Please connect a device to answer polls!!

Password: wifi2internet

Confidence in early detection of FMD

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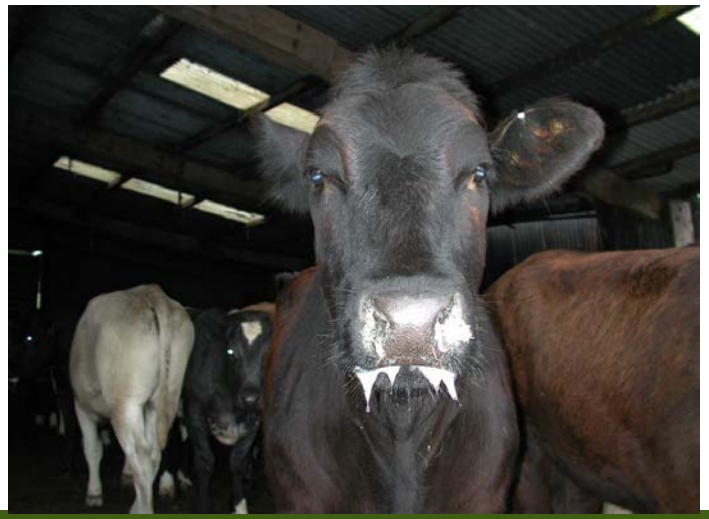
EuFMD

Outline

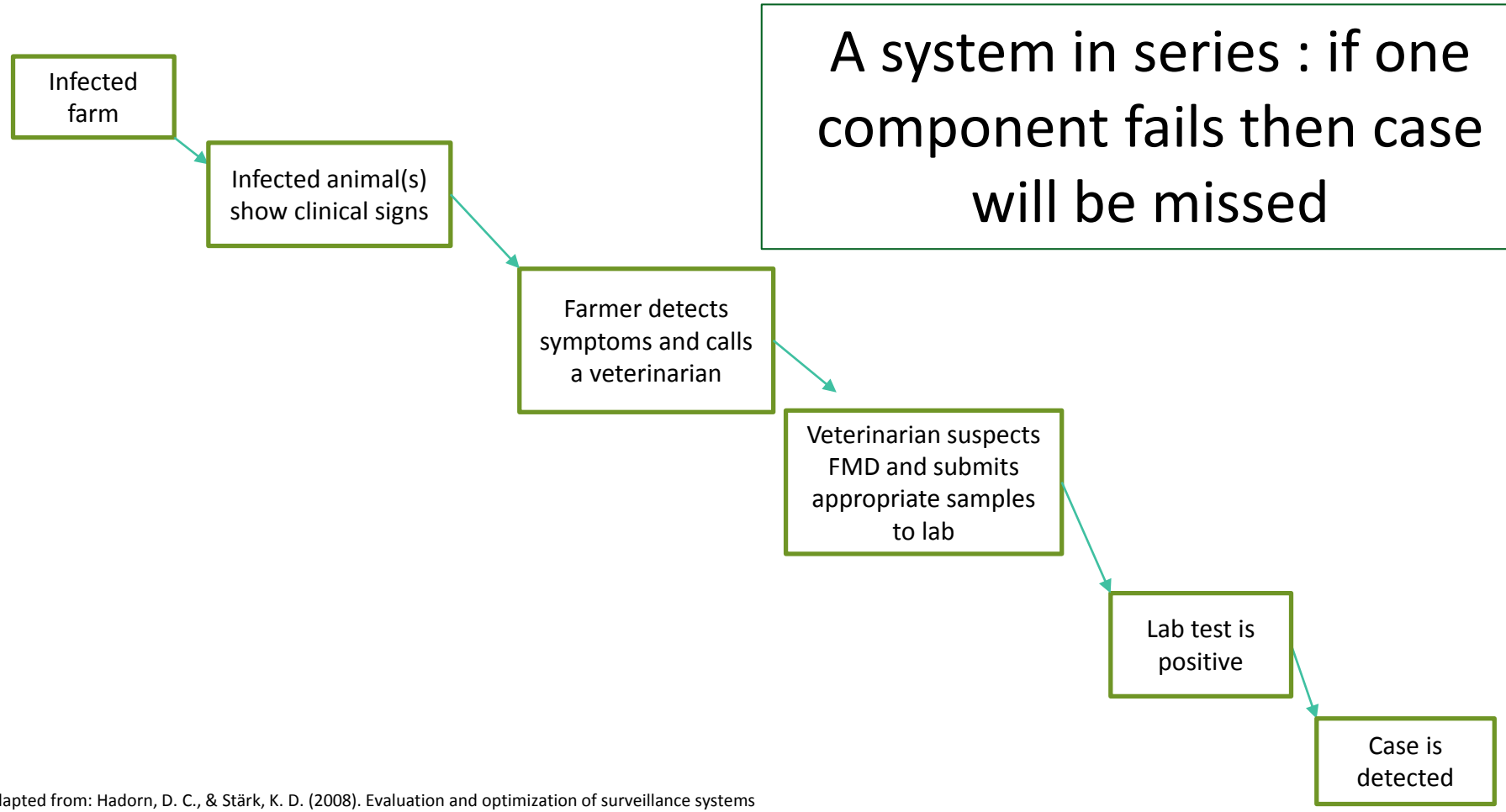
- Background: Surveillance for FMD-free countries
- Constraints to passive surveillance
  - Evaluation
- Options for improving passive surveillance
- Case study: Thrace



Background: FMD surveillance in free countries

- **Early detection** of an incursion critical to:
  - minimize disease spread
  - optimize the cost-effectiveness of control and eradication measures
  - re-gain the ability to export animals as quickly as possible
- **Maintenance of OIE FMD-free status** requires evidence annually that:
  - surveillance has been implemented to detect FMD
  - regulatory measures for early detection of FMD carried out
- **Passive surveillance** (farmer reporting) typically relied on for detection of emerging and exotic diseases
  - Continuous coverage of 100% of population
  - Cost-effective

Background: passive surveillance



A system in series : if one component fails then case will be missed

Adapted from: Hadorn, D. C., & Stärk, K. D. (2008). Evaluation and optimization of surveillance systems for rare and emerging infectious diseases. Veterinary research, 39(6), 1.

When might passive surveillance fail to detect disease?

Infected farm

→ Infected animal(s) show clinical signs

⚠ Small ruminants

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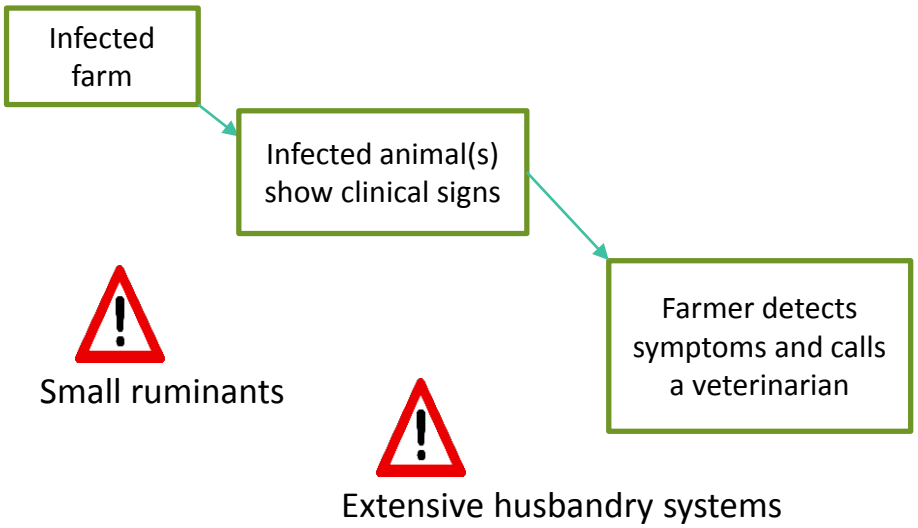

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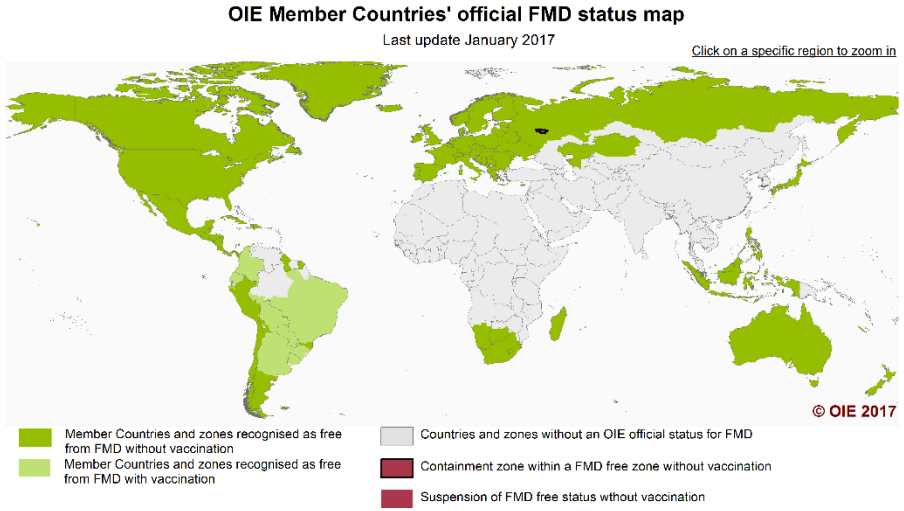
Infected animal(s) show clinical signs

Farmer detects symptoms and calls a veterinarian

Small ruminants

Extensive husbandry systems

Lack awareness or knowledge about FMD



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Reluctance to report

The Telegraph

HOME » NEWS

Pig farmer guilty of hiding foot and mouth

4:28PM BST 30 May 2002

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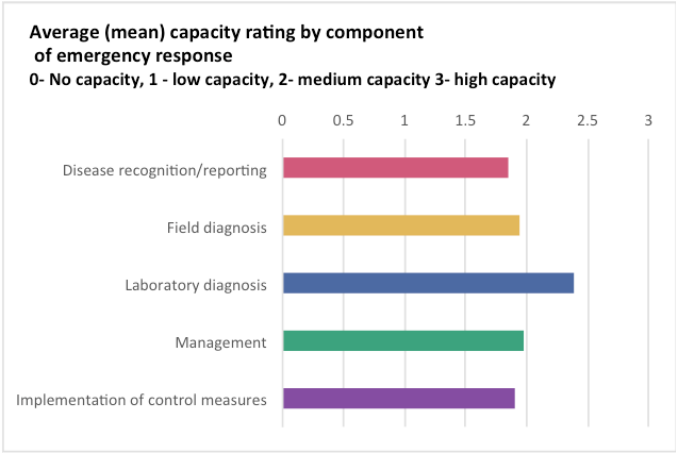

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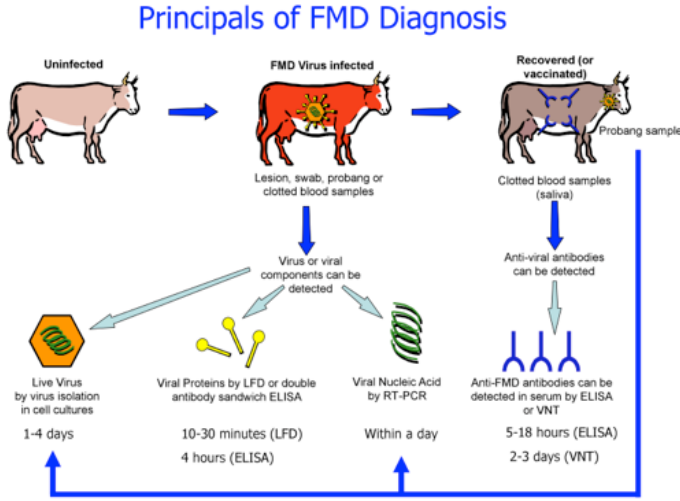
Lab test is positive

Sample quality, test sensitivity, lab proficiency

Case is detected



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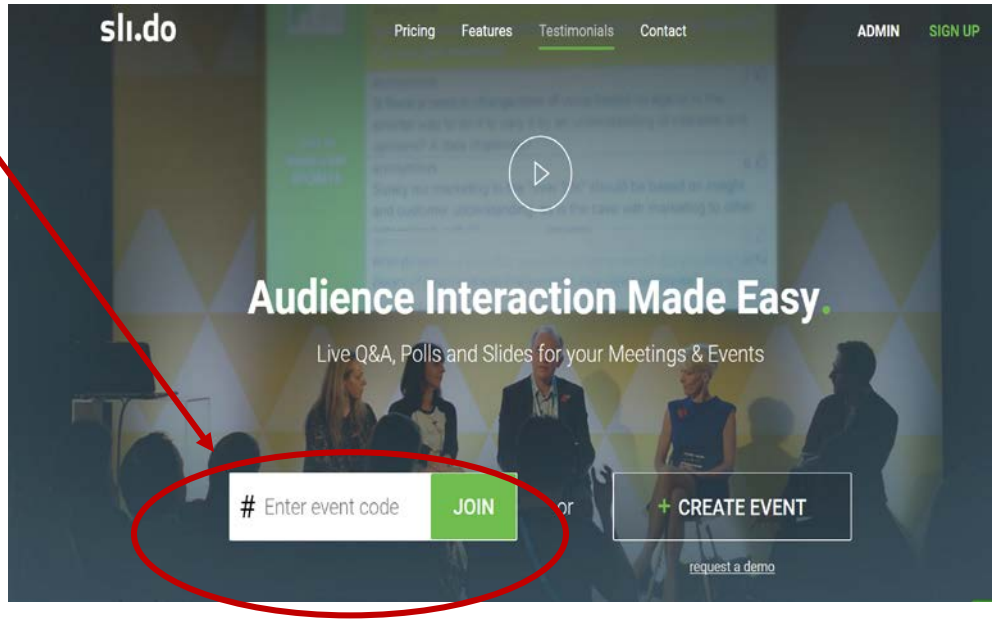
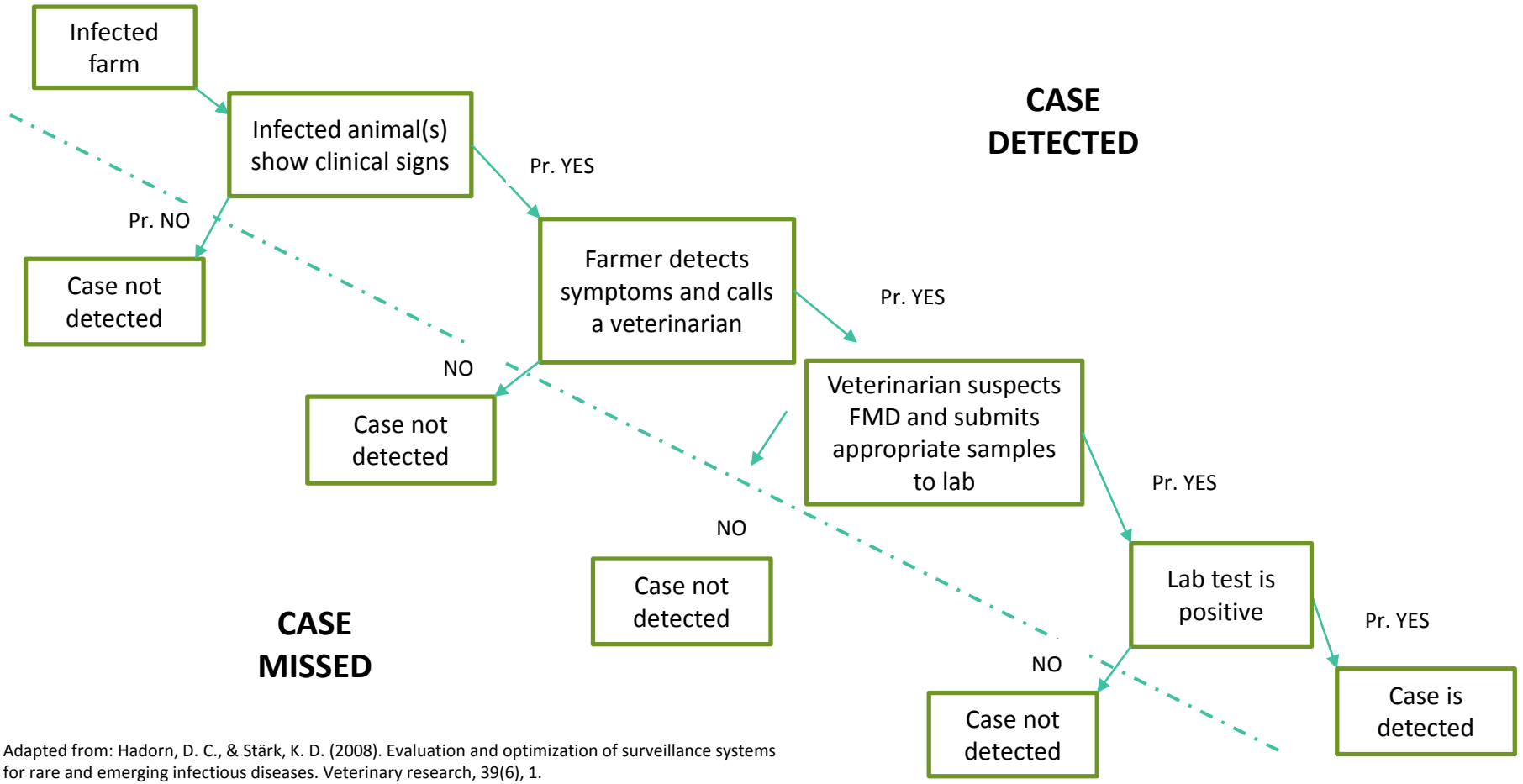
POLL

1. Go to: slido.com
2. Enter code: 2952



Poll: is passive surveillance reliable in your country?

Evaluating passive surveillance



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Evaluating passive surveillance

Constraint	Evaluation at population level
Disease does not cause obvious or pathognomonic clinical signs	Distribution of small ruminants, especially areas where there is a **high ratio of SR:LR**

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Disease is not recognised and reported due to lack of knowledge	**Questionnaire** survey, focus group, **participatory** approaches, current reporting of **suspect cases**, discrete choice experiments
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Disease is not recognised and reported due to lack of knowledge	**Questionnaire** survey, focus group, **participatory** approaches, current reporting of **suspect cases**, discrete choice experiments (e.g. see Pham et al, 2017)
Reluctance to report	
Failure of the laboratory to confirm the suspicion.	Characterise laboratory **test sensitivity**, proficiency test results, simulation exercises

Poll: Reluctance to report

What barriers might exist in your country (choose all that apply)?

1. Reporting suspicion is inconvenient (remote, too much paperwork…)
2. Concern about cost of calling veterinarian
3. Concern about repercussions (eg quarantine, culling, neighbour's gossip)
4. Lack of trust in authority
5. None!

Poll: suspect cases

On average, how many suspect cases are reported and investigated in your country each year? (on average over last 5 years)

1. None
2. Less than 5
3. 5-10
4. 10-20
5. More than 20

Improving surveillance for early detection

1. Improve passive surveillance
2. Supplement passive surveillance

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Reluctance to report	Identify and characterise the **specific barriers** and concerns, and address them
Failure of the laboratory to confirm the suspicion.	**Training** of field veterinarians and laboratory scientists in sample collection, shipment and testing protocols

Improving surveillance for early detection

ADD-ON

- Supplement passive surveillance
  - clinical and/or serological surveillance at abattoirs, markets and/or sentinel premises
  - screening bulk milk samples
  - resource intensive
  - ➢ however, may be useful in high risk populations.

Targeting resources to improve surveillance

1. Populations in which the passive surveillance system is more likely to fail
2. Populations with high probability of disease incursion:
   - Eg livestock populations in close proximity to endemic countries, or in which pigs are fed untreated swill
2. Populations with very high consequences of failure to detect the incursion:
   - Eg. infection of a breeder farm that regularly supplies animals to several other farms; or infection of animals that pass through a market

Case study: Thrace region

High-risk area for FMD introduction/detection:

- proximity to FMD-endemic Anatolia
- predominance of small ruminants
- semi-extensive production systems
- wildlife cross-border circulation (including wild boars)
- relatively long absence of the disease in the region

Surveillance Objectives

- Provide ongoing evidence of freedom from disease
- Surveillance for early detection of disease incursions

THRACE Programme:

Supplementing disease/suspicion reporting with an active risk-based surveillance

Modeling Framework

- Surveillance sensitivity
- Multiple surveillance activities
- Accumulation of historical evidence over time
- Risk of introduction of disease over time

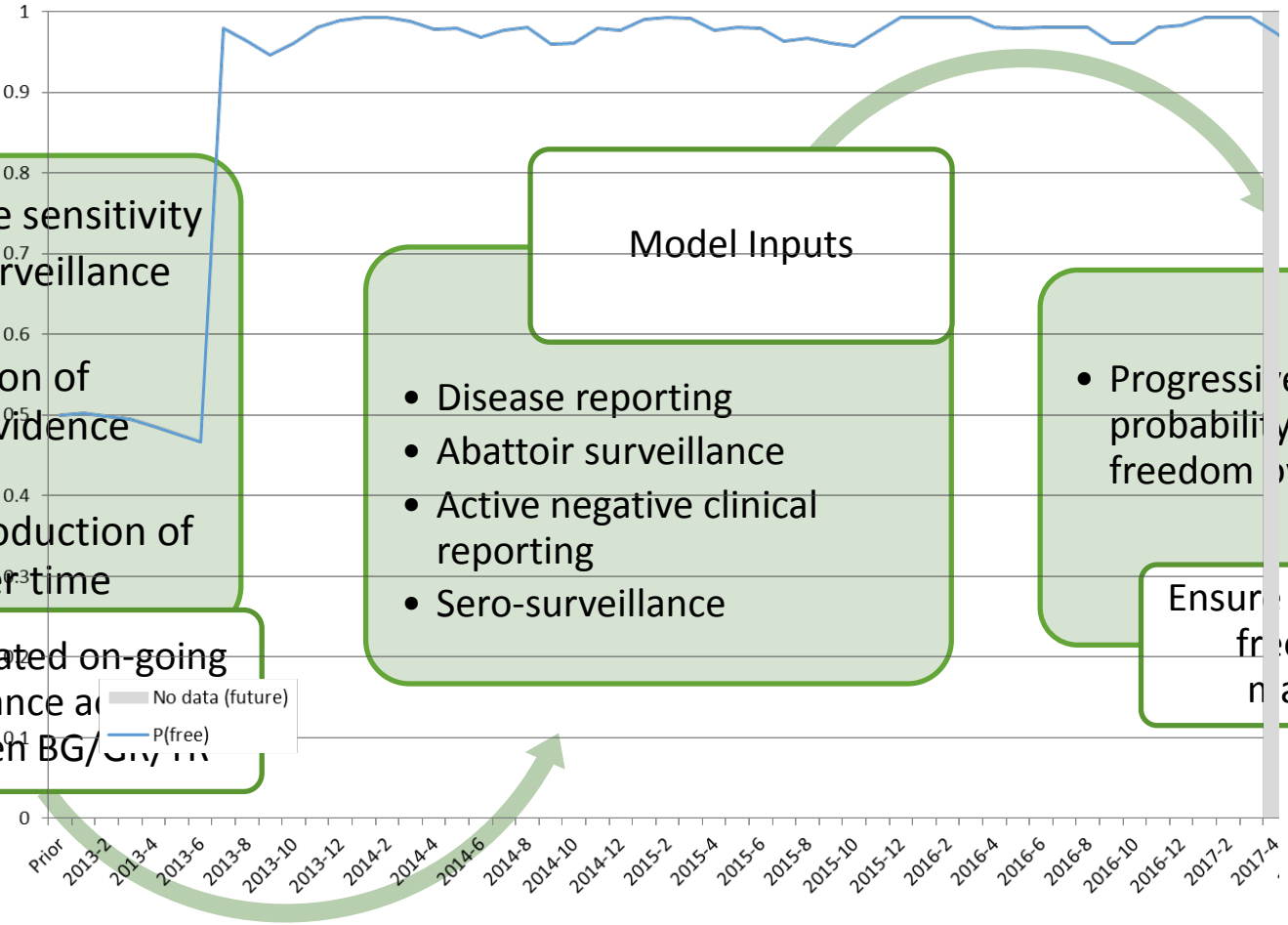
Coordinated on-going surveillance ac
between BG/GR/TR

Model Inputs

- Disease reporting
- Abattoir surveillance
- Active negative clinical reporting
- Sero-surveillance

- Progressi e probabili y of FMD freedom over time

Ensur confidence in fr e status is n aintained



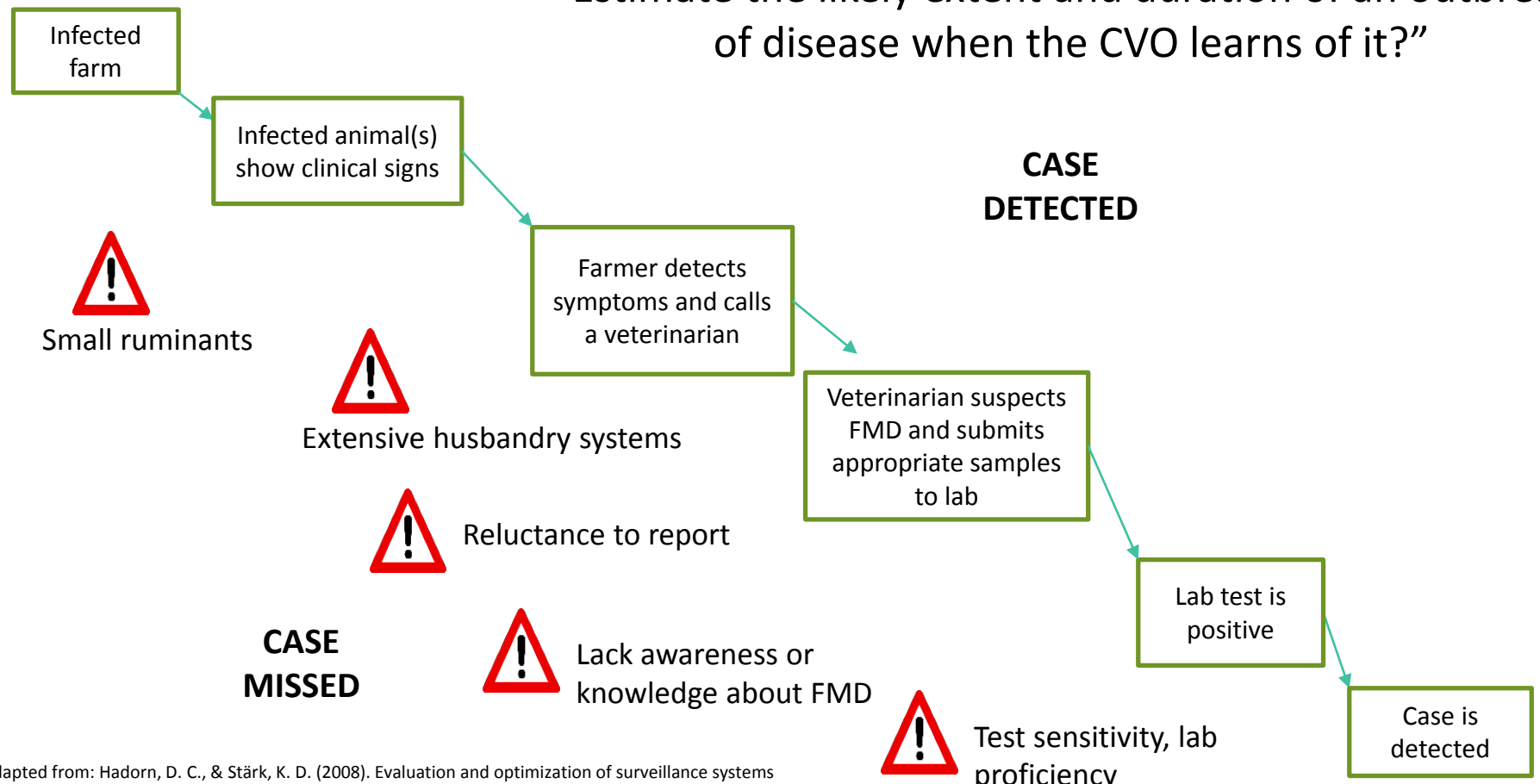
Credits: Angus Cameron (AusVet)

Assess the relative risks and consequences

Risk of introduction	• Livestock population • Husbandry systems • Animal movements • …
Risk of reporting failure	• Identify “reporting actors” • Probability reporting failure • Time for disease recognition • …..
Consequences of spread	• Control measures • Access to trade • Production lossess/Business continuity • …..

Evaluating "passive" surveillance

"Estimate the likely extent and duration of an outbreak of disease when the CVO learns of it?"



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Practical implementation/Workplan

Identify high risk populations

- Passive surveillance insufficient (evaluation)
- High **probability** of disease incursion
- High **consequences** if there is an outbreak

Target surveillance enhancements

- **Improve** passive surveillance and/or
- **Supplement** passive surveillance

Ensure free status maintained

- Greater confidence in disease freedom
- Incursion detected earlier

Thank you!