



## INFECTIOUS DISEASES 2008

No. 1/2, 2009

### Improved vaccination programme

In 2008 the Danish vaccination programme was reinforced with an offer of free human papillomavirus (HPV) vaccination. The offer became available on 1 October 2008 in the form of a catch-up programme focused at girls born in 1993, 1994 and 1995, EPI-NEWS 35/08. The substantial number of vaccines handed out indicates that the catch-up programme has been well-received. On 1 January 2009 the HPV vaccine became part of the general childhood vaccination programme and all girls are now eligible for free vaccination from the age of 12 to the age of 15 years. Letters offering the vaccine are currently being sent to all girls born in 1996.

It is essential to achieve high vaccination coverage and not least to ensure that the girls receive all three vaccinations. HPV vaccination should not be conceived as a replacement for cervical cancer screening, but rather as a supplementary measure in the overall efforts to prevent cervical cancer. If the screening programme's coverage is reduced, cervical cancer caused by non-vaccine HPV types will be diagnosed late and will, in consequence, be harder to treat. Such a development would weaken the overall efforts against cervical cancer.

As from 1 April 2008, MMR 2 vaccination was advanced to the four-year examination to increase herd immunity, EPI-NEWS 9/08. The need to intensify such efforts is emphasised by minor Danish measles outbreaks and particularly by massive outbreaks in other European countries. The risk of infection with measles when travelling abroad is real, and in connection with travels to areas where measles is endemic, MMR vaccination is recommended to children above the age of 9 months and to adults who have not previously been infected or vaccinated, EPI-NEWS 25/06.

Given the ongoing development of the vaccination programme, quality assurance and assessment of effects and costs are pivotal. It is therefore encouraging that 2008 saw the decision to establish a national vaccination register. The register will be set up as a cooperative initiative with participation from the Danish Medicines Agency, the National Board of Health and Statens Serum Institut.

### Salmonella status

In 2008 the Danes have endured an unusually high number of salmonella infections. Currently, 3,621 cases have been registered in 2008 vs. 1,659 in 2007 - i.e. 1,962 (118%) cases more than in 2007. A total of 1,200 of these cases were caused by *Salmonella* Typhimurium U292. The search for the source of infection causing this outbreak has been and remains intensive. A number of methods have been applied: detailed patient interviews, case control studies, retrieval of electronic shopping data, sampling from affected families (refrigerator sampling) and from companies and livestock farms under suspicion. The main hypothesis is that the U292 outbreak was caused by fresh pork or other pork products. This hypothesis is supported by the previous finding of the related types in swine farms and two current findings of the outbreak type in fresh pork. Furthermore, the interviewed patients have a general preference for pork.

It may seem strange that the intense and substantial efforts have not yielded a more precise clarification of the causes for the U292 outbreak. The case-control method is best suited to identify sources of infection which are individual products to which healthy persons are not frequently exposed. The U292 outbreak is probably not caused by a single product and the case-control method is therefore less suited for the resolution of the current than for previous outbreaks. Pork dishes or cold cut meat assortments represent exposures encountered by most Danes, barring persons who generally avoid ingesting pork. Consequently, it may be hard to distinguish cases from controls.

A major paradox, which has become apparent as the efforts to resolve the outbreak have evolved, is the finding of U292 in a very limited number of livestock and foodstuffs given the size of the outbreak. Proportionality is generally expected between the number of persons presenting with salmonella of a given type and the number of findings of that type in live stock and food-producing companies. Several circumstances may explain the paradox. Possibly, part of the outbreak can be attributed to contamination at a company abroad, which primarily produces foods for

the Danish market; alternatively, the contaminated foods may form part of a larger consignment of foodstuffs which continually enters the Danish consumer market or a production process. Finally, it cannot be ruled out that the U292 bacterium has a particularly strong disease potential allowing it to cause disease in humans even when only present in numbers below the detection limit. To maintain Danish food safety, it is essential to identify the factors causing this extraordinary situation.

### Antibiotic resistance and hospital infections

In 2008 the previously established focus on the increasing use of broad-spectrum antibiotics was maintained. From 2006 to 2007 the consumption of antibiotics for human use increased by 7%. Observing the problem in the context of a longer period underlines the increase additionally: The average antibiotic consumption in hospitals increased by 63% from 1997 to 2007. In 2007 cephalosporins, fluoroquinolones and carbapenems comprised 34% of total consumption; the corresponding figure for 1997 was 15%. The increased consumption of broad-spectrum antibiotics has several consequences, EPI-NEWS 47/08. Among the specific problems caused, methicillin-resistant staphylococci (MRSA), EPI-NEWS 26/08, deserves mention. Preliminary laboratory surveillance figures show an MRSA increase to 854 cases in 2008 which is at par with the 2005 apex. Several MRSA outbreaks at neonate departments contributed to this trend. Other challenges include a new virulent type of *Clostridium difficile*, EPI-NEWS 26/07, and ESBL (Extended Spectrum Beta Lactamase)-producing bacteria, EPI-NEWS 11/08.

In Denmark the antibiotics consumption and occurrence of resistance remains low compared with other European countries. Maintaining this position will undoubtedly become one of the primary challenges in years to come and it is therefore necessary to further reinforce national Danish control and surveillance efforts.

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## Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2009 figures are preliminary)

Table 1	Week 1 2009	Cum. 2009 <sup>1)</sup>	Cum. 2008 <sup>1)</sup>
AIDS	1	1	2
Anthrax	0	0	0
Botulism	1	1	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	0	1
Diphtheria	0	0	0
Food-borne diseases	6	6	7
of these, infected abroad	0	0	1
Gonorrhoea	7	7	4
Haemorrhagic fever	0	0	0
Hepatitis A	0	0	1
of these, infected abroad	0	0	0
Hepatitis B (acute)	0	0	0
Hepatitis B (chronic)	1	1	3
Hepatitis C (acute)	0	0	0
Hepatitis C (chronic)	0	0	2
HIV	0	0	4
Legionella pneumonia	2	2	1
of these, infected abroad	0	0	0
Leprosy	0	0	0
Leptospirosis	0	0	0
Measles	0	0	0
Meningococcal disease	0	0	4
of these, group B	0	0	0
of these, group C	0	0	1
of these, unspec. + other	0	0	3
Mumps	0	0	0
Neuroborreliosis	1	1	2
Ornithosis	0	0	0
Pertussis (children < 2 years)	1	1	1
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	0	0
Listeria monocytogenes	0	0	0
Streptococcus pneumoniae	0	0	1
Other aethiology	0	0	1
Unknown aethiology	0	0	2
Under registration	2	2	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	2	2	2
of these, infected abroad	2	2	1
Syphilis	5	5	3
Tetanus	0	0	0
Tuberculosis	5	5	6
Typhoid/paratyphoid fever	0	0	1
of these, infected abroad	0	0	1
Typhus exanthematicus	0	0	0
VTEC/HUS	1	1	3
of these, infected abroad	0	0	1

<sup>1)</sup> Cumulative number 2009 and in corresponding period 2008

## Selected laboratory diagnosed infections

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

Table 2	Week 1 2009	Cum. 2009 <sup>2)</sup>	Cum. 2008 <sup>2)</sup>
Bordetella pertussis (all ages)	4	4	10
Gonococci	0	0	10
of these, females	0	0	8
of these, males	0	0	2
Listeria monocytogenes	0	0	0
Mycoplasma pneumoniae			
Resp. specimens <sup>3)</sup>	4	4	1
Serum specimens <sup>4)</sup>	2	2	4
Streptococci <sup>5)</sup>			
Group A streptococci	0	0	4
Group B streptococci	0	0	3
Group C streptococci	0	0	1
Group G streptococci	0	0	5
S. pneumoniae	14	14	60
Table 3	Week 51 2008	Cum. 2008 <sup>2)</sup>	Cum. 2007 <sup>2)</sup>
MRSA	17	786	667
Pathogenic int. bacteria <sup>6)</sup>			
Campylobacter	6	3375	3850
S. Enteritidis	0	625	563
S. Typhimurium	2	1955	341
Other zoon. salmonella	0	973	730
Yersinia enterocolitica	2	325	271
Verocytotoxin- producing E. coli	0	156	156
Enteropathogenic E. coli	0	221	185
Enterotoxigenic E. coli	0	405	307

<sup>2)</sup> Cumulative number 2009 and in corresponding period 2008

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

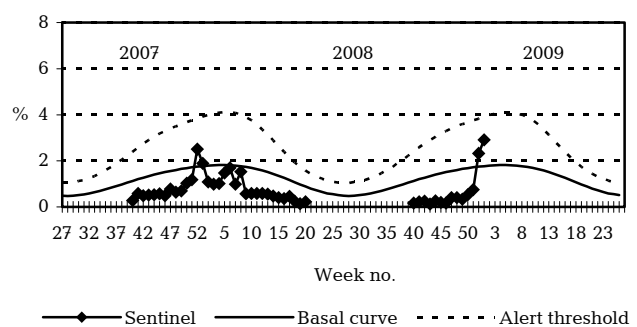
<sup>4)</sup> Serum specimens with pos. complement fixation test

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

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

## Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2007/2008/2009



Sentinel: Influenza consultations (as percentage of total consultations)

Basal curve: Expected frequency of consultations under non-epidemic conditions

Alert threshold: Possible incipient epidemic