P1505 Pitfalls of molecular diagnostic testing for *Coxiella burnetii* DNA on throat swabs

Sheila Bianca Buijs,1 Mirjam Hermans,2 Nabila Agni,2 Maaike De Vries,3 Andy I.M. Hoepelman,1 Jan Jelrik Oosterheert,1 Peter Wever2

1 University Medical Center Utrecht, Utrecht University, Utrecht, Netherlands, 2 Jeroen Bosch Ziekenhuis, ’s-Hertogenbosch, Netherlands, 3 National Institute for Public Health and Environment, Bilthoven, Netherlands

**Background:** *Coxiella burnetii*, the causative pathogen of Q fever, is regularly detected in throat swabs from patients with no subsequent serological evidence of Q fever infection. *C. burnetii* is also frequently found in bulk tank milk from dairy cows. We evaluated the false positive rate of polymerase chain reaction (PCR) for *C. burnetii* DNA on throat swabs and investigated whether recent consumption of *C. burnetii*-positive cow milk products could contribute to this phenomenon.

**Materials/methods:** To evaluate the false positive rate of PCR for *C. burnetii* DNA and to test our hypothesis, we obtained throat swabs from three different populations. At first, patients in whom a throat swab was ordered by their treating physician for other diagnosis purposes were included during a period of low Q fever incidence (0.1 per 100,000 inhabitants). Secondly, patients with community-acquired pneumonia (CAP) in whom a thorough diagnostic workup was performed including serology testing for *C. burnetii*. And lastly, we collected throat swabs from healthy volunteers after consumption of commercial *C. burnetii*-containing cow milk products. PCR for *C. burnetii* DNA was performed on all throat swabs.

**Results:** *C. burnetii* DNA was found in 5% (5/100) of throat swabs ordered for other diagnostic purposes and in 15.3% (4/26) of throat swabs from CAP patients without serological evidence of Q fever pneumonia. The positive predictive value of *C. burnetii* PCR on throat swabs for the diagnosis of Q fever pneumonia was low (66.7% (95% CI, 38.0-88.2)). After consumption of commercial *C. burnetii*-containing cow milk products, *C. burnetii* DNA could be detected in throat swabs obtained for as long as 30 minutes after ingestion.

**Conclusions:** *C. burnetii* PCR on throat swabs is of low diagnostic value for detection of Q fever pneumonia and was false positive in 15.3% of patients without Q fever pneumonia. Recent consumption of *C. burnetii*-containing products can influence the outcome of *C. burnetii* PCR on throat swabs. Therefore, diagnosis of *C. burnetii* infection should be made in combination with serological results or PCR performed on serum.