EPI-NEWS
NATIONAL SURVEILLANCE OF COMMUNICABLE DISEASES

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TOXOPLASMOSIS

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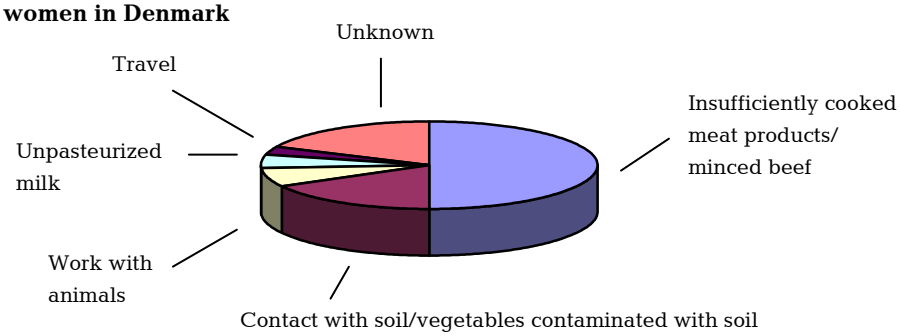
Occurrence
Toxoplasma gondii (T. gondii) is widespread in most parts of the world. The overall incidence of toxoplasmosis in Denmark is unknown, but a study from 1995 found that about 28% of pregnant Danish women were seropositive. About 10-20 cases of congenital toxoplasmosis are detected annually in Denmark.

Mode of transmission
Cats are the main host for the parasite. They excrete oocysts with their faeces, which may contaminate fields, kitchen gardens, sandboxes, etc. The oocysts are infectious after approximately two days. Subsequently, intermediate hosts such as small rodents, larger animals and humans are infected. Infection of humans may occur through ingestion of meat, milk or soil-contaminated foodstuffs containing live parasites, through occupational contact with infected animals, blood transfusion or organ transplantation, or transplacentally in the event of maternal infection during pregnancy. Risk factors for infection among pregnant Danish women are shown in figure 1. The most important sources of infection are insufficiently cooked meat dishes and other meat products, as well as vegetables contaminated with soil. Contact with cats constitutes a minor proportion.

Precautions in pregnancy
Pregnant women should avoid ingestion of meat products that have not been adequately cooked or frozen. Similarly, caution should be exercised in occupational contact with animals. Skinning of animals must not be performed by non-immune persons. Cat litter boxes should be cleaned daily so that oocysts in cat faeces do not reach the infectious stage. Pregnant women should not perform this work; if necessary, disposable gloves and god hand hygiene should be used.

Clinical presentation
Acquired toxoplasmosis has a subclinical course in about 85% of cases, particularly in adults, where the resting cyst stage may persist for life, eg in musculature, CNS and eyes. Clinical cases are manifested mainly via generalised lymphadenopathy, possibly accompanied by fever. In immunosuppressed persons, a reactivation of earlier acquired infection can occur. In rare cases, this may lead to encephalitis, hepatitis, myocarditis and pneumonia.

Figure 1. Risk factors for infection with Toxoplasma gondii among pregnant women in Denmark



Congenital toxoplasmosis is manifested by symptoms of varying degree of severity, but about 80% of the children are asymptomatic at birth. Far from all infected pregnant women transmit the infection to the fetus. The rate of transmission is increased from about 6% to 72% between the 13th and 36th weeks of pregnancy. The risk of transplacental transmission is thus highest in the third trimester, but conversely, the risk of severe sequelae is highest in cases of early infection. Chorioretinitis is often seen, more rarely hydrocephalus, intracranial calcifications, developmental disturbances and retardation. If congenital toxoplasmosis is not treated, most of the children will later develop chorioretinitis with risk of impaired vision or blindness. Treatment of toxoplasmosis is a specialist task.

Diagnostics
Detection of the parasite: By PCR or by injection of patient material into mice. These investigations are relevant on suspicion of acute infection or reactivation of previous infection in immunocompromised patients. The parasite can then be detected in blood, spinal fluid or lymph node biopsies. PCR is also used for investigation of amniotic fluid on suspicion of transplacental infection.
Antibodies: As T. gondii is not always found in blood or tissue, serological diagnostics may be used. In acute infection, T. gondii-specific IgM antibodies can be measured 2-3 weeks after infection and for the following approx. six months, in occasional cases for up to one year. Specific IgG antibodies can be detected a little later than IgM antibodies and can be measured throughout life. In addition, T. gondii specific IgA antibodies can be measured.
On suspicion of recent infection in pregnant women, extended antibody investigation is recommended to narrow down the time of infection:
1) Dye test for detection of a rise in IgG, based on antibody complement lysation of cultured intact parasites.
2) ISAGA IgM test, which is an extra sensitive and specific test for T. gondii specific IgM.
3) IgG avidity test for investigation of the presence of IgG with high avidity, which is seen in about 70% of all infected persons after 3-4 months. If IgG with high avidity is detected in a pregnant woman within the first 16 weeks of pregnancy, it is estimated that there is no risk of transplacental transmission. On suspicion of CNS or eye infection, detection of T. gondii may be supplemented with analysis of intrathecal synthesis of IgG antibodies determined by the ratio between locally produced IgG and the total amount of IgG in the blood.
All neonates are investigated for congenital toxoplasmosis by measurement of IgM in the PKU blood test. On positive findings, confirmatory antibody test is performed in mother and child.

Comments
Investigation for toxoplasmosis is important in case of suspicion of acute infection in pregnant women or reactivation of previous infection in immunosuppressed patients. The diagnosis in these cases may have consequences for treatment. In others, it may be important to make the diagnosis in order to exclude other pathogenesis. In addition, screening of neonates is vital, as sequelae such as loss of vision may be prevented. Testing of pregnant women is recommended only on clinical suspicion or after occupational exposure. If there is an indication for testing a pregnant woman, the extended antibody investigation is recommended.
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16 March 2005

Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2005 figures are preliminary)

Table 1	Week 10 2005	Cum. 2005 [1)]	Cum. 2004 [1)]
AIDS	2	20	6
Creutzfeldt-Jakob	0	1	2
Food-borne diseases	6	61	66
of these, infected abroad	2	13	11
Gonorrhoea	10	137	62
Hepatitis A	1	27	22
of these, infected abroad	0	7	4
Hepatitis B (acute)	1	12	4
Hepatitis B (chronic)	8	31	38
Hepatitis C (acute)	0	1	1
Hepatitis C (chronic)	9	60	82
HIV	3	62	60
Legionella pneumonia	1	16	16
of these, infected abroad	0	2	2
Leptospirosis	0	5	1
Meningococcal disease	0	15	27
of these, group B	0	10	18
of these, group C	0	1	3
of these, unspec. + other	0	4	6
Mumps	1	3	0
Neuroborreliosis	0	14	44
Ornithosis	0	4	2
Pertussis (children < 2 years)	1	55	44
Purulent meningitis			
Haemophilus influenzae	0	0	0
Listeria monocytogenes	0	0	1
Streptococcus pneumoniae	1	19	27
Other aethiology	0	0	2
Unknown aethiology	0	1	4
Under registration	7	24	-
Shigellosis	2	22	16
of these, infected abroad	2	21	13
Syphilis	3	17	36
Tetanus	0	2	0
Tuberculosis	5	82	68
Typhoid/paratyphoid fever	1	5	4
of these, infected abroad	0	2	3
VTEC/HUS	3	26	26
of these, infected abroad	1	13	4

Table 1, notes
In 2005, none of the following cases have been reported: Anthrax, botulism, cholera, diphtheria, haemorrhagic fever, leprosy, measles, plague, polio, rabies, rubella, typhus.
1) Cumulative no. 2005 and corresponding period 2004

Tables 2 & 3, notes
2) Cumulative no. 2005 and corresponding period 2004
3) Respiratory specimens with positive PCR
4) Serum specimens with pos. complement fixation test, MPT
5) Isolated in blood or spinal fluid
6) See also www.germ.dk

Patients with laboratory diagnosed RSV and rotavirus infections

4th quarter 2004 compared with 4th quarter 2003

	RSV		Rotavirus	
	2004	2003	2004	2003
October	10	9	16	17
November	23	14	23	4
December	201	39	85	8
Total	234	62	124	29

Reported from Departments of Clinical Microbiology at:

Herning Hospital, Hvidovre Hospital, Slagelse Hospital, Viborg Hospital, Aalborg Hospital, Aarhus Hospital, and the Department of Virology, SSI

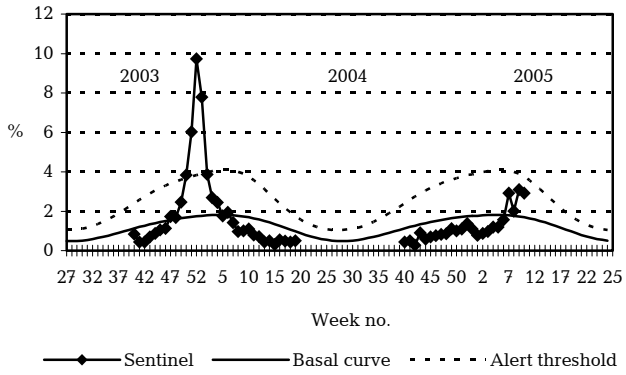
Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received at Statens Serum Institut

Table 2	Week 10 2005	Cum. 2005 [2)]	Cum. 2004 [2)]
Bordetella pertussis (all ages)	17	172	160
Gonococci	8	91	56
of these, females	3	13	11
of these, males	5	78	45
Listeria monocytogenes	1	7	5
Mycoplasma pneumoniae			
Resp. specimens *3)*	25	497	39
Serum specimens *4)*	15	341	115
Streptococci *5)*			
Group A streptococci	3	32	31
Group B streptococci	0	9	13
Group C streptococci	0	5	5
Group G streptococci	2	32	13
S. pneumoniae	40	312	351
Table 3	**Week 8 2005**	**Cum. 2005 [2)]**	**Cum. 2004 [2)]**
Pathogenic int. bacteria *6)*			
Campylobacter	35	360	341
S. Enteritidis	6	42	47
S. Typhimurium	2	57	45
Other zoon. salmonella	16	66	67
Yersinia enterocolitica	4	36	25

Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2003/2004/2005



Sentinel:	Influenza consultations (as percentage of total consultations)
Basal curve:	Expected frequency of consultations under non-epidemic conditions
Alert threshold:	Possible incipient epidemic