The prevalence of verocytotoxigenic *E. coli* O157 (VTEC O157) in British cattle populations*

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1998-2000
22%
95% C.I. 14-32

2002-2004
21%
95% C.I. 14-30

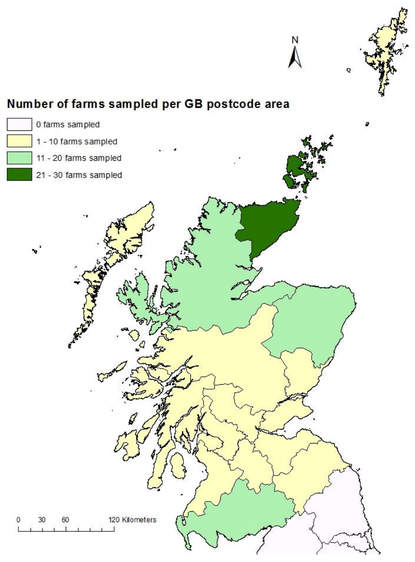
2014-2015

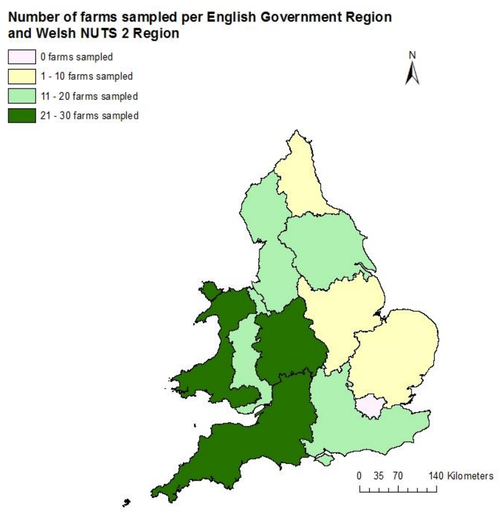
Cattle are a recognised reservoir for human clinical VTEC O157 infection.
In previous Scottish surveys approximately one in five herds were affected.

The British *E. coli* O157 in Cattle Study (BECS)* aimed to establish the current baseline prevalence in cattle destined for slaughter in Scotland and in England & Wales in 2014/2015

Materials and Methods

Two cross sectional surveys during 2014/2015





110 farms Scottish farms were recruited from those that participated in both of the previous surveys.

160 farms from England & Wales were recruited via a randomised survey that replicated the 1998/2000 Scottish survey

All farms were recruited, visited, sampled and completed a questionnaire between September 2014 & November 2015

- The *E. coli* O157 status of 1g of each faecal pat was determined using an enrichment – IMS – culture method.
- Isolate serogroup was confirmed by PCR. One *E. coli* O157 isolate per positive pat was tested for Vero toxins 1 and 2.
- Pat *E. coli* O157 counts were also enumerated, by limiting dilution on CT-SMAC agar plates.

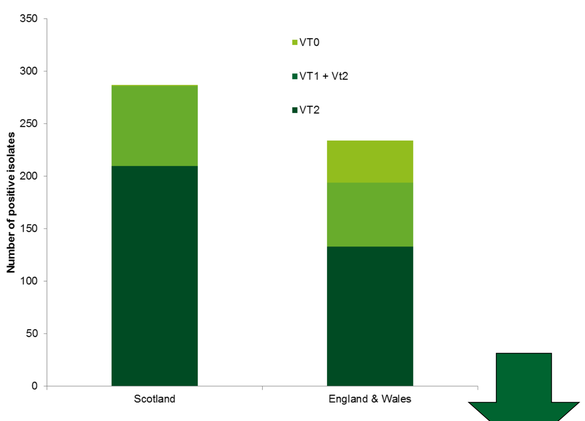
Herd and pat level prevalence were calculated using generalised linear mixed models.

Results

Mean apparent prevalence % 95% C.I.		
Herd level	24 16 - 33	21 16 - 28
Pat level	11 7 - 16	7 4 - 11

Prevalence estimates for *E. coli* O157 did not differ significantly between the two BECS surveys.

The majority of isolates were verocytotoxin positive.



Outcome and next steps

- *E. coli* O157 continues to be common in British beef cattle herds.
- Contact with cattle and their environments therefore continues to be a potential source of infection for humans.
- Isolates were phage-typed and a subset was whole genome sequenced.
- Future analyses will include: current strain composition; comparisons with contemporaneous human clinical cases plus comparison with previous Scottish surveys.

Acknowledgements and further information

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*British *E.coli* O157 in cattle study (BECS): to determine the prevalence of *Escherichia coli* O157 in herds with cattle destined for the food chain. Henry et al. Epidemiology and Infection (accepted 02/08/2017)

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