

A hot spot for legionella

Investigation of a legionellosis outbreak in a welding workshop

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Background

Transmission of *Legionella* can occur from a wide variety of environmental sources other than cooling towers. We describe the investigation of two cases of legionellosis, which occurred in January 2005, in welders associated with the use of a spot welding water bath. The welding bath provides a heat exchange facility to provide cooling to the spot welding units. Both patients were diagnosed with *Legionella pneumophila* serogroup 1 (LP1) infections by urinary antigen tests.

Following the Department of Human Services (DHS) receiving notification of the first case, workplace surveillance and environmental follow up identified that an adjacent spot welder who was absent from work had also been hospitalised. He was not displaying any classical signs of Legionnaires' disease, but upon DHS advice to his doctor he had a urinary antigen test which resulted in a positive diagnosis of legionellosis. He was subsequently treated for legionellosis, before he developed the classical symptoms and made a rapid recovery. No sputum samples were available from the patients and therefore no patient legionella isolates were obtained to confirm the linkage.

Methods:

An environmental investigation to identify potential sources of infection was undertaken. Cooling towers on two nearby premises were sampled for *Legionella*. Within the workplace, samples were obtained from a spot welding bath adjacent to where the cases had worked and from other sources. Work practices were assessed with respect to Legionella risk.

Results:

It was established that during the incubation periods of the cases, an industrial fan was placed next to the

heat exchange water bath to provide cooling for the two workers during hot weather. During this period the heat exchange bath lid was open.

Analysis of the water sample from the spot welding heat exchange bath yielded LP1 at 1300 cfu/ml. This strain was positive for MAB2 (Pontiac). Pulsed field gel electrophoresis (PFGE) subtyping conducted at the Microbiological Diagnostic Unit (MDU) at the University of Melbourne indicated that this was an unusual strain in Victoria. The MDU has not observed this strain since subtyping of human and environmental strains began in 1993.

Legionella was not detected in the other potential sources including the two nearby cooling tower systems.

Discussion:

Molecular subtyping of isolates can provide evidence of a linkage between cases and the environmental source. As there were no patient isolates, this was not possible in this instance. However, Pontiac strains have been associated with disease and the epidemiological evidence supports the hypothesis that these cases contracted their legionellosis from the spot welding bath.

Conclusions:

Industrial spot welding baths may be a previously under-recognised source of *Legionella pneumophila* infection.

Industrial heat exchange water baths should be kept clean with lids closed and should not have fans placed next to them to provide cooling for workers.

