



Norovirus is the most common cause of viral gastroenteritis. Five genotypes exist (G1-G5) of which G1, G2 and G5 can cause disease in humans.

The incubation period is 1-2 days and the symptoms, which comprise diarrhoea/vomiting/nausea, typically have duration of 1/2-3 days.

In addition to causing sporadic disease, norovirus causes food-borne outbreaks and outbreaks at nursing homes, military barracks, hospital departments and cruise vessels. The high infectiousness of the virus and its ability to survive for long periods in the environment give rise to the mentioned consequences. Since 1995 type G2.4 norovirus has been the predominant subtype comprising 90% of all hospitalized norovirus cases in Denmark. The genetic composition of this subtype regularly changes through antigenic drift just as influenza virus does. Novel variants of G2.4 have caused pandemics in 2002, 2004 and 2006. In 2006 two new variants were observed: 2006A and 2006B.

Norovirus G2.4 infections occur with considerable seasonal variation, and occurrence peaks in the winter months, [Figure 1](#). Since 2006, in addition to the samples collected from outbreaks and admitted patients, samples from general practice have been collected, which explains the increase in the number of samples tested.

Precautions during outbreaks

In hospitals and nursing institutions, patients with gastroenteritis and exposed patients should be isolated, and transfers to other departments, hospitals or nursing homes should be avoided along with any non-vital tests and therapies outside the department in question. Staff should share the care of patients according to gastroenteritis infection status. In addition to general precautions, plastic apron/gowns and gloves should be worn during any nursing tasks. Good hand hygiene is essential: As alcohol-based hand disinfectants are not fully effective for norovirus, washing of hands should be performed after every patient contact and before leaving the room. Patients should be offered help for hand washing prior to meals and toilet visits. Self-service food-buffets and soft-drinks trolleys should be suspended. Surfaces and contact points near patients, e.g. handles, water taps, walking bars and frames,

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etc. should be cleaned and disinfected daily. Patients and staff are considered infectious until two days after symptom-cessation. During outbreaks, the local hygiene organisations should be contacted as early as possible.

Persons infected with conditions which may transfer via foods should neither handle nor serve foods. On suspicion of norovirus or confirmed norovirus among the employees of food-producing companies, the affected persons should remain on sick-leave for two days after symptom-cessation. The same recommendation applies to nursing staff.

Commentary

Like several other European countries, Denmark has seen a considerable number of diagnosed cases in November and December 2008. The number usually peaks in January, but outbreaks at institutions and hospitals occur until the summer period. The G2.4 (2006B) virus type is by far the most frequently occurring. (B. Böttiger, Dept. of Virology, E.T. Jensen, The Central Hosp. Hygiene Dept., P. Valentiner-Branth, C. Kjelsø, Dept. of Epidemiology)

MEASLES IN COPENHAGEN

In the period 1 December 2008 – 8 January 2009, measles were diagnosed in six children aged 15-36 months in Copenhagen. None of the affected children were MMR vaccinated.

The index case was a three-year-old child who was admitted two days after returning from a vacation in Eastern Africa. On admission, the child ran a high fever and had a severe cold with red and irritated eyes and a

rash on the face and the abdomen.

Measles virus IgM was detected and virus type B3 was demonstrated in throat secretions as well as in urine. The remaining five children were diagnosed with the same measles virus 3B, which also occurs in Africa. On suspicion of measles, urine and throat swabs should be tested for measles virus and blood samples should be tested for IgM and IgG antibodies, EPI-NEWS 8/06. Once the diagnose is confirmed, the Medical Officer of Health should be informed to limit any contacts and information on post-exposure prophylaxis in the form of MMR vaccination or immunoglobulin should be given.

The current case shows that unvaccinated children in Denmark are at risk of infection following measles importation. Similarly, the virus has been observed to spread among younger unvaccinated adults, EPI-NEWS 9/08. Before travelling to a measles endemic area, MMR vaccination is recommended to any unvaccinated children above the age of nine months and any older children and adults who have not had measles or received vaccination previously, EPI-NEWS 25/06.

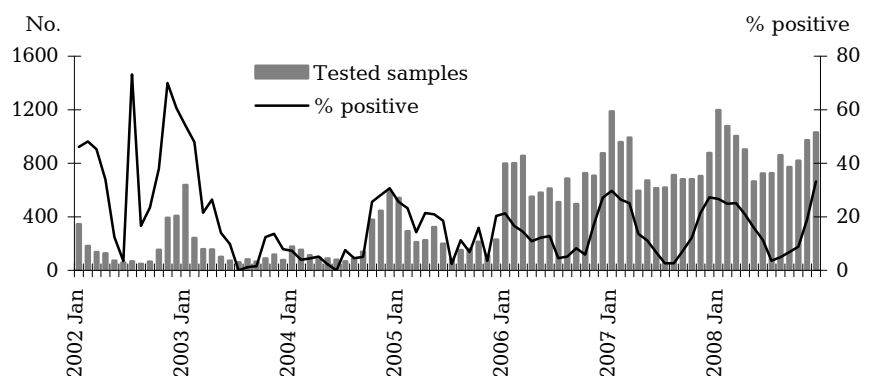
(B. Høgh, Hvidovre Hospital, A-M. Plesner, MOH Region Cph. City, S. Glismann, Dept. of Epidemiology)

EUROPEAN FIELD EPIDEMIOLOGY STUDY PROGRAMME

Again it is possible to apply for a two-year European training programme for epidemiologists, EPIET (European Programme for Intervention Epidemiology Training). Application deadline is mid February, see www.epiet.org.

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Figure 1. Tested samples* and percentage of norovirus positives, 2002-2008



* Test results from the Department of Clinical Microbiology (DCM) Odense University Hospital, DCM Copenhagen University Hospital and the Department of Virology, SSI. As from 2006, test results from general practice are also included.

Individually notifiable diseases

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

Table 1	Week 3 2009	Cum. 2009 ¹⁾	Cum. 2008 ¹⁾
AIDS	1	1	4
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	13	4
Diphtheria	0	0	0
Food-borne diseases of these, infected abroad	8 2	19 4	13 3
Gonorrhoea	21	25	13
Haemorrhagic fever	0	0	0
Hepatitis A of these, infected abroad	0 0	0 0	4 1
Hepatitis B (acute)	0	1	0
Hepatitis B (chronic)	1	1	9
Hepatitis C (acute)	0	0	0
Hepatitis C (chronic)	3	7	13
HIV	7	12	12
Legionella pneumonia of these, infected abroad	3 0	7 1	8 5
Leprosy	0	0	0
Leptospirosis	0	0	0
Measles	0	2	0
Meningococcal disease of these, group B of these, group C of these, unspec. + other	0 0 0 0	0 0 0 0	4 0 1 3
Mumps	0	0	1
Neuroborreliosis	0	0	7
Ornithosis	0	0	0
Pertussis (children < 2 years)	1	5	6
Plague	0	0	0
Polio	0	0	0
Purulent meningitis Haemophilus influenzae Listeria monocytogenes Streptococcus pneumoniae Other aethiology Unknown aethiology Under registration	0 0 0 0 0 0 5	1 0 0 0 0 0 14	0 0 7 3 3 -
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis of these, infected abroad	1 0	7 6	6 5
Syphilis	3	8	6
Tetanus	0	0	0
Tuberculosis	13	21	19
Typhoid/paratyphoid fever of these, infected abroad	0 0	0 0	1 1
Typhus exanthematicus	0	0	0
VTEC/HUS of these, infected abroad	1 0	2 0	8 1

¹⁾ 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 3 2009	Cum. 2009 ²⁾	Cum. 2008 ²⁾
Bordetella pertussis (all ages)	4	9	8
Gonococci of these, females of these, males	14 2 12	23 3 20	16 2 14
Listeria monocytogenes	2	4	1
Mycoplasma pneumoniae Resp. specimens ³⁾ Serum specimens ⁴⁾	2 6	7 9	10 11
Streptococci ⁵⁾ Group A streptococci Group B streptococci Group C streptococci Group G streptococci S. pneumoniae	2 2 0 3 41	17 5 1 8 138	10 8 1 12 127
Table 3	Week 1 2009	Cum. 2009 ²⁾	Cum. 2008 ²⁾
MRSA	16	16	26
Pathogenic int. bacteria ⁶⁾ Campylobacter S. Enteritidis S. Typhimurium Other zoon. salmonella Yersinia enterocolitica Verocytotoxin- producing E. coli Enteropathogenic E. coli Enterotoxigenic E. coli	8 1 19 7 1 1 2 2	8 1 19 7 1 1 2 2	14 1 3 4 1 0 1 1

²⁾ Cumulative number 2009 and in corresponding period 2008

³⁾ Resp. specimens with positive PCR

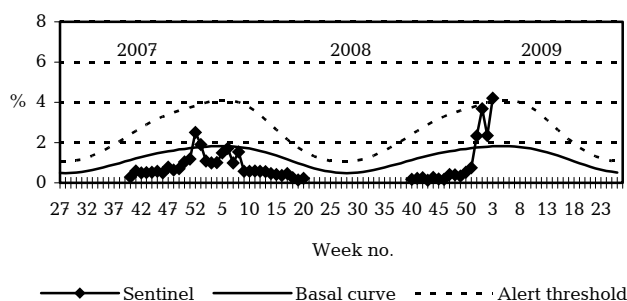
⁴⁾ Serum specimens with pos. complement fixation test

⁵⁾ Isolated in blood or spinal fluid

⁶⁾ See also 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

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