



2008 saw 43 notified cases of acute hepatitis A infection; 24 males and 19 females, [Figure 1](#).

### Occurrence

The majority (58%) of cases were reported from the Copenhagen area and Northern Zealand, [Table 1](#).

**Table 1. Notified hepatitis A cases by area and incidence, per 10<sup>5</sup>, 2008**

Area	No.	Incidence
Copenhagen city	13	2.0
Copenhagen subs	6	1.2
Northern Zealand	6	1.4
Bornholm	0	0.0
Eastern Zealand	5	2.2
W & S Zealand	2	0.3
Funen	1	0.2
Southern Jutland	4	0.6
Western Jutland	4	0.9
Eastern Jutland	1	0.1
Northern Jutland	0	0.0
Other/not stated	1	-
<b>Total</b>	<b>43</b>	<b>0.8</b>

A total of 30 immigrant cases were notified, including 21 (70%) below the age of 20 years. Thirteen were of Danish origin, including three (23%) below 20 years. The age distribution is shown in [Table 2](#).

**Table 2. Notified hepatitis A cases by age and origin, and incidence per 10<sup>5</sup>, 2008**

Age (yrs)	Danish born	Immigrants	Total	Incidence
0-9	1	12	13	2.0
10-19	2	9	11	1.6
20-29	0	4	4	0.6
30-39	0	3	3	0.4
40-49	5	0	5	0.6
50-59	0	1	1	0.1
60+	5	1	6	0.5
<b>Total</b>	<b>13</b>	<b>30</b>	<b>43</b>	<b>0.8</b>

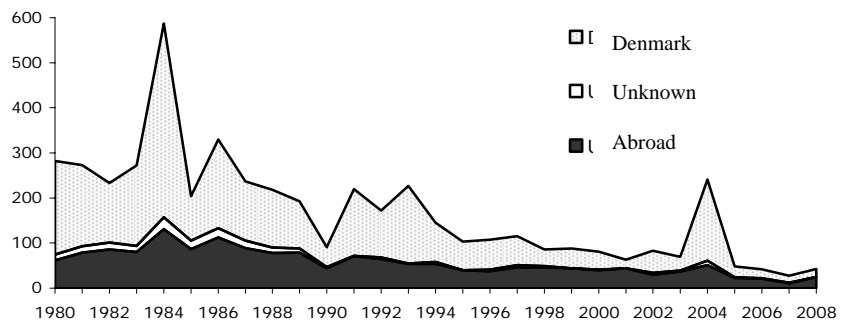
### Virus typing

Since 2006, hepatitis A virus (HAV) typing has been performed routinely, EPI-NEWS 40/07. In 2008, samples were received from 19 (44%) of the notified cases, of which 17 tested positive by PCR. Furthermore, samples were received from 15 (44%) unnotified cases, of which four tested positive by PCR.

The detected virus types - IA (5), IB (13) and IIIA (3) - were generally in accordance with epidemiological information on the countries of infection.

## HEPATITIS A 2008

**Figure 1. Notified hepatitis A cases in Denmark by place of infection, 1980-2008**



### Mode of transmission

Among the 18 notified persons who were infected in Denmark, five were infected by household contact (five different families) and two by other direct person-to-person contact. In one case, a restaurant was stated as possible place of infection. In ten cases, the source of infection was unknown. A total of 25 cases were infected abroad, [Table 3](#).

**Table 3. Notified hepatitis A cases by origin and place of infection, 2008**

	Place of infection		
	DK	Abroad	Total
Danes	6	7	13
Immigrants	12	18	30
<b>Total</b>	<b>18</b>	<b>25</b>	<b>43</b>

Two Danish-born persons were infected in Egypt, two in the Czech Republic, one in the Faroe Islands, one in the USA and one in Pakistan. The 18 immigrants were infected in 12 different countries (Afghanistan, Bosnia-Herzegovina, France, Latvia, Lebanon, India, Iraq, Pakistan, Spain, Turkey, Syria and Egypt).

### Outbreaks

Five outbreaks each counting two to three cases were notified. Two children infected in Pakistan and Syria, respectively, infected siblings after returning to Denmark. Furthermore, two children of Afghan and Lebanese origin subsequently infected family members. Finally, a third person was infected by a Danish-born infected family member. In two of the five outbreaks, samples were submitted for genotyping from more than one patient, and the epidemiological connection was confirmed by detection of identical HAV in both outbreaks. Furthermore, it was shown that two of the outbreaks were related as HAV was identical

in two cases from one outbreak and one child who was notified as part of another outbreak in the same part of Denmark. Furthermore, typing revealed that sporadic cases in Denmark formed part of larger international outbreaks. Two Danish-born persons who had been travelling in the Czech Republic and a third unnotified case tested positive for HAV identical to a virus from a major Czech outbreak. Two persons from Latvia were infected in their country of origin. It was possible to perform sequence on one of these samples, and HAV was identical to the dominant strain of a major Latvian outbreak.

### Commentary

The number of notified cases has increased since 2007 (28 cases), EPI-NEWS 40/08, but the incidence remains at a historically low level. Even though virus typing samples were only received in less than half of the notified cases, an almost equal number of samples were received from un-notified cases. On this basis the notification percentage may be estimated to 50-60% of the actual number of hepatitis A cases.

The increase in notifications observed in 2008 is primarily attributable to an increase in the number of imported cases (from 11 in 2007 to 25 in 2008).

Among the notified cases, the primary group was children and adolescents of foreign origin. In most cases, immigrant children raised in Denmark will not have been exposed to HAV infection and are therefore not naturally immune. It is therefore essential to vaccinate such children against HAV before they travel to their countries of origin.

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## Individually notifiable diseases

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

Table 1	Week 41 2009	Cum. 2009 <sup>1)</sup>	Cum. 2008 <sup>1)</sup>
AIDS	1	30	32
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	1
Creutzfeldt-Jakob	0	9	4
Diphtheria	0	0	0
Food-borne diseases	11	435	683
of these, infected abroad	1	78	119
Gonorrhoea	16	438	299
Haemorrhagic fever	0	0	0
Hepatitis A	0	29	38
of these, infected abroad	0	22	24
Hepatitis B (acute)	0	21	20
Hepatitis B (chronic)	0	124	146
Hepatitis C (acute)	0	13	6
Hepatitis C (chronic)	0	224	258
HIV	0	13	6
Legionella pneumonia	0	224	258
of these, infected abroad	0	26	36
Leprosy	0	0	0
Leptospirosis	0	0	2
Measles	0	9	10
Meningococcal disease	0	56	49
of these, group B	0	32	22
of these, group C	0	19	15
of these, unspec. + other	0	5	12
Mumps	0	11	23
Neuroborreliosis	2	36	43
Ornithosis	1	11	2
Pertussis (children < 2 years)	5	93	82
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	5	3
Listeria monocytogenes	0	4	1
Streptococcus pneumoniae	0	61	72
Other aethiology	0	9	17
Unknown aethiology	0	13	17
Under registration	1	20	-
Rabies	0	0	0
Rubella (congenital)	0	0	2
Rubella (during pregnancy)	0	0	0
Shigellosis	2	86	66
of these, infected abroad	2	70	54
Syphilis	13	225	103
Tetanus	0	0	2
Tuberculosis	9	294	299
Typhoid/paratyphoid fever	1	21	28
of these, infected abroad	1	18	22
Typhus exanthematicus	0	0	0
VTEC/HUS	2	116	117
of these, infected abroad	0	29	39

<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 41 2009	Cum. 2009 <sup>2)</sup>	Cum. 2008 <sup>2)</sup>
Bordetella pertussis (all ages)	2	172	153
Gonococci	11	346	287
of these, females	2	94	60
of these, males	9	252	227
Listeria monocytogenes	3	68	40
Mycoplasma pneumoniae			
Resp. specimens <sup>3)</sup>	7	59	66
Serum specimens <sup>4)</sup>	4	92	65
Streptococci <sup>5)</sup>			
Group A streptococci	0	119	115
Group B streptococci	0	94	99
Group C streptococci	0	30	15
Group G streptococci	0	134	102
S. pneumoniae	13	811	727

Table 3	Week 40 2009	Cum. 2009 <sup>2)</sup>	Cum. 2008 <sup>2)</sup>
MRSA	41	583	522
Pathogenic int. bacteria <sup>6)</sup>			
Campylobacter	49	2537	2614
S. Enteritidis	11	459	498
S. Typhimurium	6	672	1599
Other zoon. salmonella	21	554	805
Yersinia enterocolitica	4	184	251
Verocytotoxin-producing E. coli	3	118	120
Enteropathogenic E. coli	8	173	151
Enterotoxigenic E. coli	5	245	318

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

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

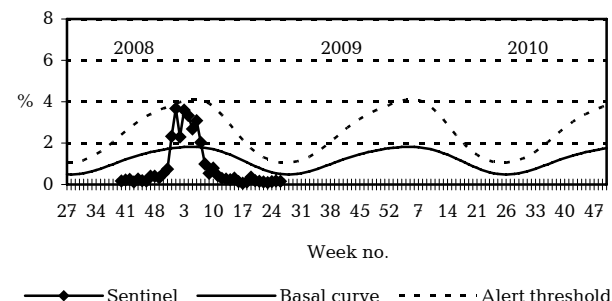
<sup>4)</sup> Serum specimens with pos. complement fixation test

<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