

# Faecal shedding of *Mycobacterium avium* subsp. *paratuberculosis* in vaccinated dairy goat kids

K. Lievaart-Peterson<sup>1</sup>, A.P. Koets<sup>2,3</sup>, R. Ruuls<sup>2</sup> and M.F. Weber<sup>1\*</sup>

<sup>1</sup> GD Animal Health, Deventer, The Netherlands

<sup>2</sup> Department of Bacteriology and Epidemiology, Wageningen Bioveterinary Research, Lelystad, The Netherlands

<sup>3</sup> Department of Farm Animal Health, Faculty of Veterinary Medicine, Utrecht University, The Netherlands

## Introduction

Age at onset of faecal shedding of *Mycobacterium avium* subsp. *paratuberculosis* (Map) is an important parameter in the control of Map. In cattle, transmission of Map amongst young stock has been observed and decreases the beneficial effect of the separation of young stock from adult cattle. However, in dairy goats there is limited information on the age at onset of shedding of Map in faeces. Therefore, the aim of this study was to quantify the distribution of age at onset of shedding of Map in faeces of dairy goat kids.

## Materials and methods

Faecal samples were repeatedly collected from a cohort of 151 goat kids from eight dairy goat herds with a confirmed Map infection in the herd. All farmers reported that the goat kids were vaccinated against Map. It was intended to sample each individual five times at 2, 3, 4, 5 and approximately 12 months of age. Faecal samples were tested by IS900 qPCR. The age at onset of shedding was analysed using a Weibull proportional hazards model, taking in to account the asynchronous interval censored nature of the data.

## Results

In total, qPCR results of 635 faecal samples from 151 goat kids from 8 herds were available. Map was detected in 43 samples of 38 kids from 7 herds (figure 1). Samples collected from goat kids of multiparous does were more often qPCR-positive (10%) than samples from goat kids of primiparous does (4%;  $\chi^2=9.7$ ,  $p=0.002$ ). The survival analysis confirmed a significant ( $p=0.025$ ) effect of parity of the doe: 16% of kids of Primiparous does were predicted to start shedding before one year of age, in contrast to 38% of kids of multiparous does (figure 2).

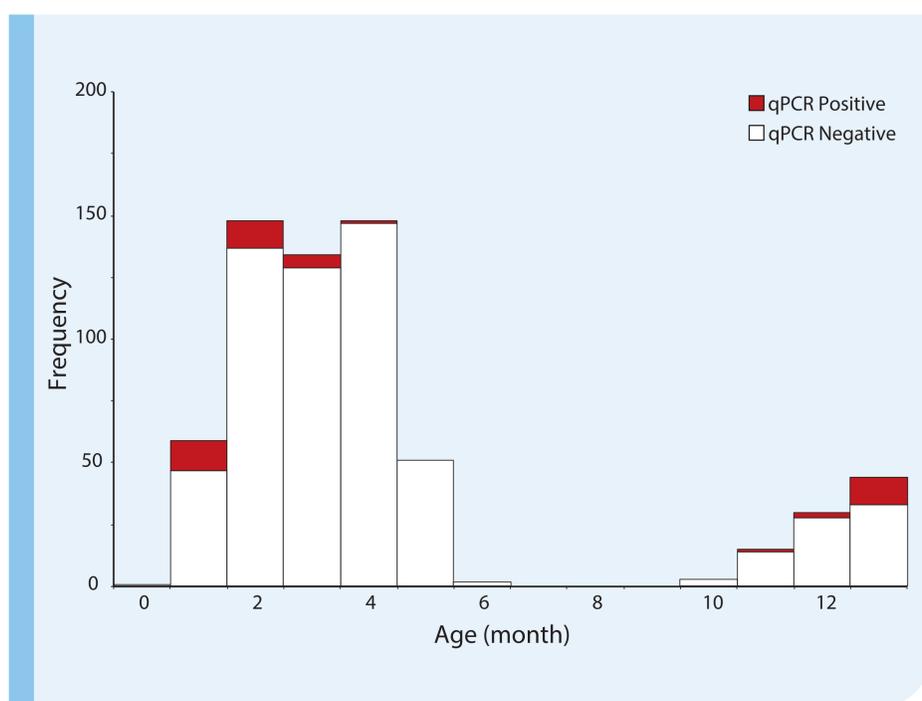


Figure 1. Distribution of age at sampling and qPCR result

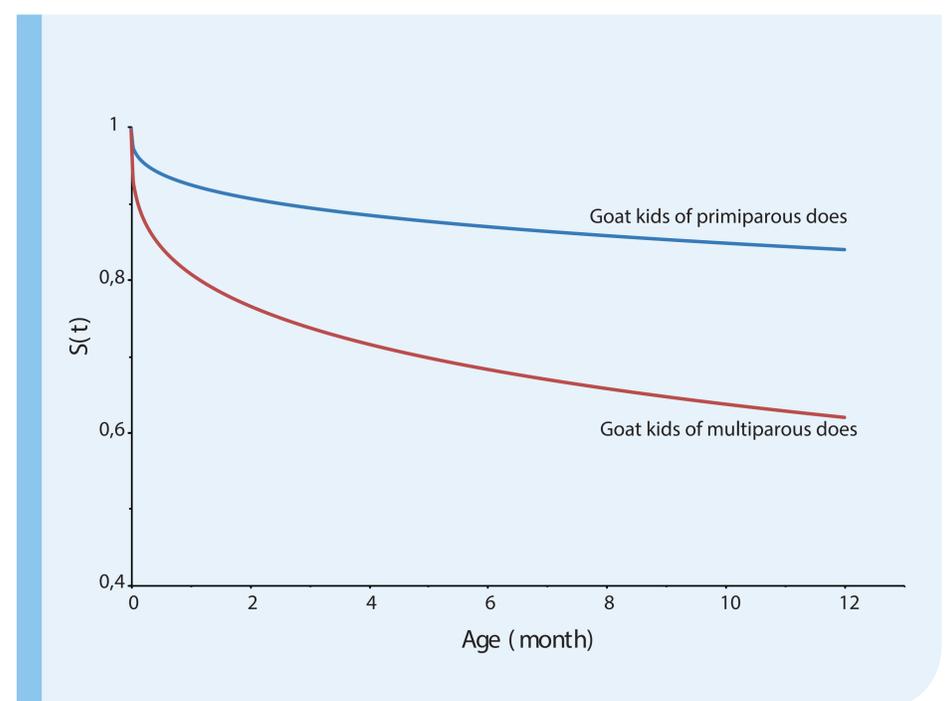


Figure 2. Fitted survival curve showing the proportion of goat kids remaining qPCR negative over time

## Conclusion

Our results indicate that a considerable proportion of dairy goat kids shed Map in faeces before adulthood. The potential risk of kid-to-kid transmission resulting from this shedding needs to be clarified.

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contact: [m.weber@gdanimalhealth.com](mailto:m.weber@gdanimalhealth.com)

