# Implementation of a pre-calving vaccination programme against rotavirus, coronavirus and enterotoxigenic *E. coli* (F5) and its effect on dairy calf survival

Dagni-Alice Viidu*, Kerli Mõtus

Institute of Veterinary Medicine and Animal Sciences, Estonian University of Life Sciences, Tartu, Estonia

**Aim: implementation and effect of pre-calving vaccination programme**

Implementation in Estonian dairy cow herds and effect on calf mortality

**15 herds**

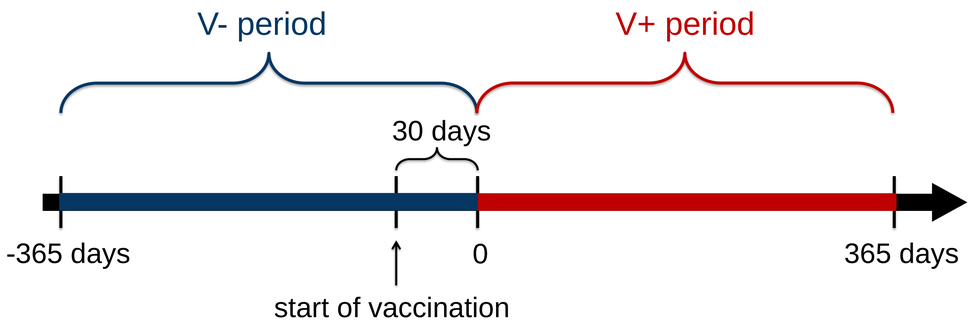
Questionnaire about vaccination procedures and transition milk feeding practices

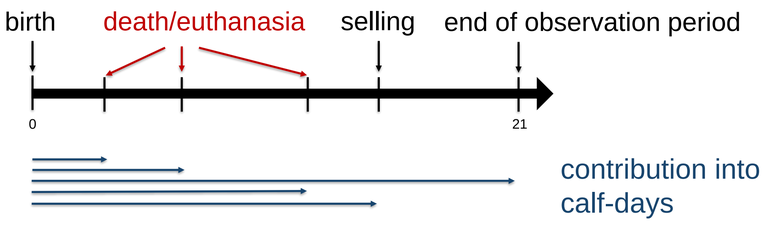
**2 groups**

6 complete users and 9 incomplete users based on vaccination programme

**2 observation periods**

Events of interest in survival analysis were calf death and euthanasia



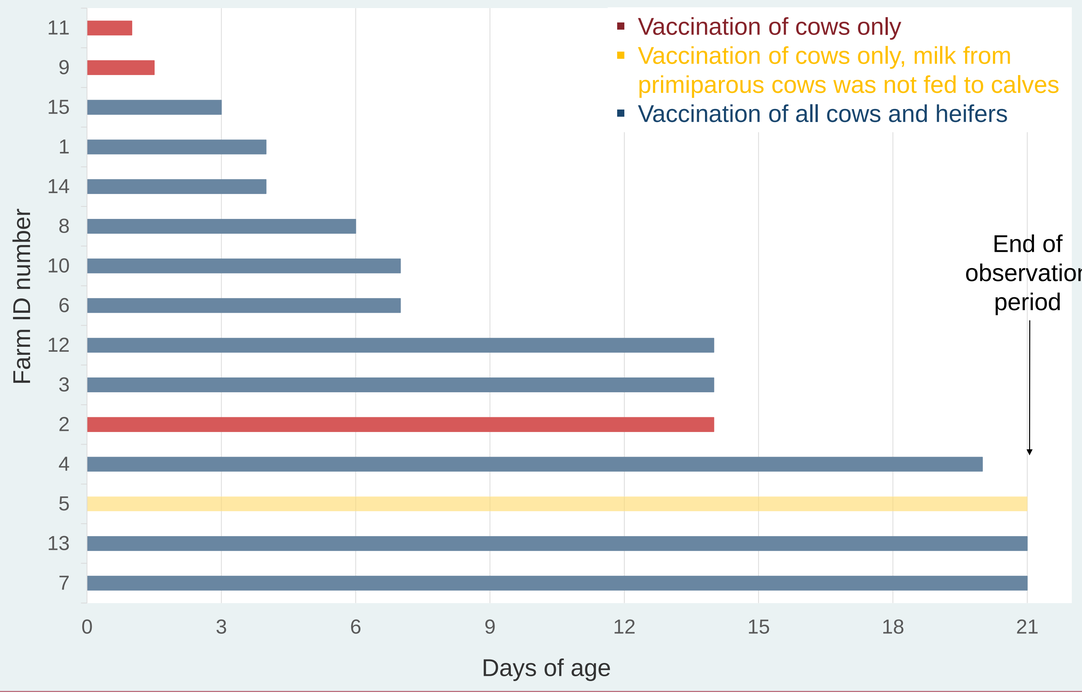

**Complete vaccination programme**

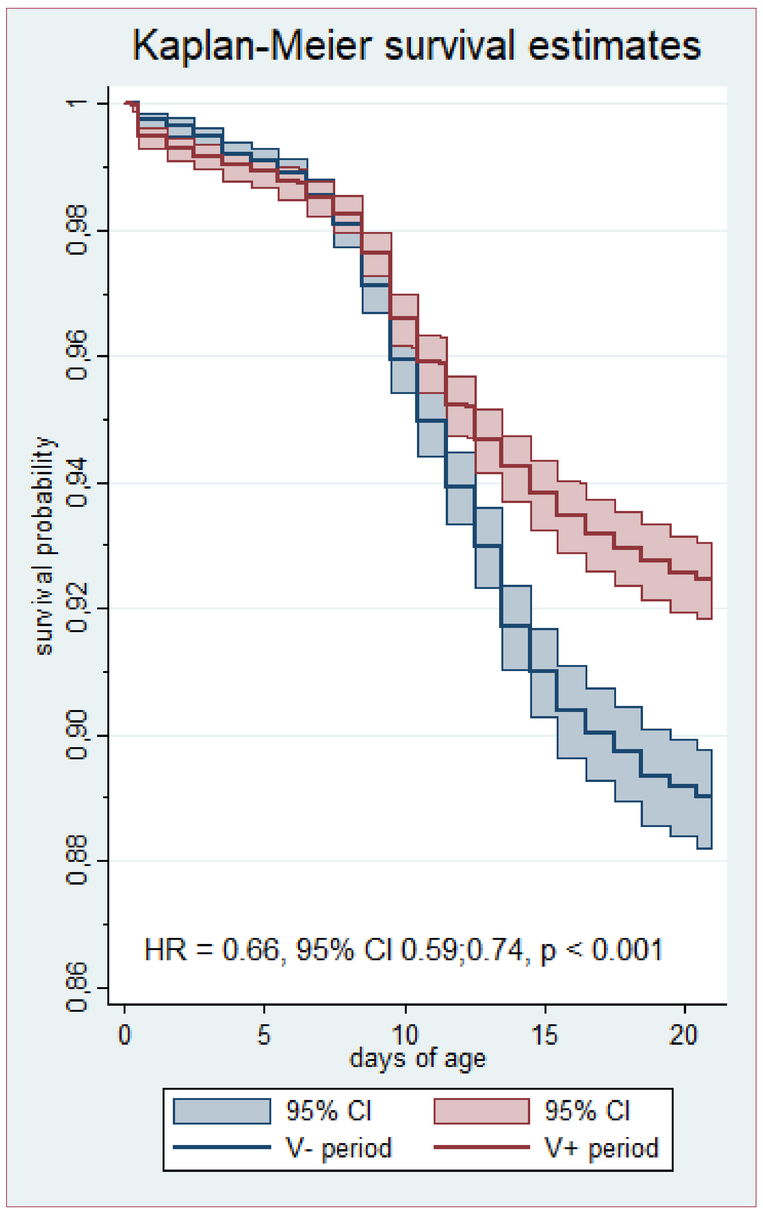
- All cows and heifers were vaccinated 3-12 weeks before expected calving
- Calves were fed transition milk (milk from first four lactation days) from vaccinated cows at least during first 14 days of life

14,610 calf-based observations among the six farms that were implementing complete vaccination programme

Kaplan-Meier survival curve and the result of mixed-effects Cox regression model presenting calf mortality hazard during vaccination (V+) period compared to pre-vaccination (V-) period in 6 farms

Duration of feeding transition milk (milk from first four lactation days) of vaccinated cows to calves and vaccinated animal groups




## Conclusions

- Vaccination protocols and practices of feeding calves transition milk from vaccinated cows varied greatly across farms
  - 27% of farms did not vaccinate heifers
  - 53% of farms fed calves milk from vaccinated cows for less than 14 days
- By implementing complete vaccination programme calf mortality hazard decreased 34% on average in six study farms

*Corresponding author:
Dagni-Alice Viidu
dagni-alice.viidu@emu.ee

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