EPI-NEWS
NATIONAL SURVEILLANCE OF COMMUNICABLE DISEASES

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CHICKENPOX AND VACCINATION

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The disease
Chickenpox is caused by varicella zoster virus (VZV), a herpes virus. After an incubation time of 10-21 days, the disease becomes clinically manifest with headache, mild fever and mildly affected general condition. Subsequently, a rash will appear, making chickenpox easily recognisable for physician and layperson: vesicles resembling water droplets appear in a series of crops in the course of a week, starting on the face and trunk, and finally covering the whole body. The individual vesicles dry out after 1-2 days, bursting to leave a crust. The disease lasts 1-2 weeks, but the virus remains in nerve ganglia and may later be reactivated as herpes zoster (shingles).

Mode of transmission and route of infection
The mode of transmission is airborne, as well as direct and indirect contact, primarily from the vesicles. Both in the primary illness (varicella/chickenpox) and on reactivation of virus (herpes zoster/shingles) the patient is infective; in the case of herpes zoster, however, only through close direct contact. According to the Danish National Board of Health's guidelines "Infectious diseases in children", a child may attend an institution when it is healthy and non-infectious, i.e. when there have been no new vesicles appearing for two days, and all vesicles are covered with a crust.

Complications
Chickenpox is normally a mild children's disease. Recent calculations among immunocompetent children have shown complications in 3.5-5% in the form of bacterial super-infection, e.g. skin infection, otitis media and pneumonia. Rare, severe complications may include encephalitis and ataxia, and very seldom viral pneumonia.
Special risk groups:
Adults, particularly pregnant women, and premature babies have an increased risk of complications, particularly viral pneumonia. In immunosuppressed patients, there is an even higher incidence of complications, and in about 10% of leukaemia patients, chickenpox has a fatal course.

Immunity
Having had chickenpox provides life-long immunity. The level of immunity in Western societies is about 98% in the adult population, but lower in tropical areas (30-50%). There is a strong association between the recollection of previous chickenpox illness and antibodies to chickenpox, and it is thus usually not recommended to measure antibodies.

Treatment
Uncomplicated chickenpox normally requires only symptomatic treatment. Antiviral treatment of the special risk groups should be initiated immediately when the rash appears, preferably within the first 24 hours. VZV is less sensitive to the antiviral agents than e.g. Herpes Simplex Virus, and a larger dose should thus be given.

Vaccination
The vaccine protection rate against the development of illness is about 85%, and more than 95% against the development of severe illness. Immunity after vaccination is thought to be long-lasting. Chickenpox vaccination has been introduced into some countries' childhood vaccination programmes, including Japan, the U. S. and recently Germany. In Denmark, the authorities have chosen to await experience from countries such as the United States before a potential introduction of the vaccine into the Danish childhood vaccination programme. Special attention is focused on the incidence of herpes zoster in a vaccinated population.

Indications for vaccination
The vaccine is used primarily for VZV-seronegative children before organ transplantation or in children with leukaemia (after assessment by a specialist). These children can also be protected by immunising seronegative family contacts. In addition, the vaccine may be given to VZV-seronegative adults, if there is a special reason for this, e.g. women in the fertile age. For non-immune healthy children over the age of one, vaccination may be considered, e.g. in connection with the completion of vaccination commenced elsewhere or before stationing.

Post-exposure prophylaxis
Varicella vaccine can be used as post-exposure prophylaxis if given within three days after exposure. In healthy persons, the vaccine will then protect about 95% against the development of illness in relation to the specific exposure. If the vaccine is given up to five days after exposure, several studies show protection of 100% against the development of severe illness. Post-exposure prophylaxis with Varicella Zoster Immunoglobulin (VZIG): EPI-NEWS 04/00.

Contraindications
Vaccination should be postponed in the event of fever and acute illness. Vaccination of persons with impaired immunity is a specialist assignment. Vaccination is contraindicated after previous systemic allergic reaction to any of the ingredients of the vaccine, but not after skin hypersensitivity to neomycin. Chickenpox vaccine must not be administered to pregnant women, and pregnancy should be avoided for three months after vaccination. In 350 reported cases where the vaccine was unintentionally given to pregnant women, malformations were not detected in the embryo. There is still insufficient experience in the field of vaccination of breastfeeding women.

Administration
The vaccine can be given from the age of 1 year.
Children < 13 years are given one dose subcutaneously.
Children $\geq$ 13 years and adults are given two doses subcutaneously at an interval of 4-8 weeks.
The varicella vaccine is an attenuated live virus, and should thus either be administered together with other attenuated live viruses, e.g. the MMR vaccine, or with an interval of one month. There should be a minimum interval of three months between the administration of VZIG, other immunoglobulin preparations or blood transfusion and varicella vaccination.

Side effects
Mild fever with erythema and tenderness at the injection site are common side effects. In about 3%, a mild chickenpox-like rash with few vesicles will develop. A vesicular rash at the site of injection rarely develops. To date, there have been reports of only three cases of infection from these rashes, after vaccination of healthy individuals. Immunosuppressed patients are more commonly infectious after vaccination. Serious side effects such as ataxia, anaphylaxis or thrombocytopenia are very seldom reported.

(K. Qureshi, P. H. Andersen,
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Individually notifiable diseases

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

Table 1	Week 4 2005	Cum. 2005 [1]	Cum. 2004 [1]
AIDS	3	7	3
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob			
Diphtheria	0	0	0
Food-borne diseases	5	22	27
of these, infected abroad	2	7	4
Gonorrhoea	71	90	32
Haemorrhagic fever	0	0	0
Hepatitis A	3	11	3
of these, infected abroad	1	2	0
Hepatitis B (acute)	2	5	2
Hepatitis B (chronic)	2	7	22
Hepatitis C (acute)	0	1	0
Hepatitis C (chronic)	7	15	33
HIV	0	14	21
Legionella pneumonia	1	9	12
of these, infected abroad	0	2	1
Leprosy	0	0	0
Leptospirosis	0	1	1
Measles	0	0	0
Meningococcal disease	0	2	10
of these, group B	0	2	8
of these, group C	0	0	0
of these, unspec. + other	0	0	2
Mumps	0	0	0
Neuroborreliosis	2	10	12
Ornithosis	1	2	1
Pertussis (children < 2 years)	5	23	20
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	0	0
Listeria monocytogenes	0	0	0
Streptococcus pneumoniae	1	3	12
Other aethiology	0	0	0
Unknown aethiology	0	0	1
Under registration	5	21	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	2	6	7
of these, infected abroad	1	4	7
Syphilis	3	6	18
Tetanus	2	2	0
Tuberculosis	6	26	23
Typhoid/paratyphoid fever	0	3	3
of these, infected abroad	0	2	2
Typhus	0	0	0
VTEC/HUS	4	13	10
of these, infected abroad	4	7	2

[1] Cumulative number 2005 and in corresponding period 2004

Selected laboratory diagnosed infections

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

Table 2	Week 4 2005	Cum. 2005 [2]	Cum. 2004 [2]
Bordetella pertussis			
(all ages)	19	83	70
Gonococci	6	35	15
of these, females	3	4	4
of these, males	3	31	11
Listeria monocytogenes	1	5	1
Mycoplasma pneumoniae			
Resp. specimens [3]	68	307	15
Serum specimens [4]	52	161	44
Streptococci [5]			
Group A streptococci	3	10	18
Group C streptococci	1	1	1
Group G streptococci	4	13	4
S. pneumoniae	16	124	157
Table 3	**Week 2 2005**	**Cum. 2005 [2]**	**Cum. 2004 [2]**
Pathogenic int. bacteria [6]			
Campylobacter	51	105	68
S. Enteritidis	1	8	10
S. Typhimurium	6	15	11
Other zoon. salmonella	9	18	14
Yersinia enterocolitica	5	11	6

[2] Cumulative number 2005 and corresponding period 2004

[3] Resp. specimens with positive PCR

[4] Serum specimens with pos. complement fixation test, MPT

[5] Isolated in blood or spinal fluid

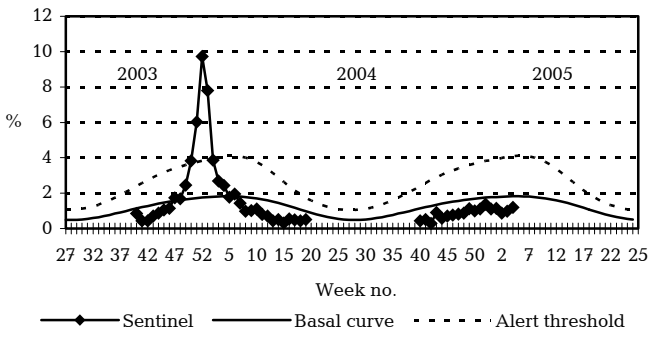
[6] See also www.germ.dk

Additional comment

The high number of received gonorrhea notifications is due to delayed forwarding of notifications from a single hospital in the period September-December 2004.

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

2 February 2005