

for changing infection status in the Danish Surveillance Program for *Salmonella* Dublin in dairy herds

Liza Rosenbaum Nielsen¹ (lrn@kvl.dk), Lorin Dean Warnick² and Matthias Greiner³

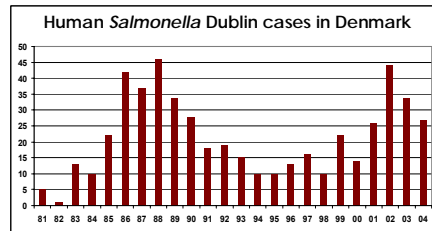
¹The Royal Veterinary and Agricultural University / Danish Cattle Federation (Denmark)

²Department of Population Medicine and Diagnostic Sciences, Cornell University (USA)

³International EpiLab (Denmark)



...a serious zoonosis:
High case mortality in human cases (Helms et. al, BMJ 326, 2003)



Why surveillance of *Salmonella* Dublin?

...causes disease and economic losses in the cattle industry

SURVEILLANCE

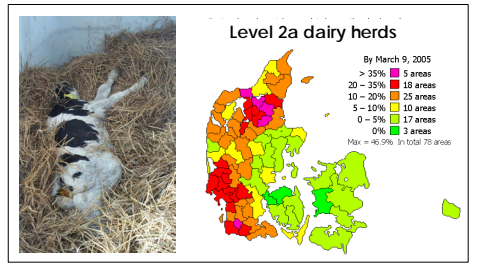
PROGRAMME

DATA

Danish Cattle Database

SUMMARY

Factors associated with shifts between infection levels 1 and 2a under the Danish Surveillance Program for *Salmonella* Dublin were related to purchase from Level 2a herds, neighbour density and infection level, production type and herd size



Factors that were studied
Purchase of cattle, calf mortality, local density of cattle herds, neighboring 2a cattle herds, organic farming, breed and herd size. The analyses were controlled for region.

Shift from Level 1 to 2a
Indicative of new infection
Factors associated with becoming infected

- Increasing number of infected neighbours in a 2 km radius
- Number of cattle purchased from 2a-dairy herds
- Increasing herd size

How was the study designed?

Which factors are associated with changes between level 1 and 2a?

Models
Two multivariable logistic regression models accounting for correlation between repeated quarterly level designations to each study herd:
All Danish dairy herds in 2002-2003 (approximately 7000 herds)

Shift from Level 2a to 1
Indicative of recovery
Factors leading to slower recovery:

- Organic production
- Overlapping manure spreading area from neighbouring herd
- For large herds: Large breed and increasing number of infected neighbours in a 2 km radius