

## UNPROTECTED SEX IN DENMARK: INFECTION RISK

No. 36, 2007

The occurrence of several sexually transmitted infections (STIs) is rising continuously. Correct use of condoms eliminates or reduces the infection risk and is the primary form of STI prophylaxis. HIV, gonorrhoea, hepatitis B and syphilis are notifiable and notification includes epidemiological data, whereas chlamydia is reported as a laboratory finding. The remaining STIs are not notifiable. Therefore, our knowledge of the prevalence of each STI varies. Many STIs are asymptomatic in the early stages and only diagnosed as the disease progresses or if complications arise.

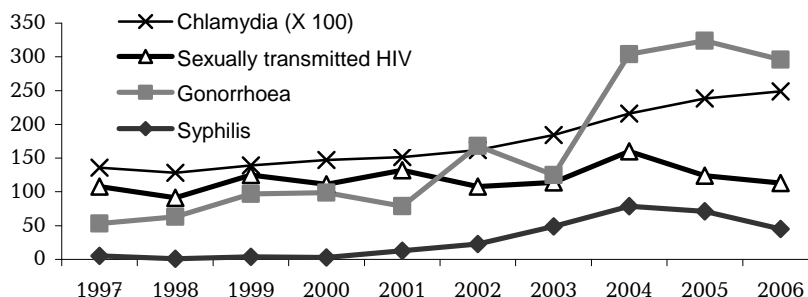
**Condyloma** (venereal warts) are caused by human papilloma virus (HPV) and is one of the most frequently occurring STIs. Nearly all sexually active persons will become infected at some point. The prevalence of HPV infection is highest among young persons below 30 years (20-30%). Chronic HPV infection with some HPV types may develop into cervical and anal cancer. Condyloma may be transmitted from several anatomical locations. Correct use of condoms provides approximately 70% protection against HPV transference from the penis to the vagina/rectum. A vaccine against the most frequent cause of cervix cancer and condylomas is available; HPV 6,11,16 and 18, EPI-NEWS 34/07.

**Chlamydia** (laboratory-confirmed) has increased during the last eight years, [Figure 1](#), and in 2006 nearly 25,000 cases were diagnosed, EPI-NEWS 19/07. It is not known how many were infected in Denmark. Chlamydia is particularly prevalent in 15-29-year-olds. Only approx. 40% of the cases are found in males, but this is probably a reflection of the fact that fewer males than females are tested. It is assumed that the disease is considerably more widespread among heterosexual males and females than among men who have sex with men (MSM).

**Mycoplasma genitalium** (Mg) is, apart from chlamydia, probably the most frequent bacterial STI in Denmark. It is assumed that 8-10,000 persons are infected. Mg cases are often slightly older than chlamydia cases, but the infection symptomatology is largely identical. However, the late consequences of Mg are less well elucidated.

The occurrence of **gonorrhoea** increased during 1997-2004, but has remained stable since, [Figure 1](#). In 2006, 414 cases were notified of which 296 had been acquired in

**Figure 1. Notified cases of sexually transmitted Chlamydia, HIV, syphilis and gonorrhoea acquired in Denmark, 1997-2006**



Denmark. Nearly half (45%) were MSM cases, the majority of which (91%) were Danes.

Among the heterosexually infected, 88% were Danes, 78 males and 56 females. Among immigrants there was an equal distribution on males and females. The median age was 30 years.

**Genital herpes** is acquired by vaginal or anal intercourse (most frequently HSV-2) or by oral sex (most frequently HSV-1). Latent infection is common. Approximately 80% have antibodies against type 1 and 30% against type 2. Condoms only provide partial protection against infection.

**Syphilis** was extremely rare in Denmark in the 1990s. From 2000 the incidence rose in connection with an outbreak among MSMs, but from 2004 it decreased again, [Figure 1](#). In 2006, 76 syphilis cases were notified, of which 45 had been acquired in Denmark. Among these, the majority (91%) were MSMs, mainly (83%) Danes. The median age was 35 years.

**HIV** was notified as an STI in 226 cases during 2006, including 113 cases of infection within Denmark. The number of notifications has varied between years, [Figure 1](#), but has only displayed insignificant changes over the latest ten years. MSMs constituted 61% of the notified cases. Among these the majority (91%) were Danes. Three quarters of the heterosexually infected patients were Danes. Their median age was 40 years.

**Lymphogranuloma venereum** (LGV) is caused by specific sero-/genotypes of *Chlamydia trachomatis*. Since 2004 LGV epidemics have occurred among (primarily HIV-positive) MSMs in several European cities, EPI-NEWS 18/07. Up to and including 2006, no cases had been found in Denmark, but this year four cases have been diagnosed at present, three inguinal and one anorectal.

**Hepatitis B** was notified as an STI in

13 cases infected in Denmark in 2006. One was an MSM and the remaining cases were heterosexually infected.

#### Commentary

Risk profiles are not identical for all STIs and not all population groups have the same risk of acquiring each STI.

**MSM** is the group most frequently notified with HIV, syphilis and gonorrhoea. As is the case for young heterosexuals, young MSMs are at risk becoming infected with chlamydia and HPV. Furthermore, HIV-positive MSMs may comprise an LGV risk group.

**Young heterosexual** females and males have a particularly high risk of becoming infected with chlamydia, Mg, herpes and HPV when having sex without using a condom. HIV, syphilis and gonorrhoea are infrequent in the younger age groups.

**Immigrants** are not infected more frequently than Danes. Nearly all HIV positive immigrants were infected before arriving to Denmark. Immigrant MSMs have the same STI risk as Danish MSMs.

**Heterosexual adults** are at risk of becoming infected with Mg, but have a very limited risk of infection with other STIs provided they do not have unprotected sex with partners from the risk groups (immigrants from Africa/Asia, bisexual males, prostitutes, etc.) To avoid STI and undesirable pregnancies, the National Board of Health will, in cooperation with the municipalities, launch a campaign to further the use of condoms among the young. The campaign will run in weeks 36 and 37.

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#### CHIKUNGUNYA VIRUS IN ITALY

See reverse.

## Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2007 figures are preliminary)

| Table 1                        | Week 35<br>2007 | Cum.<br>2007 <sup>1)</sup> | Cum.<br>2006 <sup>1)</sup> |
|--------------------------------|-----------------|----------------------------|----------------------------|
| AIDS                           | 0               | 36                         | 31                         |
| Anthrax                        | 0               | 0                          | 0                          |
| Botulism                       | 0               | 0                          | 0                          |
| Cholera                        | 0               | 0                          | 0                          |
| Creutzfeldt-Jakob              | 0               | 6                          | 14                         |
| Diphtheria                     | 0               | 0                          | 0                          |
| Food-borne diseases            | 31              | 399                        | 360                        |
| of these, infected abroad      | 10              | 78                         | 86                         |
| Gonorrhoea                     | 8               | 247                        | 306                        |
| Haemorrhagic fever             | 0               | 0                          | 0                          |
| Hepatitis A                    | 0               | 17                         | 21                         |
| of these, infected abroad      | 0               | 6                          | 10                         |
| Hepatitis B (acute)            | 1               | 18                         | 13                         |
| Hepatitis B (chronic)          | 0               | 189                        | 236                        |
| Hepatitis C (acute)            | 0               | 4                          | 6                          |
| Hepatitis C (chronic)          | 0               | 249                        | 362                        |
| HIV                            | 1               | 191                        | 152                        |
| Legionella pneumonia           | 3               | 69                         | 73                         |
| of these, infected abroad      | 0               | 16                         | 19                         |
| Leprosy                        | 0               | 0                          | 0                          |
| Leptospirosis                  | 1               | 8                          | 7                          |
| Measles                        | 0               | 2                          | 26                         |
| Meningococcal disease          | 1               | 50                         | 57                         |
| of these, group B              | 0               | 27                         | 28                         |
| of these, group C              | 1               | 17                         | 11                         |
| of these, unspec. + other      | 0               | 6                          | 18                         |
| Mumps                          | 0               | 3                          | 12                         |
| Neuroborreliosis               | 1               | 53                         | 34                         |
| Ornithosis                     | 0               | 7                          | 8                          |
| Pertussis (children < 2 years) | 3               | 49                         | 35                         |
| Plague                         | 0               | 0                          | 0                          |
| Polio                          | 0               | 0                          | 0                          |
| Purulent meningitis            |                 |                            |                            |
| Haemophilus influenzae         | 0               | 2                          | 1                          |
| Listeria monocytogenes         | 1               | 8                          | 7                          |
| Streptococcus pneumoniae       | 0               | 80                         | 66                         |
| Other aethiology               | 1               | 11                         | 6                          |
| Unknown aethiology             | 0               | 10                         | 16                         |
| Under registration             | 0               | 10                         | -                          |
| Rabies                         | 0               | 0                          | 0                          |
| Rubella (congenital)           | 0               | 0                          | 0                          |
| Rubella (during pregnancy)     | 0               | 0                          | 0                          |
| Shigellosis                    | 38              | 97                         | 41                         |
| of these, infected abroad      | 1               | 26                         | 36                         |
| Syphilis                       | 0               | 65                         | 50                         |
| Tetanus                        | 0               | 0                          | 2                          |
| Tuberculosis                   | 6               | 280                        | 253                        |
| Typhoid/paratyphoid fever      | 1               | 13                         | 19                         |
| of these, infected abroad      | 1               | 12                         | 19                         |
| Typhus exanthematicus          | 0               | 2                          | 0                          |
| VTEC/HUS                       | 5               | 109                        | 95                         |
| of these, infected abroad      | 1               | 31                         | 32                         |

<sup>1)</sup> Cumulative number 2007 and in corresponding period 2006

## Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received in SSI laboratories

| Table 2                                | Week 35<br>2007 | Cum.<br>2007 <sup>2)</sup> | Cum.<br>2006 <sup>2)</sup> |
|--|-----------------|----------------------------|----------------------------|
| Bordetella pertussis<br>(all ages)     |                 |                            |                            |
| Gonococci                              | 6               | 253                        | 295                        |
| of these, females                      | 2               | 39                         | 53                         |
| of these, males                        | 4               | 214                        | 242                        |
| Listeria monocytogenes                 | 1               | 35                         | 35                         |
| Mycoplasma pneumoniae                  |                 |                            |                            |
| Resp. specimens <sup>3)</sup>          | 3               | 261                        | 282                        |
| Serum specimens <sup>4)</sup>          | 3               | 310                        | 253                        |
| Streptococci <sup>5)</sup>             |                 |                            |                            |
| Group A streptococci                   |                 |                            |                            |
| Group B streptococci                   |                 |                            |                            |
| Group C streptococci                   |                 |                            |                            |
| Group G streptococci                   |                 |                            |                            |
| S. pneumoniae                          |                 |                            |                            |
| Table 3                                | Week 33<br>2007 | Cum.<br>2007 <sup>2)</sup> | Cum.<br>2006 <sup>2)</sup> |
| MRSA                                   | 8               | 372                        | -                          |
| Pathogenic int. bacteria <sup>6)</sup> |                 |                            |                            |
| Campylobacter                          | 161             | 2443                       | 1870                       |
| S. Enteritidis                         | 18              | 325                        | 349                        |
| S. Typhimurium                         | 13              | 208                        | 237                        |
| Other zoon. salmonella                 | 9               | 436                        | 387                        |
| Yersinia enterocolitica                | 4               | 172                        | 114                        |
| Verocytotoxin-<br>producing E. coli    | 0               | 106                        | 95                         |
| Enteropathogenic E. coli               | 7               | 115                        | 159                        |
| Enterotoxigenic E. coli                | 11              | 154                        | 156                        |

<sup>2)</sup> Cumulative number 2007 and in corresponding period 2006

<sup>3)</sup> Resp. specimens with positive PCR

<sup>4)</sup> Serum specimens with pos. complement fixation test

<sup>5)</sup> Isolated in blood or spinal fluid

<sup>6)</sup> See also [www.germ.dk](http://www.germ.dk)

## Transmission of chikungunya virus in Italy

From the beginning of July to the beginning of September 2007, the Emilia Romagna region of Northern Italy has reported 151 cases with chikungunya virus symptoms, including 27 laboratory confirmed cases. The first patient was presumably infected in India and the presence of aedes albopictus mosquitoes has facilitated further infection of inhabitants of two minor towns in the Ravenna area. The outbreak appears to have peaked. The Italian authorities have initiated intensified monitoring and mosquito control in the area. The ECDC ([www.ecdc.eu.int](http://www.ecdc.eu.int)) estimates that further cases may occur, but that the risk that the virus may spread to other parts of Europe where the aedes albopictus mosquito occurs is low. This type of mosquito has not been found in Denmark. No restrictions apply in connection with travels to countries where the chikungunya virus occurs, but travellers are recommended mosquito bite protection.

(Department of Epidemiology)