

Improving knowledge about biosecurity

against *Salmonella* Dublin introduction and establishment in dairy cattle farms

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We asked

Can we provide new knowledge about the effect of biosecurity in dairy farms located in *S. Dublin*-endemic areas of Denmark by assessing biosecurity level semi-quantitatively?

Why we asked

- There are many introduction pathways for *S. Dublin* and it is hard to point out single environmental risk factors.
- The prevalence of *S. Dublin* increased in Danish dairy cattle farms since 2015 despite a national eradication programme in place.

LOOK CLOSELY!
Do you spot compromised biosecurity and how can you assess it?
Discuss it with an SVEPM colleague.

What we did ...



Case
37+8*



+ 2x
Control
74

* 8 case farms declined to participate, were excluded or out of reach.

100 Excellent biosecurity



0 Total lack of biosecurity



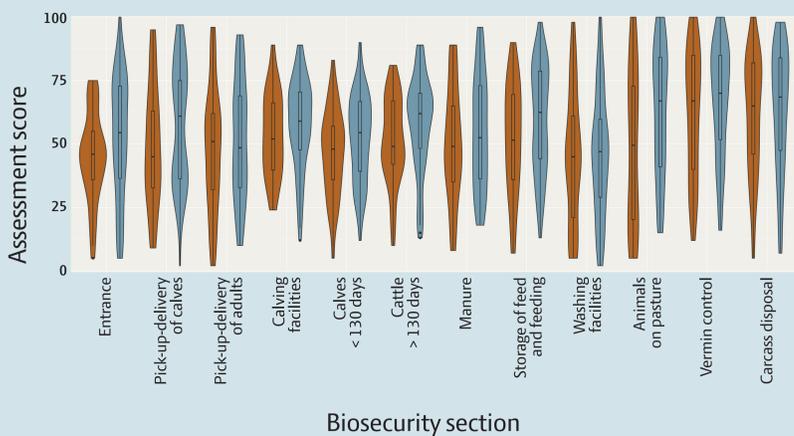
Follow ~1,400 dairy farms at risk with no recent history of salmonella located in *S. Dublin*-endemic areas of Denmark.

Select newly test-positive and remaining test-negative farms, matched on herd size, from the Danish surveillance programme over a one-year period.

Score biosecurity level on-farm in 12 different farm sections based on observations, interview questions and a scoring guide.

Include farm register data for secondary variables and conditional logistic analysis.

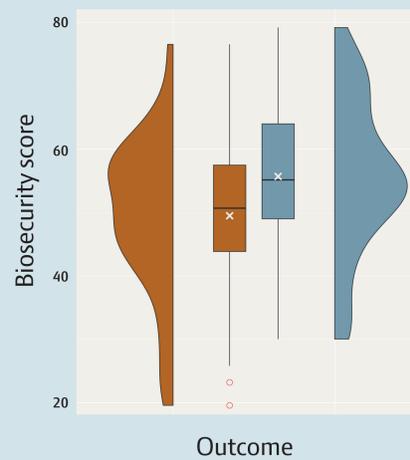
What we saw ...



Expert-weighted into a single overall biosecurity score



Case
Control



No farms with very good or excellent level of overall biosecurity (score ≥ 80)



What we found ... Biosecurity **reduces** the odds of becoming a case:

OR = 0.64 (95% CI = 0.43-0.96, $p = 0.03$)

For each 10-unit increment in overall biosecurity level.

Local infection pressure **increases** the odds of becoming a case:

OR = 1.13 (95% CI = 1.01-1.25, $p = 0.03$)

For each 1,000 increment in number of cattle in *S. Dublin* test-positive neighbour farms within a 10 km radius.

And we concluded ...

Individual biosecurity section effects

but not clearly identified as risk factors.

A preventive effect of the overall biosecurity level

for introduction and establishment of *S. Dublin* in Danish dairy cattle farms.

Present level of biosecurity is insufficient

to resist current infection pressure from the surroundings.

IN COLLABORATION BETWEEN

SEGES
INNOVATION

 UNIVERSITY OF COPENHAGEN

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