



LEGIONELLA PNEUMONIA 2009

No. 41, 2010

2009 saw a total of 116 notified cases of legionella pneumonia (LP) with onset in 2009. Among these, 100 cases were verified as described in EPI-NEWS 40/09. The median age was 67 years (range 21-93), and 73 (63%) were males.

For 60 patients, a minimum of one predisposing factor/condition was reported, 11 had no predisposing factors, and in 45 cases information on predisposition was missing. The distribution by infection categories is shown in [Table 1](#).

Table 1. Notified cases of legionella pneumonia, 2009

Category	To- tal	Veri- fied	Disp. fact.	Dea- ths
Travel ass.	37	35	16	1
Nosocomial	5	5	5	3
Other	74	60	39	14
Total	116	100	60	18

Table 2 shows the distribution by area of verified cases acquired in Denmark.

Table 2. Verified cases of LP acquired in Denmark. Number and incidence per 10⁶, 2009

Area	No.	Incidence per 10 ⁶
Copenhagen city	4	6,0
Copenhagen subs.	5	9,8
Northern Zealand	9	20,2
Eastern Zealand	1	4,3
W & S Zealand	9	15,3
Funen	9	18,6
Southern Jutland	5	7,0
Western Jutland	7	16,4
Eastern Jutland	13	15,8
Northern Jutland	6	10,3
Total	68 *)	12,3

*) Incl. 3 travel-associated cases acquired in DK.

Travel-associated cases

A total of 37 cases were travel-associated, [Table 3](#).

Table 3. Travel-associated LP cases by country of infection, 2009

Country of infection	No. of cases
Italy	7
Greece	4
Turkey	3
Denmark	3
Rest of Europe	11
Middle East	4
Asia	3
Unknown *)	2
Total	37

*) Stays in several European countries.

Eight of the patients had stayed in hotels with other reports of infection, and one patient formed part of an

outbreak occurring during the World Handball Championship in Croatia, EPI-NEWS 9/09. In three culture-verified cases, water samples collected where the infected persons had stayed were tested. In water samples from a Danish Bed and Breakfast, a DNA type identical to that detected in the patient was found. In water samples from two foreign hotels, the DNA type detected in the patients could not be matched to that of the hotels.

Nosocomial cases

A total of five presumed or confirmed cases of nosocomial infection were notified; all patients suffered from severe underlying diseases. Statens Serum Institut only knows of one case in which water samples were tested, but as this case was not culture-verified, the source of infection could not be detected.

Other places of infection

In five culture-verified cases, infection via the water supply was confirmed by comparing patient and water samples.

In the spring of 2009, LP was detected in four persons who had visited an indoor swimming pool in the Capital Region.

Water samples from the showers proved to be heavily colonized by *L. pneumophila*. The pool was closed and the showers underwent renovation. A plumber who disassembled the infected installation was infected with LP. Subsequent DNA typing of isolates from patients and water showed that two of the patients (including the plumber) and the water isolates had the same DNA type, while the isolate from one patient had another DNA type. One patient (not culture-verified) had travelled in Spain during the incubation period and may have been infected there.

Laboratory-diagnosed cases

Statens Serum Institut knows of 115 laboratory-confirmed LP cases (verified plus PCR) in 2009, including 105 verified and ten cases which were only confirmed by PCR (including two non-pneumophila). Five verified cases have not been notified. *L. pneumophila* was isolated by culture from a total of 65 patients - the highest number ever recorded. The distribution of legionella isolates was as follows: 42 *L. pneumophila* serogroup (sg) 1 (31 Pontiac and 11 non-Pontiac), 12 sg 3, three sg 5, four sg 6, and four sg 10. The distribution is roughly in line with that observed in recent years. This year only *L. pneumophila* species were detected.

Commentary

In comparison with other countries, Denmark enjoys a very high proportion (> 50%) of culture-verified cases. This is owed to the considerable efforts made by several microbiological departments.

The pool outbreak demonstrates that mixing tanks where hot and cold water is mixed to achieve a temperature of approx. 37°C entails a considerable risk of legionella multiplication. Furthermore, it is essential that protective respirators (FFP3 masks) be used when working with water installations with a high level of legionella bacteria.

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MYCOPLASMA PNEUMONIAE

In recent weeks, Statens Serum Institut has detected an increasing number of specimens with *Mycoplasma* (M.) pneumoniae by PCR, primarily from the Capital Region and Zealand, EPI-NEWS 40/10. In Region South Denmark, a similar increase in the number of positive specimens has been observed.

M. pneumoniae infections occur most frequently in the autumn and the beginning of winter. In Denmark, nation-wide epidemics occur every 4-6 years, most recently in 2004/2005, EPI-NEWS 42/43, 51/04 and 10/05.

Anyone can become infected, but the infection occurs most frequently among children above the age of three years. *Mycoplasma* infection presents as fever, flu-like symptoms and cough. Most cases are mild and do not lead to medical consultation. Pneumonia is seen in no more than 10% of the infected.

M. pneumoniae can be detected early by PCR on airway secretions or throat swabs. Antibodies cannot be detected until 1-2 weeks after symptom onset. To ensure the correct diagnosis by detection of an increase of the antibody level, a minimum of two blood samples should be taken at a one-week interval or more. If the diagnosis is confirmed using laboratory methods, treatment should be initiated provided the patient presents with symptoms. First-line treatment is recent macrolides, alternatively tetracycline may be used (in adults). For more detailed information, please see www.ssi.dk.

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Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2010 figures are preliminary)

Table 1	Week 40 2010	Cum. 2010 ¹⁾	Cum. 2009 ¹⁾
AIDS	1	39	30
Anthrax	0	0	0
Botulism	0	1	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	14	7
Diphtheria	0	0	0
Food-borne diseases	9	322	429
of these, infected abroad	1	73	78
Gonorrhoea	10	384	438
Haemorrhagic fever	0	0	0
Hepatitis A	0	45	29
of these, infected abroad	0	24	22
Hepatitis B (acute)	1	23	21
Hepatitis B (chronic)	4	153	128
Hepatitis C (acute)	0	2	4
Hepatitis C (chronic)	2	312	235
HIV	4	215	202
Legionella pneumonia	1	92	99
of these, infected abroad	0	22	19
Leprosy	0	0	0
Leptospirosis	1	5	0
Measles	0	4	9
Meningococcal disease	0	53	63
of these, group B	0	23	37
of these, group C	0	18	21
of these, unspec. + other	0	12	5
Mumps	3	30	11
Neuroborreliosis	4	32	35
Ornithosis	0	12	11
Pertussis (children < 2 years)	1	72	93
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	1	5
Listeria monocytogenes	0	5	4
Streptococcus pneumoniae	1	59	65
Other aethiology	0	14	10
Unknown aethiology	0	18	20
Under registration	0	5	0
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	1	71	87
of these, infected abroad	1	54	70
Syphilis	7	314	197
Tetanus	0	0	0
Tuberculosis	6	305	279
Typhoid/paratyphoid fever	0	30	21
of these, infected abroad	0	28	19
Typhus exanthematicus	0	0	0
VTEC/HUS	3	120	116
of these, infected abroad	0	30	23

¹⁾ Cumulative number 2010 and in corresponding period 2009

Selected laboratory diagnosed infections

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

Table 2	Week 40 2010	Cum. 2010 ³⁾	Cum. 2009 ³⁾
Bordetella pertussis (all ages)	7	167	170
Gonococci	18	329	335
of these, females	5	86	92
of these, males	13	243	243
Listeria monocytogenes	4	43	65
Mycoplasma pneumoniae			
Resp. specimens ³⁾	44	228	52
Serum specimens ⁴⁾	20	196	88
Streptococci ⁵⁾			
Group A streptococci	0	130	119
Group B streptococci	3	88	94
Group C streptococci	2	49	30
Group G streptococci	0	133	134
S. pneumoniae	12	775	798
Table 3	Week 38 2010	Cum. 2010 ²⁾	Cum. 2009 ²⁾
MRSA	12	733	542
Pathogenic int. bacteria ⁶⁾			
Campylobacter	77	2864	2533
S. Enteritidis	12	282	448
S. Typhimurium	14	451	668
Other zoon. salmonella	10	502	551
Yersinia enterocolitica	6	149	180
Verocytotoxin- producing E. coli	2	144	118
Enteropathogenic E. coli	4	148	153
Enterotoxigenic E. coli	6	330	246

²⁾ Cumulative number 2010 and in corresponding period 2009

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

The sentinel surveillance ended in week 20, 2010