

A milk yield-based syndromic surveillance model for Irish dairy herds

Conor McAloon



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



The University of
Nottingham

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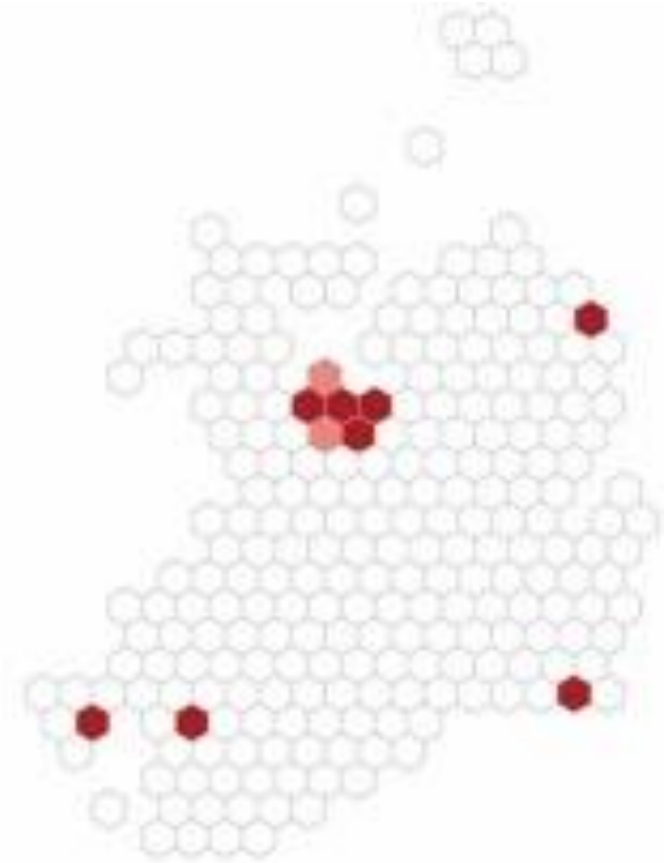
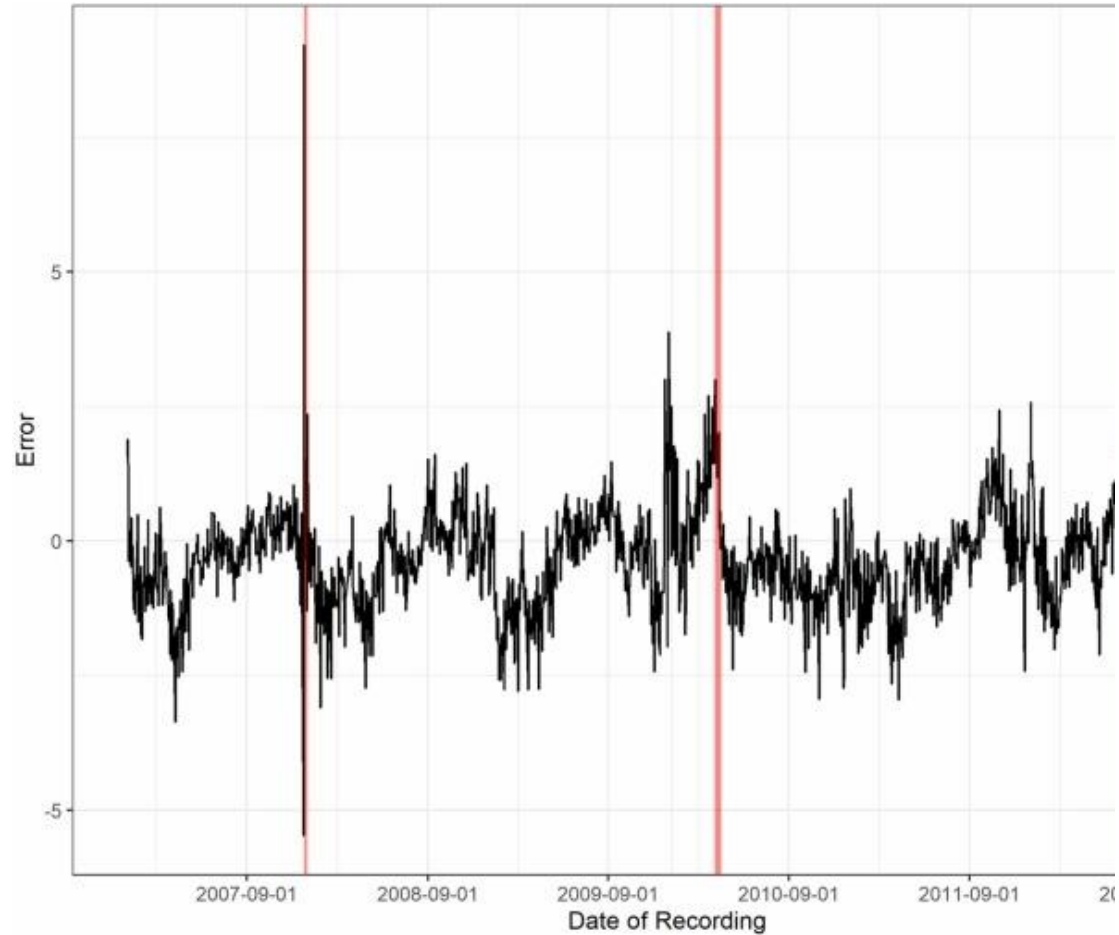
Why syndromic surveillance?

- ‘Traditional’ surveillance relies on testing samples/carcases for *known* diseases (with existing tests)
- For new/emerging diseases, no tests exist
 - Therefore, conventional surveillance methods unsuitable
- Syndromic systems could compliment existing surveillance structures

How might a syndromic surveillance system work?

- Lots of data are collected routinely from our cattle herds that could give us an early warning of an exotic disease incursion
- For example, a new emerging disease might result in milk yield depression affecting multiple cows and herds in a particular area
- Our tool was developed to detect clusters of milk yield depression as an early indicator of disease

Surveillance tool outputs



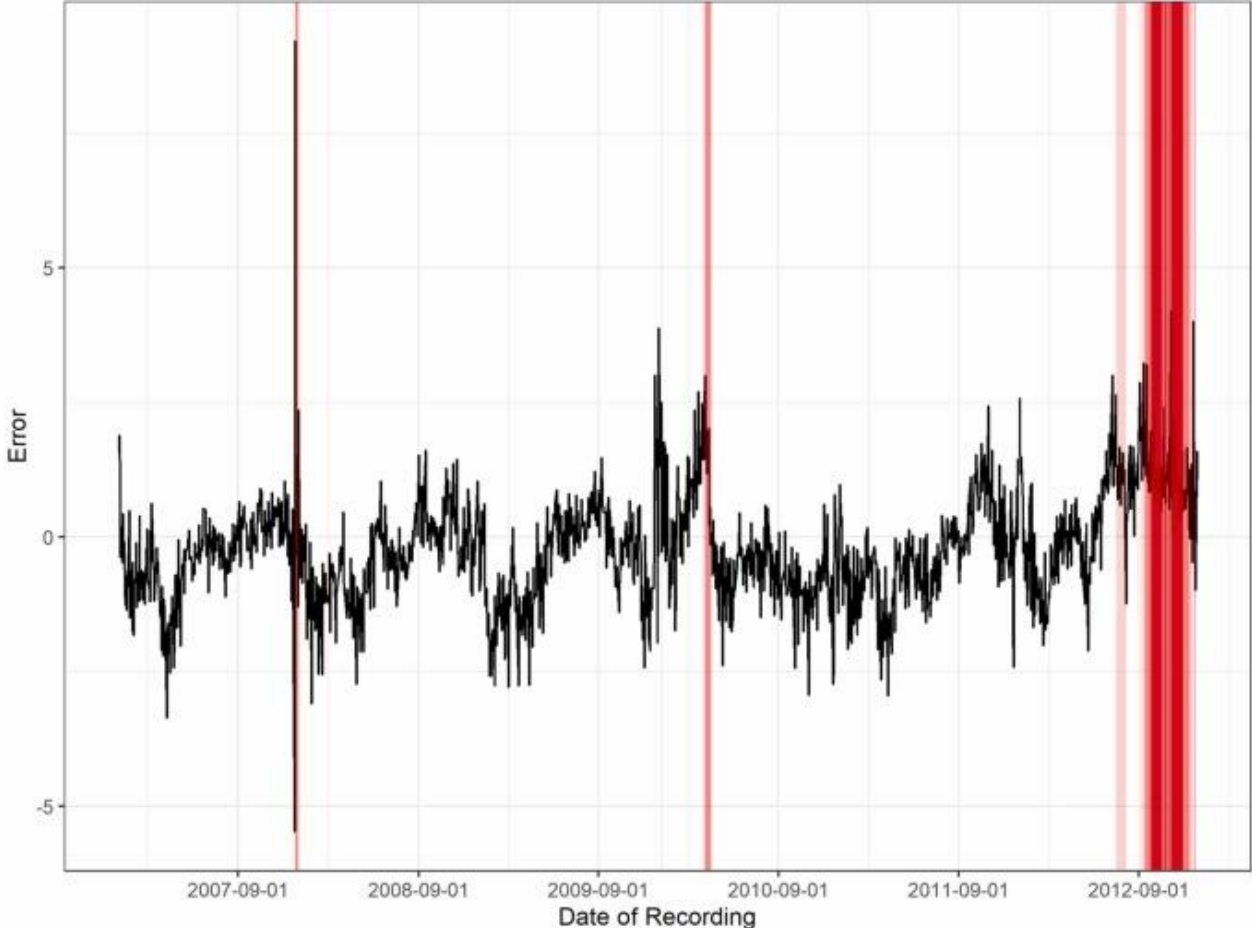
Test case – Schmallenberg virus

- In 2011, Schmallenberg virus emerged in Germany and was first identified in Ireland in late October 2012 (Bradshaw et al., 2012)
- However, meteorological data suggests that SBV could have entered Ireland in early August (McGrath et al., 2018)
- We applied the model to data from this time period to determine whether alarms would have been generated at the time of the incursion



Collins et al., 2019

Test case



Summary

- A syndromic surveillance tool was developed in collaboration with DAFM
- The tool detects clusters of cases where milk yield is less than expected
- A test case using SBV in 2012 show that this system would have triggered an alarm between 4 and 6 weeks prior to laboratory detection