



LEGIONELLA PNEUMONIA 2008

No. 40, 2009

Notified cases

2008 saw a total of 130 cases of legionella pneumonia (LP) notifications with onset in 2008. The median age was 63 years (range: 24-89), and 81 (62%) were males. In 105 cases, the diagnosis was verified by culture, legionella urinary antigen test (LUT), a significant increase in *L. pneumophila* antibodies or a combination of other tests. In the remaining 25 cases, the diagnosis was rendered probable by PCR (17 cases), antibody measurement or an inconclusive positive LUT test. In 69 cases, a minimum of one predisposing factor/underlying disease was known, seven had no predisposing factors, and in 54 cases information of such factors was not provided. Distribution by infection categories is shown in Table 1.

Table 1. Notified cases of legionella pneumonia, 2008

Category	To- tal	Veri- fied	Disp. fact	Dead
Travel-ass	42	35	22	1
Nosocomial	9	9	7	3
Other	79	61	40	8
Total	130	105	69	12

Table 2 shows the distribution of verified cases by area.

Table 2. Verified cases of legionella pneumonia acquired in Denmark, 2008. No. and incidence per 10⁶

Area	No.	Incidence per 10 ⁶
Cph. City	4	6.1
Cph. Suburbs	8	15.8
Northern Zealand	12	27.1
Eastern Zealand	2	8.6
W & S Zealand	6	10.2
Funen	8	16.6
Southern Jutland	8	11.2
Western Jutland	6	14.1
Eastern Jutland	9	11.1
Nothern Jutland	7	12.1
Unknown	2	-
Total	72*	13.1

*: incl 2 travel-associated cases acquired in Denmark

Travel-associated/imported cases

A total of 42 cases were travel-associated, Table 3. Among these, 38 were notified to the European Working Group for Legionella Infections (EWGLI). Lacking notification to EWGLI was due to insufficient in-

Table 3. Travel-associated legionella pneumonia cases by country of infection, 2008

Country of infection	No. of cases
Italy	9
Spain	7
Turkey	7
Thailand	4
Greece	3
Denmark	2
Rest of Europe	4
Outside Europe	4
Unknown *	2
Total	42

* Stay in several European countries

formation, stays at a private address during the journey or uncertain diagnosis. Four Danes who were infected in Turkey had stayed at the same hotel and another four had lived in hotels in Thailand and Spain from which other European cases had been reported.

Nosocomial cases

A total of nine cases had presumed or verified infection among whom three deaths occurred. Four of the patients had malignant disease, three were in immunosuppressive therapy and in two cases no information on predisposing factors was available.

Other places of infection

A patient was infected while working on a ship (had not left the vessel during the incubation period), and in another seven cases, the workplace was the suspected infection site. In four cases infection in an apartment building was confirmed through water samples. In two cases nursing home inhabitants were infected. In 2008 an LP outbreak in a housing area with several apartment buildings with water supply in the Copenhagen area was confirmed by samples from water and patients. Two cases, one of whom died, were definitely infected in the concerned building. Once Legionella had been established in the building's water, measures were taken to remove any Legionella from the concerned water installations.

Laboratory confirmed cases

SSI has knowledge of 125 laboratory confirmed LP cases from 2008 (culture, LUT, significant antibody increase and PCR). Among these, 105

were verified as indicated above, and in 19 cases diagnosis was by PCR only (including one non-pneumophila). Only two of the cases have not been notified.

From a total of 49 patients, Legionella species were isolated by culture, which is a somewhat lower figure than in previous years. The distribution of the isolates was: 36 *L. pneumophila* sero group (sg) 1 (23 Pontiac and 13 non-Pontiac), one sg 2, nine sg 3, two sg 6, and one *L. bozemanii*. The distribution largely mirrors that of the previous year.

Commentary

The number of notified cases is slightly higher than in previous years, while the distribution on categories of infection is roughly identical. Legionella disease is only notifiable if the patient has pneumonia and the notification should therefore state how the pneumonia was established.

Legionella bacteria are found in water and will multiply at temperatures up to 50° C. The infection is acquired by breathing in aerosols containing the bacteria, e.g. from the water supply of apartments, hotels, sports centres or hospitals. Other described sources of infection are cooling towers, spas and water atomization plants. Identification of the source of infection is of importance for the prevention of further cases.

Conclusive determination of a source of infection requires that Legionella isolates from the presumed source and from the patient are found to be identical by use one or more typing methods. In non culture-confirmed cases, sources of infection may be suspected on the basis of other laboratory tests or epidemiological information, but such suspicion cannot be confirmed. On this backdrop, the possible reduction in the number of culture-verified cases is worrying. Cases are classified as nosocomial or travel-associated if the patient has been admitted to hospital or travelling, respectively, during the incubation period (2-10 days). Infection during travelling is usually assumed to have occurred in hotels, and every year a number of clustered cases are found among persons who have lived at the same hotels.

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30 September 2009

Individually notifiable diseases

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

Table 1	Week 39 2009	Cum. 2009 ¹⁾	Cum. 2008 ¹⁾
AIDS	1	29	29
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	411	636
of these, infected abroad	1	73	109
Gonorrhoea	9	415	289
Haemorrhagic fever	0	0	0
Hepatitis A	3	29	36
of these, infected abroad	3	22	22
Hepatitis B (acute)	0	20	19
Hepatitis B (chronic)	3	124	142
Hepatitis C (acute)	0	13	6
Hepatitis C (chronic)	3	213	258
HIV	8	190	178
Legionella pneumonia	1	101	95
of these, infected abroad	0	25	34
Leprosy	0	0	0
Leptospirosis	0	0	2
Measles	0	9	10
Meningococcal disease	0	54	43
of these, group B	0	30	18
of these, group C	0	19	14
of these, unsp. + other	0	5	11
Mumps	0	11	22
Neuroborreliosis	3	30	40
Ornithosis	0	9	2
Pertussis (children < 2 years)	4	86	81
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	5	3
Listeria monocytogenes	0	4	1
Streptococcus pneumoniae	0	60	69
Other aethiology	0	9	17
Unknown aethiology	0	11	17
Under registration	7	23	-
Rabies	0	0	0
Rubella (congenital)	0	0	2
Rubella (during pregnancy)	0	0	0
Shigellosis	6	81	62
of these, infected abroad	0	60	51
Syphilis	10	212	94
Tetanus	0	0	2
Tuberculosis	4	278	290
Typhoid/paratyphoid fever	0	19	27
of these, infected abroad	0	16	21
Typhus exanthematicus	0	0	0
VTEC/HUS	2	111	112
of these, infected abroad	0	29	37

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 39 2009	Cum. 2009 ²⁾	Cum. 2008 ²⁾
Bordetella pertussis (all ages)	3	168	150
Gonococci	9	335	279
of these, females	4	93	57
of these, males	5	242	222
Listeria monocytogenes	8	63	37
Mycoplasma pneumoniae			
Resp. specimens ³⁾	3	50	61
Serum specimens ⁴⁾	3	86	65
Streptococci ⁵⁾			
Group A streptococci	0	113	112
Group B streptococci	0	88	93
Group C streptococci	0	29	14
Group G streptococci	8	134	100
S. pneumoniae	11	784	699

Table 3	Week 37 2009	Cum. 2009 ²⁾	Cum. 2008 ²⁾
MRSA	13	529	492
Pathogenic int. bacteria ⁶⁾			
Campylobacter	47	2309	2472
S. Enteritidis	17	437	443
S. Typhimurium	15	656	1479
Other zoon. salmonella	15	513	756
Yersinia enterocolitica	2	166	240
Verocytotoxin-producing E. coli	1	111	110
Enteropathogenic E. coli	9	157	133
Enterotoxigenic E. coli	4	237	294

²⁾ Cumulative number 2009 and in corresponding period 2008

³⁾ Resp. specimens with positive PCR

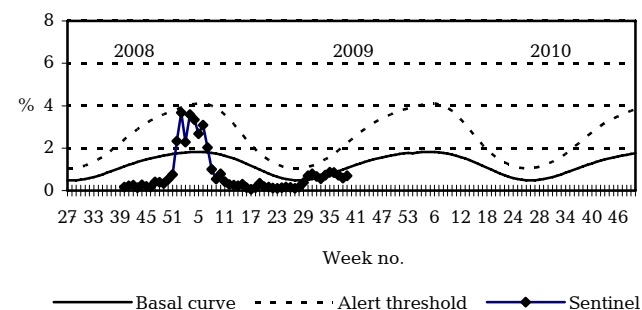
⁴⁾ Serum specimens with pos. complement fixation test

⁵⁾ Isolated in blood or spinal fluid

⁶⁾ See also www.germ.dk

Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2008/2009/2010



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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