Development of economic models for alternative control strategies against future exotic disease

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Animal health economist
What does an exotic disease outbreak look like?

Eastern Daily Press
Bird flu confirmed in wild swan in the Norfolk Broads

Bird flu back
H5N8 bird flu spreads to Welsh backyard poultry

BIRD FLU BACK
Xmas turkeys shortage warning
Infected farm put in lockdown
6,000 ducks are slaughtered

Free range eggs may have to be renamed because of bird flu restrictions

The Guardian
Turkey ‘safe for Christmas’ after bird flu outbreak

Owners told to lock up poultry

The Daily Telegraph
'Free-range' British eggs could disappear from supermarkets next month

Meurig Raymond, president at the National Farmers Union, warned
.....to an economist?

Public good

Prevention and control decisions

Government intervention?

Disease outbreak
Why is economics important?

- **Prioritisation of resources**
  1. Protecting human health
  2. Protecting the interests of the wider economy and society
  3. Securing opportunities for trade
  4. Protecting and promoting the welfare of animals

- **Animal health and welfare strategy**
  - Maximising benefits of animal health and welfare
    - Cost sharing
An economic framework

Direct costs (animal health losses)

Caused by the disease

Indirect costs (expenditure and reaction)

Caused by human response

When do models get used in an epidemic control situation?

- Avian influenza (AI)
  - Market dynamics
    - Housing order: Free range egg status
    - Supply shock
  - What are the direct and indirect costs of AI?
  - How is the economic burden distributed between producers and consumers?
The case of Johne’s disease

- Market dynamics
- Direct costs: £52.31 per cow
- Indirect costs: Wider economic impact
- Equity of economic burden

Loss £37.01 per infected cow
Gain £16.23 per uninfected cow
Loss £1.17 per household
Equity issues

- How should the economic burden be distributed?

- Animal health: Public good
  - Free-rider problem
  - Case for intervention

- Economic data and models
  - Are we collecting the right data?
  - Integrated epi and economic models
Take home messages

– What an exotic disease outbreak looks like?
– Lessons learned from endemic diseases
– Economic data and models
– Equity of economic burden
– Ethical considerations
Thank you

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