Journey to the centre of the crypt: a **Mycoplasma bovis** saga

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Mycoplasma bovis is a bacterial pathogen of cattle, recognised as an emerging threat, and with largely absent control and treatment methods. In 2017 New Zealand identified *M. bovis* for the first time and embarked on a control programme of testing and tracing and testing exposed and infected cattle by serology and PCR on palatine tonsil swabs. As part of New Zealand's response to *M. bovis*, gaps were identified regarding knowledge of subclinical carriage and spread of *Mycoplasma bovis* (*M. bovis*) at the herd and individual levels.

The research used data and samples collected from healthy cattle during the New Zealand *Mycoplasma bovis* Eradication Programme. This talk will describe the epidemiology and persistence of *M. bovis* palatine tonsil carriage on farms, in herds and individual cattle.

Herd-level humoral ELISA and tonsil PCR prevalence values were calculated and described by demographics and hypothesised date of initial farm infection. Colonisation of the palatine tonsil was common, with 79% of infected farms and 54% of infected herds having at least one animal with a PCR-positive tonsil result. Farm persistence of *M. bovis* lasted for up to five and a half years with no indication of decreasing herd prevalence over time.

For individual cattle, the PCR and ELISA data were examined over time in order to describe the relationship between *M. bovis* tonsil infection with serological evidence of exposure. Colonisation of the palatine tonsil was a common sequel of infection, being present at slaughter in a third of cattle with serological evidence of exposure to *M. bovis*. PCR-positive cattle had seroconverted a maximum of 197 days prior to PCR-positive sampling, with a median of 38-42 days prior to tonsil sampling depending on the ELISA cutoff used. Compared to the sampled population, cattle with *M. bovis* detected in the tonsils had higher antibody levels at slaughter.

This research shows that the palatine tonsil of cattle is a common and important site of subclinical carriage for *M. bovis*. Awareness of this site of subclinical carriage may help better explain *M. bovis* outbreak patterns and risk factors and assist disease management and control efforts.