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Risk factors for exposure to *Leptospira* and potential control measures in meat workers in New Zealand

Anou Dreyfus, Peter Wilson, Jackie Benschop, Julie Collins-Emerson and Cord Heuer
Massey University, New Zealand

Leptospirosis is an endemic bacterial disease of sheep, beef cattle and deer in New Zealand and currently the most important occupational zoonotic disease in meat-workers and farmers. The objectives of this study were to determine the incidence of antibodies against *Leptospira borgpetersenii* sv Hardjobovis (Hardjobovis) and *Leptospira interrogans* sv Pomona (Pomona) in meat workers, to estimate the relative risk of putative causes of infection with *Leptospira*, and to discuss potential control measures.

We conducted a cohort study in 8 abattoirs slaughtering sheep, cattle or deer. Sera were collected twice from 592 participants in 2008-2009 or 2009-2010 and tested by the Microscopic Agglutination Test for Pomona and Hardjo-bovis. Information on risk factors including personal data, workplace, lifestyle and clinical history were recorded and analyzed by multifactorial logistic regression.

Forty-nine of 592 (8%) participants seroconverted to either Pom and/or Har. Forty-seven of the newly infected persons worked in sheep plants. In sheep plants, the annual meat plant specific infection risk was 12%. In workers of plants processing other species, the incidence was 0% (deer) and 1.2% (mainly beef cattle). Risk factors for new infection in sheep plants were worker position and time worked in the meat industry. Personal protective equipment did not show a protective effect in the model.

The seroconversion demonstrated significant exposure to the two tested *Leptospira* serovars in sheep meat workers. Possibilities to control *Leptospira* exposure are vaccination of livestock in absence of a human vaccine, and may be changes in the slaughter procedure, which will be discussed.

Biography

Anou Dreyfus is a Swiss veterinary epidemiologist working as a senior researcher and lecturer at the University of Zurich. She obtained her epidemiological training at the Royal Veterinary College and School of Hygiene and Tropical Medicine in London (2005, postgraduate MSc) and at Massey University, New Zealand, where she obtained a PhD on leptospirosis in humans and pastoral livestock in 2013. She gained national and international work experience in the field of public health, working for the Food and Agriculture Organization in Rome (2003-04) and for the Federal Office of Public Health in Berne on pandemic influenza planning (2006-08).

anoudreyfus@outlook.com