From syndromic surveillance towards data-driven surveillance

Fernanda C. Dórea
WHAT IS "SYNDROMIC SURVEILLANCE"

- Syndromic surveillance, CDC, 2006
  - approaches which make use of “health-related data that precede diagnosis and signal with sufficient probability of a case or an outbreak to warrant further public health response”
HOW IT IS DONE

Health data source

Data Extraction

AAA!!

Data Cleaning and Preparation

Data analysis

User-friendly Output and Interface

[Diagram showing the process of health data extraction and analysis]
European human and animal SyS systems by data source

Exposed population

Diseased population

Population seeking help or information

Patients of health care

Patients diagnosed

Dead population

Drug sales
Website hits or help-line calls
Clinics/hospitals activity/GP
Emergency department visits
Laboratory test requests
Laboratory results
Mortality/rendering plant activity
Meat inspection results

number of human health SyS systems
number of animal health SyS systems
WHAT IS "SYNDROMIC SURVEILLANCE"

• Syndromic surveillance, CDC, 2006
  – approaches which make use of “health-related data that precede diagnosis and signal with sufficient probability of a case or an outbreak to warrant further public health response”

• Syndromic surveillance, Triple-S, 2013
  – the real-time (or near real-time) collection, analysis, interpretation and dissemination of health-related data to enable the early identification of the impact (or absence of impact) of potential human or veterinary public-health threats which require effective public health action
SYNDROMIC SURVEILLANCE AT SVA

CDB

SJV djursjuk data

Provtagning

Data Extraction

AHSO

Syndromic classification

Data Cleaning and Preparation

Data analysis

User-friendly Output and interface

{vetsyn}

R package
HOW IT IS DONE

Animal Health data source

Data Extraction → Syndromic classification → Data Cleaning and Preparation → Data analysis → User-friendly Output and Interface

SVA
Temporal monitoring

Outputs not clear yet, as reporting delays have so far prevented the use for real-time alarm detection

Veterinary syndromic surveillance
Current framework: DATA in → ALARMS out (parallel streams)

Data providers
- Farms
- Abattoirs
- Private veterinarians
- Mortality
- State veterinarians
- Laboratory data

Animal health data

Temporal monitoring

ALARMS if abnormal numbers detected
**Epidemiological Intelligence Framework**

- **Data providers**: Animal health data
- **Analysis at the source**
- **Combined evidence**
- **Informal and Situational Awareness**
- **Feedback to data providers**
- **Automated integration and analyses**
- **Disease prevention and control programmes**

- **Farms**
- **Abattoirs**
- **Private veterinarians**
- **Mortality**
- **State veterinarians**
- **Laboratory data**

Summary statistics and indicators flow into a combined evidence, which is then used to inform disease prevention and control programmes.
Epidemiological data collection is about technology, but effective disease surveillance is about people.

People matter in animal disease surveillance: Challenges and opportunities for the aquaculture sector

Cecile Brugere
Dennis Mark Onuigbo
Kenton LL. Morgan
SURVEILLANCE CHALLENGES

- Evolving environment
- Evolving problems
DATA-DRIVEN SURVEILLANCE

- Smarter data
- Smarter systems
- Support decision makers
  - Surveillance design
  - Contribute to evidence and outcomes from surveillance

- Situational awareness in real-time
- Evolving problems and questions
SVA
Healthy animals, safe people.

THANK YOU!
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