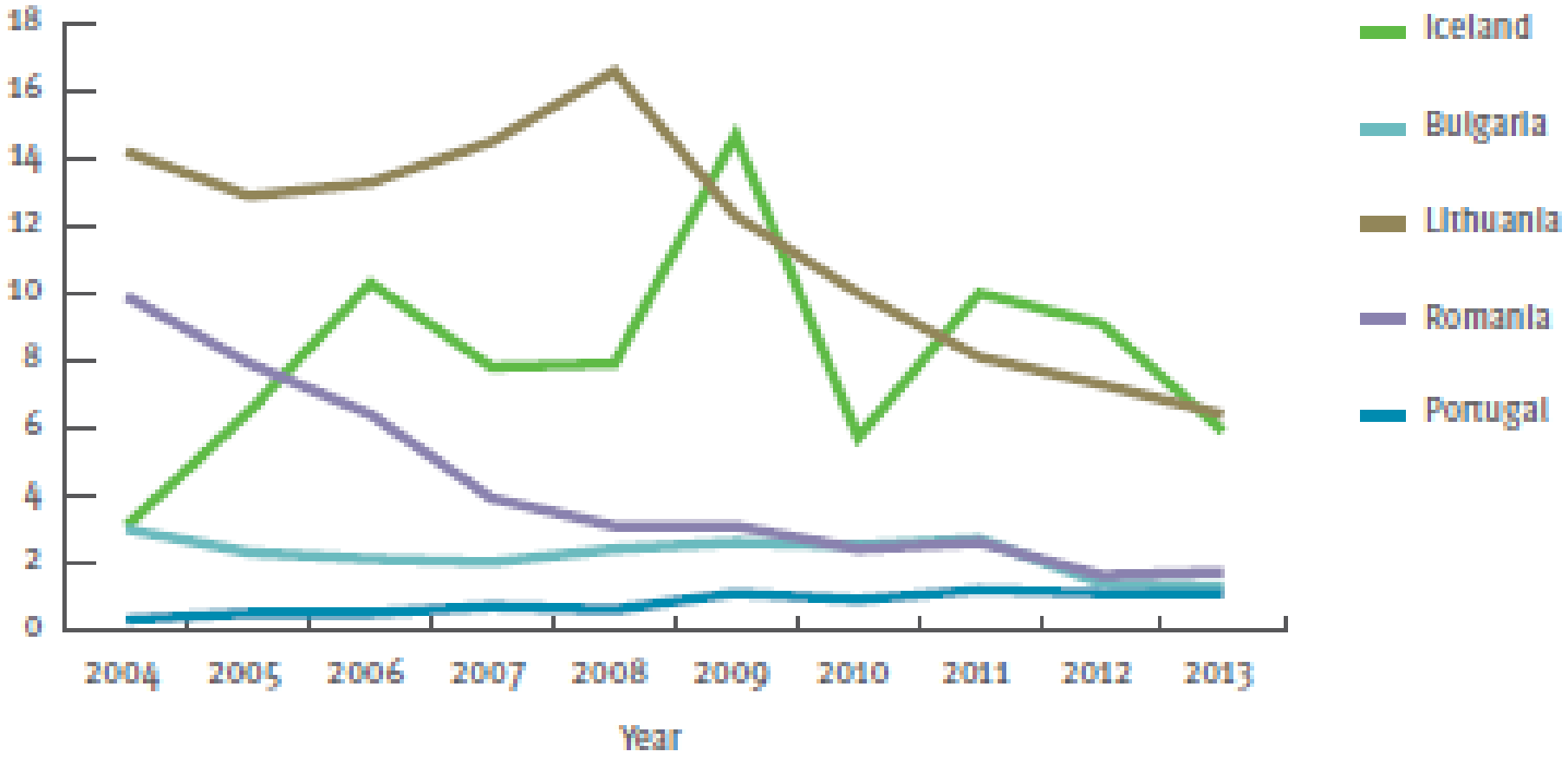
Number of gonorrhea cases per 100 000 population in selected EU/EEA countries, 2004-2013



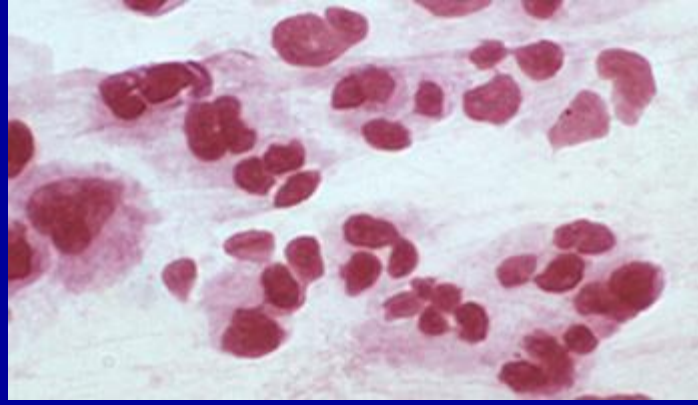
Number of gonorrhea cases per 100 000 population in selected EU/EEA countries, 2004-2013



Number of gonorrhea cases per 100 000 population in selected EU/EEA countries, 2004-2013



Gonorrhoea



Gonorrhoea is a sexually transmitted infection (STI) caused by *Neisseria gonorrhoeae* bacteria. Urethral infections in men and uro-genital infections in women are the main presenting feature, but a broad spectrum of clinical presentations can occur, including systemic dissemination with fever and skin and joint involvement. Throat and ano-rectal infections also occur.

Gonorrhoea

Urethral symptoms and vaginal discharge may appear after a short incubation (2–7 days following exposure), but in women cervicitis may remain without symptoms. Once a diagnosis is made, uncomplicated gonorrhoea is usually cured by a single dose of a suitable antibiotic. Partner notification and treatment is essential to curtail transmission.

Gonorrhoea

Symptoms

Women may experience a yellow or bloody discharge and find urination painful. However, many women with gonorrhoea will have no or mild symptoms. Men may experience a burning sensation when urinating and a pus-like discharge from the penis.

- It may take anywhere from three to 14 days after sexual contact with an infected person to develop symptoms. However, some infected people may not develop any symptoms but can still transmit the infection to sexual partners. Untreated cases may remain infectious from six months to more than one year.

Complications

If left untreated, women can develop pelvic inflammatory disease (PID) as the infection spreads further in the upper genital tract. PID may cause pelvic pain, discharges and bleeding but may also be without specific symptoms. If the infection goes untreated, it can spread further in to the fallopian tubes and lead to ectopic pregnancy or infertility. The infection can then spread even further and affect the abdomen and liver.

Gonorrhoea

Ways to catch gonorrhoea

Gonorrhoea is transmitted through sexual contact including sex without using a condom, vaginal intercourse, anal and oral sex. During sexual intercourse, gonorrhoea is more likely to be transmitted from men to women than from women to men. The infection can also be transmitted from mother-to-child during childbirth.

People most at risk

Those who have had gonorrhoea infection in the past may be re-infected in the future. People particularly at risk include those who have multiple sexual partners and concurrent partnerships; people who don’t use condoms; people whose partners are infected or who have partners with risky sexual behaviour; young people, particularly those under the age of 25; men who have sex with men (MSM); people with a history of sexually transmitted infections (STIs) or who are HIV positive and; commercial sex workers.

Gonorrhoea

Diagnosis

Samples from the genital area of an infected person are examined under a microscope and laboratory tests are carried out to diagnose gonorrhoea. However, because many women with gonorrhoea do not have any symptoms, it can lead to a delay in being diagnosed and getting treatment which, in turn, can lead to complications.

Treatment

Gonorrhoea is caused by bacteria and therefore can be treated with antibiotics. Anyone infected with gonorrhoea should be treated immediately to reduce the chance of spreading the infection further and getting complications. Ideally, all of a patient's recent sexual partners should also be treated immediately.

Chlamydia infection

Etiology:

The obligate intracellular Gram negative bacterium *Chlamydia trachomatis*. *Chlamydia trachomatis* is one of four species in the genus Chlamydia and the family Chlamydiaceae which also include *C. pneumoniae*, *C. psittaci* and *C. pecorum*.

The source of infection

Chlamydia disease surveillance shows that the number of Chlamydia infections is increasing in Europe: there are now more than 250 000 new cases reported each year. Many Chlamydia infections do not produce symptoms, and the growing number of reported cases is likely to be the result of increased awareness about the disease and intensified testing.

Route of transmission

Sexually active young people are most at risk of chlamydia, and women below 24 years of age have the highest number of infections in Europe.

Susceptibility

General

Preventive measures:

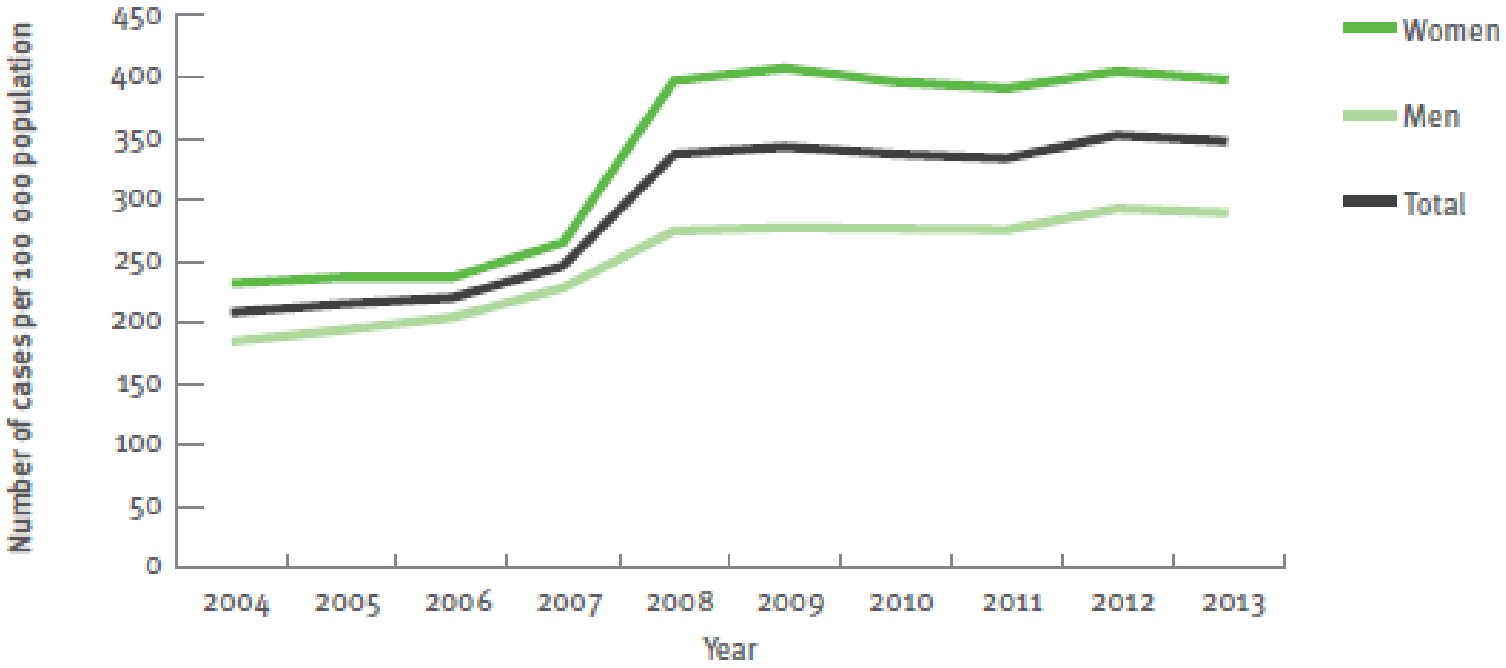
Control of genital chlamydia focuses on reducing sexual risk behaviour, condom use, early diagnosis, and effective management of sexual partners in order to break the chain of transmission.

CHLAMYDIAL INFECTION (*Chlamydia trachomatis*), INCLUDING LYMPHOGRANULOMA VENEREUM (LGV)

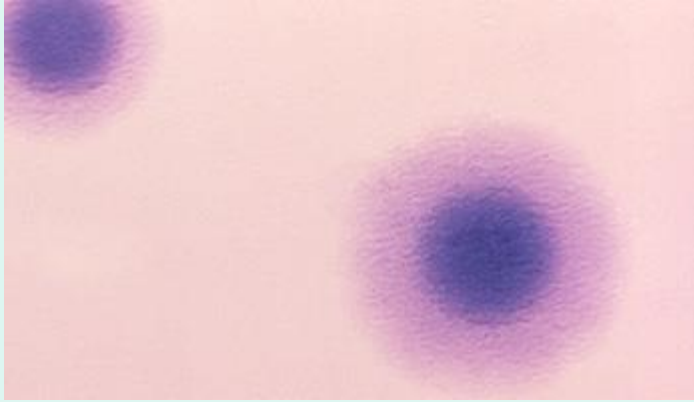
- **Clinical Criteria**
- Any person with at least one of the following clinical forms:
- *Chlamydial infection non-LGV*
- At least one of the following six:
- — Urethritis
- — Epididymitis
- — Acute salpingitis
- — Acute endometritis
- — Cervicitis
- — Proctitis
- In newborn children at least one of the following two:
- — Conjunctivitis
- — Pneumonia
- *LGV*
- At least one of the following five:
- — Urethritis
- — Genital ulcer
- — Inguinal lymphadenopathy
- — Cervicitis
- — Proctitis

- **Laboratory Criteria**
- *Chlamydial infection non-LGV*
- At least one of the following three:
- — Isolation of *Chlamydia trachomatis* from a specimen of the ano-genital tract or from the conjunctiva
- — Demonstration of *Chlamydia trachomatis* by DFA test in a clinical specimen
- — Detection of *Chlamydia trachomatis* nucleic acid in a clinical specimen
- *LGV*
- At least one of the following two:
- — Isolation of *Chlamydia trachomatis* from a specimen of the ano-genital tract or from the conjunctiva
- — Detection of *Chlamydia trachomatis* nucleic acid in a clinical specimen
- AND
- — Identification of serovar (genovar) L1, L2 or L3
- **Epidemiological Criteria**
- An epidemiological link by human to human transmission (sexual contact or vertical transmission)
- **Case Classification**
- A. **Possible case** NA
- B. **Probable case**
- Any person meeting the clinical criteria and with an epidemiological link
- C. **Confirmed case**
- Any person meeting the laboratory criteriaEN 27.9.2012 Official Journal of the European Union L 262/9

Figure 1.5: Reported chlamydia cases per 100 000 population in nine EU/EEA countries with consistent reporting, by gender, 2004–2013



Chlamydia infections (genital)



Genital chlamydia is the leading sexually transmitted infection in Europe and the cause of considerable acute morbidity and long term reproductive health problems, particularly in young people. Many infections are asymptomatic resulting in delayed diagnosis and uninterrupted transmission. Chlamydia salpingitis can cause tubal adhesions and is an important risk factor for female infertility and extra-uterine pregnancy. It is an important cause of pelvic inflammatory disease. Chlamydia is under epidemiological surveillance within the EU. The reported national incidence rates vary widely and most of the more than 250 000 cases reported to ECDC for 2007 were notified by only five countries. The number of reported cases reflects the intensity of testing rather than true differences in disease burden.

Chlamydia infections (genital)

The pathogen

- Genital chlamydia is caused by the obligate intracellular Gram negative bacterium *Chlamydia trachomatis*.
- *Chlamydia trachomatis* is one of four species in the genus Chlamydia and the family Chlamydiaceae which also include *C. pneumoniae*, *C. psittaci* and *C. pecorum*.
- *Chlamydia trachomatis* causes acute eye infections, trachoma, genital infections and the more invasive sexually transmitted infection; lymphogranuloma venereum (LGV).
- The strains that cause eye and genital infections are labelled D through K and grow only in the columnar and squamo-columnar epithelial cells that make up the conjunctivae and the mucosa in the respiratory tract, urethra, cervix and rectum.
- Lymphogranuloma venereum is caused by the invasive L1, L2 and L3 strains of C. trachomatis, sometimes referred to as the LGV serovars.

Chlamydia infections (genital)

Clinical features and sequelae

- Genital infections with *C. trachomatis* present as urethritis and proctitis in men and women, cervicitis, salpingitis, endometritis and pelvic inflammatory disease (PID) in women, and orchitis, epididymitis and prostatitis in men.
- Perinatal transmission of *C. trachomatis* can result in conjunctivitis (ophthalmia neonatorum) and pneumonia in newborns and young infants.
- Conjunctivitis and respiratory infections can be the result of contact with contaminated hands, or direct exposure to semen and vaginal fluids.
- At least 70% of genital *C. trachomatis* infections in women and 50% in men are asymptomatic at the time of diagnosis.
- The natural course of genital chlamydia infections is not well understood:
  - Spontaneous resolution of asymptomatic infections is not uncommon.
  - Asymptomatic infections, particularly endocervical infections, can persist for long periods.
  - Many patients with asymptomatic infections will at some point develop symptoms and clinical disease.
  - Asymptomatic infections can result in complications such as blocked tubes and pelvic inflammatory disease.
- Lymphogranuloma venereum (LGV) affects both men and women.

Chlamydia infections (genital)

Urethritis

- Symptoms include urgency, frequency, burning sensation and pain when passing urine in both men and women.
- Dysuria in women often reflects concurrent urethral and endocervical infections.
- Acute urethral syndrome is a condition with symptoms suggestive of lower urinary tract infection in the absence of significant bacteruria (< 105 organisms/ ml of urine) that can be caused by *C. trachomatis*.
- In men, genital chlamydia typically presents as dysuria and urethral discharge. The discharge tends to be less profuse than that produced by gonococcal infections, but there is significant overlap between the two diseases and chlamydia cannot be distinguished clinically from gonorrhoea or other causes of urethritis.
- Only about half of genital *C. trachomatis* infections in men are symptomatic. In one study in which infected men were observed without treatment for a minimum of 21 days, one in eight developed symptomatic urethritis.
- Some 30% to 50% of non-gonococcal urethritis is believed to be due to *C. trachomatis*.

Chlamydia infections (genital)

Cervicitis

- Endocervical chlamydia infections present as vaginal discharge, bleeding between periods, mild abdominal pain, and often dysuria.
- Seven out of ten women with endocervical infection have no or only mild symptoms that may not prompt medical contact.
- About half of all genital chlamydia infections in women are concurrent urethral and cervical infections.

Salpingitis

- Salpingitis is typically the result of an ascending lower reproductive tract infection and can be symptomatic or without clinical signs and symptoms.
- Symptoms include fever, discomfort and pain in the lower abdomen, and tenderness on palpation.

Proctitis

- Proctitis manifests as anal pruritis and rectal discharge. The infection is limited to the rectum and resembles gonococcal proctitis.
- Asymptomatic rectal infections are common.
- *C. trachomatis* is a common cause of proctitis in men who have sex with men. Proctitis can result from direct inoculation of the rectum in both men and women through anal intercourse, or through secondary spread of secretions from the cervix.

Chlamydia: High numbers, low awareness

1. Chlamydia is the most common sexually transmitted infection in Europe and particularly affects young people.
Chlamydia is the most frequently reported sexually transmitted infection in Europe, and the number of cases is steadily increasing. It disproportionately affects young people. Studies have shown that up to 10% of sexually active people younger than 25 years are infected.

2. Chlamydia can have long-term consequences for sexual and reproductive health.
Untreated chlamydia can have serious reproductive health consequences for women. Both asymptomatic and symptomatic chlamydia infections can result in blockage of the Fallopian tubes, a leading cause of difficulties becoming pregnant (tubal infertility) and pregnancy outside of the womb (ectopic pregnancy).

3. Chlamydia can be controlled through prevention, case finding and effective case management.
Easy access to STI services for young people, rapid diagnosis and treatment, contact tracing, and partner management are key components of successful chlamydia control programmes. Active case-finding, which should include opportunistic testing and contact tracing, should target young and sexually active people.

Human papillomavirus infection

Etiology:

HPV is a group of viruses, of which more than 100 types have been described. About 40 of them can infect the genitals.

HPV 16 and HPV 18 are the most common types, causing about 70 percent of all cases of cervical cancer. ‘Low risk’ HPV types, most commonly HPV 6 and HPV 11, are responsible of about 90% of cases of condylomata acuminata (genital warts).

The source of infection

Cervical cancer is the second most common cancer after breast cancer to affect women aged 15–44 years in the European Union. Each year, there are around 33 000 cases of cervical cancer in the EU, and 15 000 deaths. The primary cause of cervical cancer is a persistent infection of the genital tract by some specific types of human papillomavirus (HPV). HPV is present in most cases of cervical lesions, which can further develop into cancer.

Route of transmission

Sexual contact.

Susceptibility

general

Sexually active young people are most at risk of chlamydia, and women below 24 years of age have the highest number of infections in Europe.

Preventive measures:

Two prophylactic HPV vaccines have been licensed in Europe, a bivalent and a quadrivalent vaccine: both have a good safety profile and protect against the high-risk HPV types 16 and 18. The quadrivalent vaccine also protects against HPV 6 and 11. Both vaccines have been shown to prevent more than 90% of precancerous lesions associated with HPV 16 and 18.
The vaccines are given in three doses over a six-month period. They do not cure existing infections and should therefore be given before onset of sexual activity.

Genital warts

- **are…**
- …various sorts of warts found on or around the penis, anus or vagina caused by the human papilloma virus (HPV).

Symptoms

- They can be small pimples, smooth-topped pimples or nodules or large outward-growing masses and may cause itching, bleeding or mild burning.

Genital warts

- **Symptoms**
- They can be small pimples, smooth-topped pimples or nodules or large outward-growing masses and may cause itching, bleeding or mild burning.
- **Complications**
- Complications are unusual. Once genital warts have developed they can show minimal change over time, get larger or reduce spontaneously.

Genital warts

- **Ways to catch genital warts**
- Genital warts are passed on through direct skin-to-skin contact, usually during sexual activity.
- **People most at risk**
- Genital warts are one of the most common viral, sexually transmitted infections (STIs) and are strongly associated with having a high number of sexual partners and having unprotected sex without using a condom. They are most common among young adults aged 16–24. The majority of genital warts cases are acquired through heterosexual sex, although rates are increasing in men who have sex with men (MSM).

Genital warts

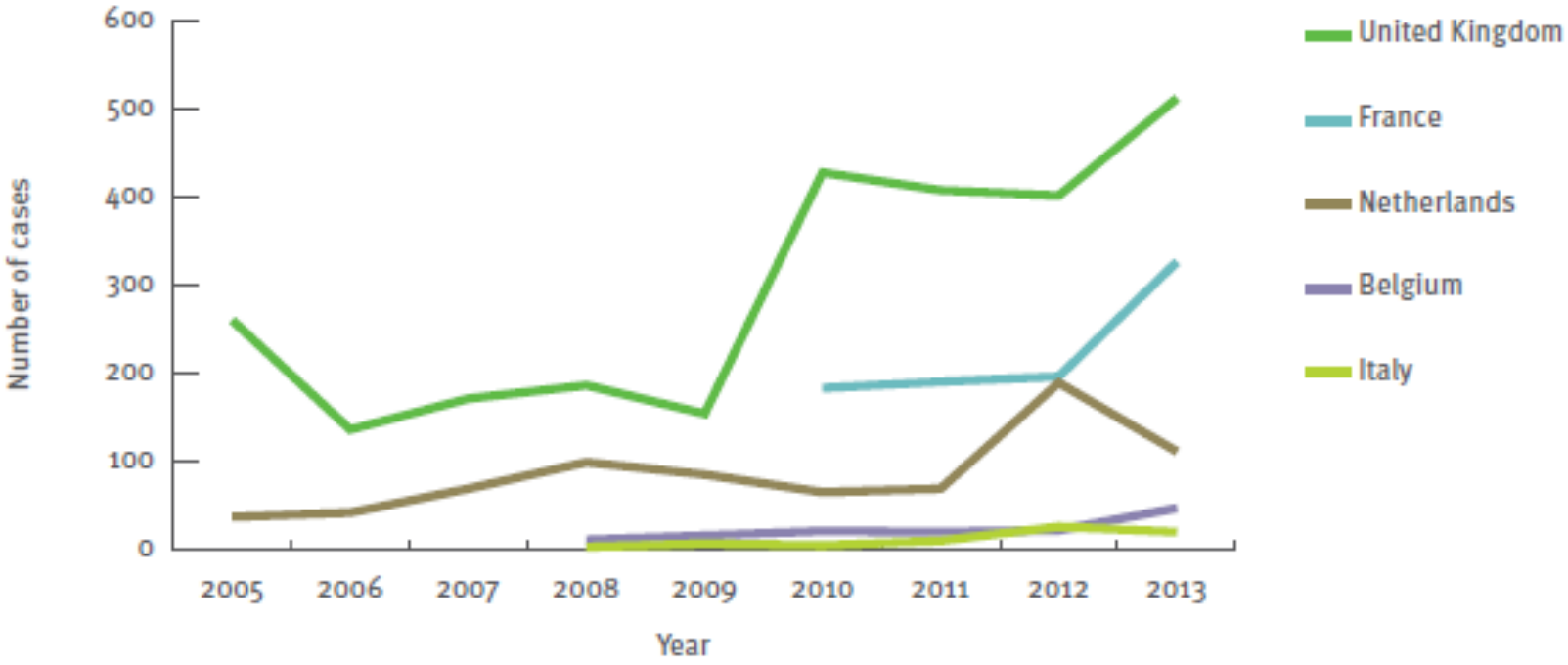
- **Diagnosis**
- Diagnosis of warts is based on a doctor examining the clinical symptoms.
- **Treatment**
- A number of treatments are available for genital warts, although there is not one specific treatment that will completely get rid of the HPV or stop warts from recurring in future. Treatment choice depends on the form, structure and extent of the warts and the patient’s choice.

Genital warts

- **How to avoid getting genital warts**
- There is one HPV vaccine that protects against the virus strain that is responsible for most genital warts. The use of condoms may not prevent HPV infection but can considerably reduce the risk.
- **What to do if you have genital warts**
- Screening for other sexually transmitted infections is recommended in patients who have genital warts. Current sexual partners could also have undetected warts or other STIs and may benefit from testing.

LGV

Figure 5.1: Number of reported LGV cases in five EU countries, 2005–2013



Note: Of the displayed countries, only the United Kingdom has a comprehensive surveillance system for LGV.