
OUTBREAK

Two linked cases of Legionnaires' disease, South Australia

Martyn Kirk^{1,2}, Rachel Wells¹, Carolyn Walker¹ and Jan Lanse³

In the week of 14-20 July 1996, the South Australian Health Commission was notified of two cases of Legionnaires' disease, both of whom had stayed in the same hotel during the incubation period. The patients, a 54 year old female and a 49 year old male, were both smokers with no other obvious risk factors. Both patients had *Legionella pneumophila* serogroup 1 isolated from clinical specimens and subsequently died. An environmental assessment of the hotel revealed that the spa pool was inadequately disinfected and that recent renovations had interrupted the hot water supply to hotel rooms. No epidemiological link with these sources was confirmed, although one of the cases had been in the room housing the spa pool while the spa was operating. The other case had not been near the spa, although he may have worked near an exhaust vent for the spa pool room.

As a precautionary measure, the hotel spa pool was closed and the hot water system heat disinfected. Active surveil-

lance for Legionnaires' disease, initiated as a result of this cluster, did not detect any other cases associated with the hotel. A media release alerted people who had stayed at the hotel since the beginning of July to seek medical attention if they had symptoms consistent with legionellosis.

Culture of a water sample from the spa pool grew *L. pneumophila* serogroup 1 pontiac strain. *Legionella* isolates from the cases and the spa pool were identical by restriction fragment length polymorphism testing. This particular strain of *L. pneumophila* serogroup 1 has been found previously in South Australia; from an outbreak in 1986 and from sporadic cases, including two epidemiologically unrelated cases this year. No *Legionellae* were cultured from samples of water entering the hotel or from showers in guests' rooms.

In South Australia this year, there have been seven notified cases of *L. pneumophila* serogroup 1 infection with four deaths. One case notified in New South Wales had been in South Australia during the incubation period.

Except for the two cases visiting the same hotel, no epidemiological links between the cases were identified. Five of the eight cases investigated had been in or near (separate) spa pools during the incubation period.

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1. Communicable Disease Control Branch, South Australian Health Commission, PO Box 6, Rundle Mall, South Australia 5000.
 2. Master of Applied Epidemiology Program, National Centre for Epidemiology and Population Health, Canberra.
 3. Institute of Medical and Veterinary Science, Adelaide.

Legionellae are opportunistic pathogens ubiquitous in aquatic and soil environments. *Legionellae* can amplify in spa pools, as water is maintained at temperatures optimal for growth. Spa pools also generate aerosols, making them particularly effective vehicles for transmission of *Legionella* infections. However, traditional disinfection of spa pool water with chlorine or bromine is effective against *Legionella*, provided the disinfectant is continuously applied¹. Most States and Territories have legislation covering the disinfection of public spa pools. The National Health and Medical Research Council has published guidelines for the maintenance of private spa pools, which are currently being revised².

In this instance a source of infection for the two cases was not confirmed, although *L. pneumophila* serogroup 1 was isolated from the hotel spa pool. However, spas have been

shown to be a source of Legionnaires' disease in outbreak settings, even where people had not entered the spa pool but had been in the vicinity of the implicated pool³. As a result of the possible association of legionellosis with spa pools, the South Australian Health Commission has reinforced to local government and the spa pool industry the need to be vigilant in maintaining effective disinfection of spa pools.

1. Dadswell JV. Managing swimming, spa, and other pools to prevent infection. *Comm Dis Rep* 1996; 6:2:R37-R40.
2. National Health & Medical Research Council. Australian Guidelines for Heated Spa Pools. Canberra: Australia Government Publishing Service, 1989.
3. Jernigan DB, Hofmann J, Cetron MS *et al.* Outbreak of Legionnaires' disease among cruise ship passengers exposed to a contaminated whirlpool spa. *Lancet* 1996; 347:494-499.