

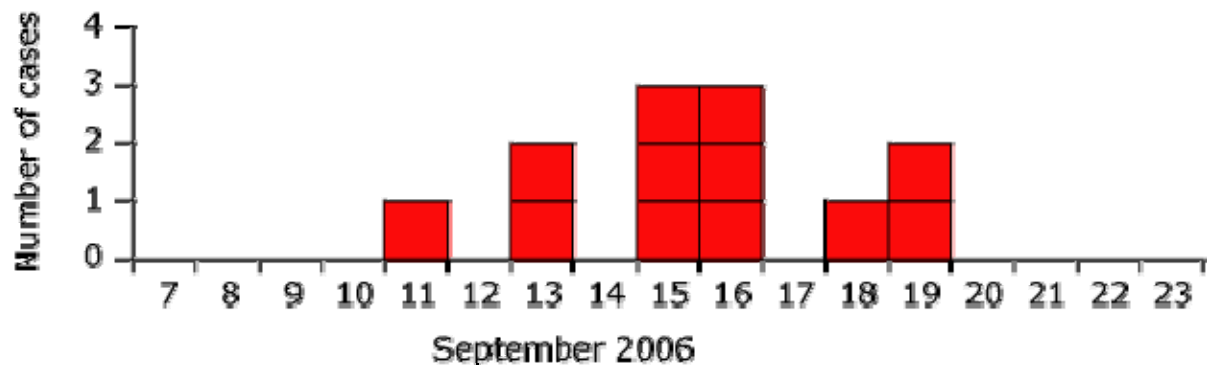
Outbreak of legionellosis suspected to be related to a whirlpool spa display, September 2006, Lorquin, France

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Twelve cases of legionellosis in the small town of Lorquin, district of Moselle, northeast France, were identified by the local health authority in charge of legionellosis surveillance in September 2006. All patients had pneumonia. Eleven tested positive for urinary antigen, indicating a *Legionella pneumophila* serogroup 1 infection, two also had positive cultures, and one was diagnosed by a positive culture (Lp1). Dates of symptom onset ranged from 11 to 19 September 2006 (figure). The median age of the cases was 69 years (range 33-78 years), 66% were men. None of the patients have died. No additional cases have been detected since the onset of the last case on 19 September.

Figure. Legionnaires' disease outbreak, Lorquin, September 2006. Distribution of cases by date of symptom onset



Local and national health authorities started an epidemiological investigation on 20 September, interviewing patients using a standard questionnaire. Patients were asked about their activities, including work and leisure, in the 10 day period before the onset of symptoms. The 11 patients who responded to the questionnaire reported visiting or working at a craft fair in Lorquin. The fair was held on 9-10 September 2006 in a sports centre, which housed 37 stands and attracted approximately 10 000 visitors.

As 11 of the patients were known to have visited the fair, a list of aerosol-generating devices demonstrated during the fair was drawn up. One whirlpool spa filled with water from the municipal supply at the sports centre was displayed. Water samples from the municipal water supply, the water source used to fill it, and from the showers

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at the sports centre were taken on 23 September, and on 25 September from the whirlpool spa. No legionella was found in any of these samples. Disinfection treatment was done during the fair with an oxygen based product, and after the fair by chlorination. This could have affected the detection of legionellae. The source of the outbreak was not proven, but there is reason to believe the spa was responsible: eleven patients had visited or stayed at the fair, the spa was the only aerosol-producing device displayed and none of the cooling towers identified in the area tested positive when these were sampled in August and September.

Discussion

The inevitable delay between exposure and the recognition of an outbreak of legionnaires' disease always means that the conditions in the potential sources may have changed dramatically by the time they are investigated. This is particularly true of whirlpool spas (synonyms: spa pools, hot tubs) that may have been repeatedly drained and disinfected or, if on display, moved to a new site. Water samples alone are often not sufficient. For example, in one outbreak, the pool water did not yield legionellae but large numbers of *Legionella pneumophila* were found in swab samples of biofilm from within the piping [1] and in an outbreak on a cruise liner, the outbreak strain was detected by swab samples of the air channels embedded in the pool shell even after the pool had been drained and disinfected [2].

References:

1. McEvoy M, Batchelor N, Hamilton G, MacDonald A, Faiers M, Sills A, et al. 2000. A cluster of cases of legionnaires' disease associated with exposure to a spa pool on display. *Commun Dis Public Health*. 2000 Mar;3(1):43-5.
2. Beyrer K, Lai S, Dreesman J, Lee J V, Joseph C, Harrison T, et al. Legionnaires' Disease Outbreak associated with a Cruise Liner, August 2003: Epidemiological and Microbiological Findings. *Epidemiology and Infection* 2006 [in press]