The known but unexpected

Best practice workshop by RiskSur
Early Detection of Emerging Diseases
Partner UCM
Unexpected diseases

NEW

KNOWN EMERGENCIES

Never reported

Eradicated in the past

1-4 months detection in the field

Late detection

- FMD
- CSF
- ASF
- AIV
- Etc

- Schmallenberg virus
Late field detection

Infection

- Observed
- Unobserved

Owner

- Calls vet
  - Vet not called

Vet

- Incorrect suspicion, samples not sent

Lab

- Sends samples
  - Samples not sent

Official Lab

- Sends samples
- Conventional /secondary infection diagnosed

- Not aware of the risk of occurrence

- Not textbook symptoms, insufficient training

Subacute clinical form

- Not explosive
- Spread during incubation period
- Lesions compatible with conventional diseases

Not serious symptoms

Treatment that mask symptoms further

Fear of consequences

Not aware of the risk of occurrence

- Conventional disease, secondary infections

Lesions compatible with conventional diseases
Early field detection

Infection
  - Unobserved
    - Late detection
      - Subacute clinical form
        - Not explosive
      - Spread during incubation period
  - Late detection
    - Not serious symptoms
      - Treatment that mask symptoms further
      - Fear of consequences

Owner
  - Vet not called
    - Late detection
    - Incorrect suspicion, samples not sent
      - Secondary infections
        - Never seen it, insufficient training
    - Late detection
      - Not aware of the risk of occurrence
      - Secondary infection diagnosed

Vet
  - Late detection
    - Samples not sent
      - Not aware of the risk of occurrence

Lab
  - Late detection
    - Not aware of the risk of occurrence

Official Lab

1. Risk assessment
2. Communication
3. Sentinel surveillance
4. Risk-based active surveillance
5. Continuing education and training
6. Public-private partnership

Looking for the usual, explicable
WHAT CAN WE DO?

1. Good Risk analysis and Risk based surveillance program

2. Good Sentinel Farms model

3. Good Monitoring system (Real Time)
Looking for the explicable

- Where is the disease of concern circulating and what probability is there that the disease spreads out of the affected region??

- By what routes can the disease spread into the unaffected region??

- What characteristics are there in the unaffected region that can complicate control??
Monitoring of sentinel farms

Even if selected in high risk periods and areas, it can still be costly

**DISADVANTAGES**

- Sampling and analysis
- High logistic needs (too many samples)
- Payment to farmers and technician

High economic impact

15-30 days without sanitary information
Looking for the usual I

Real-time monitoring of sentinel animals

Fever + decreased movements

Central computer
- Control, processing and real-time data analysis.
- System management
- Alert settings

Notifications and alerts
- SMS/e-mail alerts
- Direct data control
- Warnings submitted to qualified staff.
Looking for the usual II

Public-private partnerships: Private lab- Public official vet services

48 notifiable diseases are diagnosed by private labs in Spain, distributed across Spain (see map)

Around 30% of the notifiable diseases diagnosed by private labs are equine diseases (piroplasmosis, rhinoneumonitis, infectious anemia, viral arteritis, WNV)

Recently in Spain: also porcine
Looking for the usual II

Public-private partnerships: the example of the laboratory Grup de Sanejament Porcí (Lleida, Spain)

User enters clinical cases filtered by symptomatology: Dermic; Digestive; Locomotive; Nervous; Reproductive; Respiratory

Also lesions at necropsy, vaccine information and a list of usual diseases that could be suspected
Known unexpected diseases

Identification of areas at high risk of introduction and exposure

AND

Investigating atypical symptoms with atypical patterns, i.e. clustered in time and space

OR

Investigating typical symptoms with typical patterns, i.e. changes (different from baseline levels) of early stage disease-related behaviour
West Nile sampling in a region in Spain (Castile-Leon)

Risk-based contingency plans
Association Between Number of Wild Birds Sampled for Identification of H5N1 Avian Influenza Virus and Incidence of the Disease in the European Union

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Factors other than risk influencing decision-making in ES and NL
Solutions for best practice

Early detection discussion:

- Is passive surveillance enough on its own?

- How can passive surveillance be enhanced?

- Cost-effective active surveillance: when is it also necessary?
Contact

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