European Surveillance Network for Influenza in Pigs (ESNIP3)

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Thanks to EU!

ESNIP2
www.esnip.ugent.be
Coordinator Kristien Van Reeth, UG

Coordinator Ian Brown, AHVLA, UK

www.esnip3.eu
Project consortia

• 25 partners:
  – Veterinary institutes
    • Belgium, UK, The Netherlands, Italy, France, Germany, Denmark, Poland, Spain, Israel, Hungary, Finland, Greece, USA, China
  – Vaccine manufacturers
    • Merial (France), IDT (Germany) & Hipra (Spain)
ESNIP3 overview

• Surveillance for influenza in pigs
  – Contemporary data
• Epidemiology
  – Enhanced farm level data
• Antigenic characterisation/mapping
  – Heterogeneity defined; cartography
• Genetic characterisation
  – Phylogeography
  – Genotypic data
• Virus database and repository
• Network interaction
Progress in year 1 of 3

• Standard epidemiological template for farm level data
• Inventory of surveillance programmes currently applied
• Strong passive focus
Virus epidemiology - UK

- A/H1N1/pdm09 dominant (60%)
- H1N2 ‘European’ [human-avian] (35%)
- Avian-like H1N1 (5%)- much reduced incidence

- H1N2 x A/H1N1/pdm09 – 1 case
  - Howard et al (2011) EID
Virus epidemiology - Belgium

- Human-like H3N2 x4
- Avian-like H1N1 x9
- H1N2 ‘European’ [human-avian] x3

- Genotyping in progress
Virus epidemiology - France

- Avian-like H1N1 x16
- H1N2 ‘European’ [human-avian] x11
- A/H1N1/pdm09 x2

- rH1N2 (av-like H1 x H1N2 ‘European’)

- Genotyping in progress
Virus epidemiology - Italy

- Human-like H3N2 x2
- Avian-like H1N1 x8
- H1N2 ‘European’ [human-avian] x4
- A/H1N1/pdm09 x1

- Genotyping in progress
Virus epidemiology - Germany

- Human-like H3N2 x5
- Avian-like H1N1 x5
- H1N2 ‘European’ [human-avian] x9
- A/H1N1/pdm09 x1
- H3N2 x A/H1N1/pdm09 x?
- Genotyping in progress
Virus epidemiology – Poland/Slovakia

- Avian-like H1N1 x5
- Influenza A (untyped) x5

- Genotyping in progress
Virus epidemiology - Hungary

- Human-like H3N2 x2
- A/H1N1/pdm09 x1
- Av-like H1N1 x A/H1N1/pdm09 x1
- Genotyping in progress
Virus epidemiology - Spain

- Human-like H3N2 x2
- Avian-like H1N1 x2
- H1N2 ‘European’ [human-avian] x2

- Genotyping in progress
Virus epidemiology - Denmark

- Avian-like H1N1 x1
- H1N2 ‘European variant’ [avian-human] x5
- A/H1N1/pdm09 x1

- Genotyping in progress
Method standardisation and harmonisation

- M gene screen (pan)
- Some subtype specific PCR
- VI in cells/eggs
Figure 1: results obtained by participating partners for M gene detection (samples 10 to 24). Repetitions of A (H1N1)pdm09 at dilution 10-4 are framed.
Figure 3: results obtained by participating laboratories for the detection of the H1 gene of the H1N1pdm (samples 13 to 24). Repetitions of H1N1pdm at dilution 10-4 are framed.
Flow for viruses and data in WP3

Partners submit to AHVLA virus bank

Selected viruses sent to partners for full HI characterisation with serum panel

Selected viruses sent to Sanger for sequencing

HI and sequence data submitted to Cambridge for a) antigenic cartography b) genetic basis for antigenic difference analyses
Development of a sera panel for H1

- To combine HI virus data from several laboratories
- Reference panel can change over time
- One animal = one serum
- Nomenclature must be same otherwise multiple equivalent points and less co-ordination
- Panel of 8 hyperimmune swine sera
ESNIP 3 Annual Meeting
Ploufragan, France, 17-18 November 2011