



Epidemiology of Bovine Herpes Virus Type-1 in England

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Project Aims

Improve epidemiological understanding of endemic cattle diseases and seroepidemiology of BHV-1

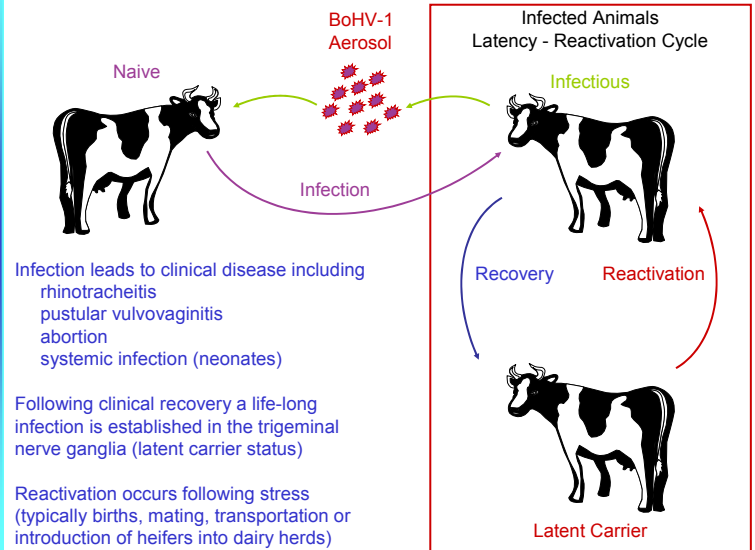
Introduction

Bovine Herpes Virus Type-1 (BHV-1) is an economically important disease. First described in the UK in the 1960s, with a prevalence of 2.1%. More recently, the animal level prevalence in >2yr. old cattle was 16% (1991). Herd level prevalence of 34% was found in 1992. No published data over a period of 15 years.

Project Outline

- Four year longitudinal study investigating 5 endemic diseases in cattle herds in South West England between Dec. 2002 and April 2006
- Herds visited 3 times, at approx. yearly intervals
- All accessible animals ≥2 years of age were sampled
- In total 29,782 sera samples were collected from 15,736 cattle in 114 herds
- All sera were tested for antibodies against BHV-1 (Svanovir® IBR ELISA)
- Cattle movement data from British Cattle Movement Service
- Questionnaires used to identify herds with known disease and vaccination status

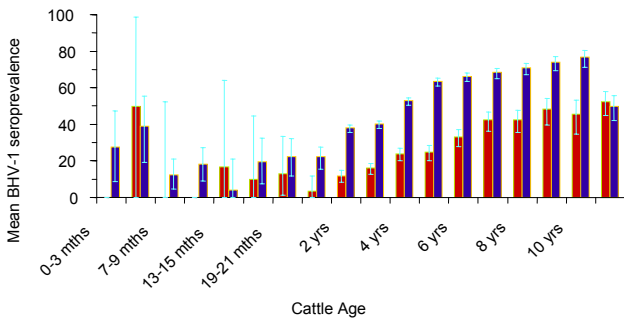
BHV-1 Infection Cycle



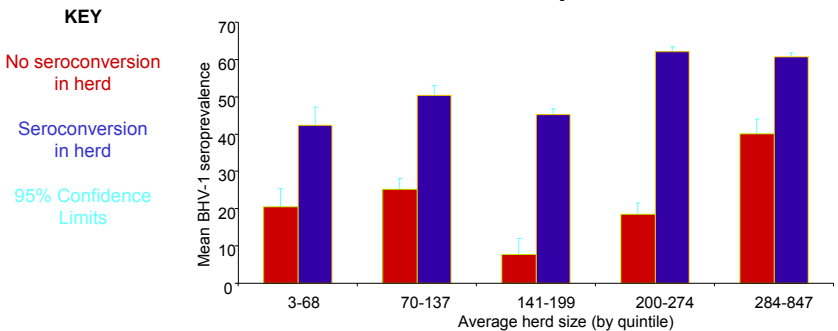
Results

Herd seroprevalence was 82.3%; cattle seroprevalence was 42.5%; mean herd anti-BHV-1 seroprevalence was 43.1%. 985 cattle from 53 herds seroconverted over the duration of the project

Unadjusted age specific profile



Mean herd seroprevalence



Multi-Level Analysis of Unvaccinated Herds

$$PP_{ijk} = \beta X_{0i} + \beta X_{kj} + \beta X_{jk} + \beta X_{ijk} + v_k + u_{jk} + e_{ijk}$$

Where PP is the ELISA result (expressed as percentage positivity)

Decreased seropositivity (lower PP values) was significantly associated with

- Grower cattle
- Homebred replacement stock in herds with growers

Increased seropositivity (higher PP values) were significantly associated with

- Increasing age
- Dairy cattle
- Increasing herd size
- Homebred replacement stock in dairy herds
- Herds formed after FMD

Conclusions

Herd level seroprevalence within the study population was 83.2%, much higher than previous reports. The wide range of animal level seroprevalence (1.9% to 95.4%) in seropositive herds suggests there is potential for further establishment of BHV-1 in England. The variability in seroprevalence indicates that there is a complicated relationship between transmission and cattle movement.

Acknowledgements



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