RELU SCIENCE WEEK DEBATES

Were any lessons learned from Foot and Mouth? A science perspective

Jeff Waage
Centre for Environmental Policy
Imperial College London

Science Advisory Council (Defra)

- Independent body
- Science underpinning policy
- Challenge function
- Epidemic Disease Subgroup
- Contingency Plans – FMD, AI
- Continuous scrutiny of evidence base

Foot and Mouth caused huge disruption to the countryside and its economy. A singleminded approach was pursued to stamping out the disease. Have any lessons been learnt and would we act differently in the face of another outbreak?

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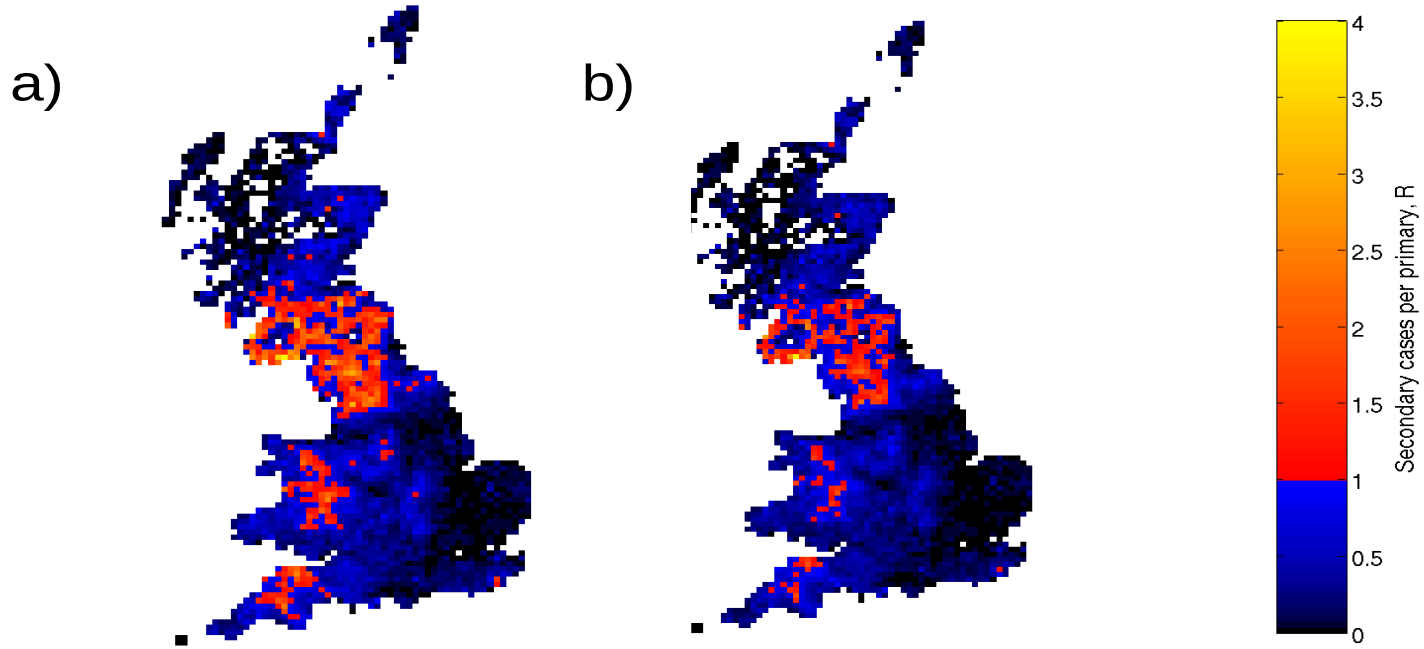
The singleminded approach

- FMD: widespread and frequent disease
- Isolation and culling since 15th Century
- International rules – disease free to trade
- EU Directive, UK CP
- FMD 2001: science lessons to learn?

Modelling FMD outbreaks: valuable tools or “ carnage by computer”?

- In 2001, predictive models of disease spread underpinned contiguous culling
- Control a success, but was it “overkill”?
- Conflict between modellers and vets
- Models lacked accuracy at local level
- Data was unsatisfactory in many cases

Using models to gain insights: the value of early detection and control



- Areas where FMD is spreading in yellow/red
- (a) seven days from arrival to detection/control
- (b) five days from arrival to detection/control

From Foresight (OST) 2006

Epidemiological modelling for decision making

- Predict likely course of disease
- Examine value of different control options
- Making useful models for decision making
  - Adding stochasticity - confidence intervals
  - Variation between species, ages, individuals
  - Spatial heterogeneity
  - Modelling in “real time”
- Value in peacetime, not just wartime

To vaccinate or not to vaccinate?

- Political dimensions: trade freedom, welfare
- Scientific dimensions:
  - Sufficient vaccine
  - Delivery systems
  - Distinguishing vaccinated from infected animals
  - Decision making process
- Key question: “on what evidence base was the decision made to/not to vaccinate?”
- Role for peacetime predictive studies?

Some broader issues

- Strong emphasis on science and technology as the source of solutions
- FMD solutions are inter-disciplinary, need sociological and economic research

Some broader issues

- Science of animal disease control is profoundly reactive
- Also outmoded?
- Risk based approach
- Proactive not reactive
- Build resilience to disease into our agroecosystems

Disease	Cost (US$m)	Impact on GDP
BSE UK 1996/97	**3,800**	**-0.4%**
FMD Taiwan 1997	**6,600**	**-0.64%**
CSF Netherlands 1997/98	**2,300**	**-0.75%**
FMD UK 2001	**9,200**	**-0.2%**
AI Vietnam 2003/04	**76 / 450**	**-0.3 / -1.8%**
AI Netherlands 2003	**681**	**Not available**