Swine Influenza Diagnostic Testing

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Collaborative Project

- NADC-Amy Vincent, Kay Faaberg
- SEPRL-David Suarez, Erica Spackman
- U of MN-Marie Gramer
- CDC-Rubin Donis, Alexander Klimov
- NAHLN Technical Methods Working Group
- VS-Tom Gomez, Leo Koster, Mary Lea Killian, Beverly Schmitt

Influenza Specimens Analyzed

- 4 equine influenza (H3N8)
- Human H1N1 (CA, NY, MX)
- 12 NPB 2008 H1
  - H1N1, H1N2
  - classic, beta, delta, gamma
- 44 repository SIV
  - H1N1, H1N2, H3N2
  - 1973-2003

Additional Specimens Analyzed

- Negative nasal swabs
- H1N1 CA and MX nasal swabs, BAL
- 9 swine viruses with respiratory potential
  - PRCV, TGE
  - PRRSV (NA, Euro)
  - PRV, PCV
  - Adeno, SVV-like, PPV

Tests Analyzed

- NAHLN matrix
- CFIA matrix
- SEPRL matrix
  - NAHLN + reverse primer
- NADC matrix
- WHO N
- SEPRL N
- CDC
  - Inf A
  - Sw Inf A
  - Sw H1

Additional Evaluation of SEPRL Matrix/N1

- Titrations
  - Ivt RNA (NAHLN matrix pos ctl)
  - Human H1N1
    - CA/04/09
    - NY/18/09
    - MX/4108/09
- Repeatability of titrations

Deployment to NAHLN Labs

- Tests chosen on a variety of factors
  - Availability of reagents
  - Ease of transition into existing NAHLN lab
  - Test performance
  - NAHLN Technical Methods Working Group

Diagnostic Challenges

- Submission of diagnostic specimens
  - Detection of routine influenza
  - Detection of novel isolates
  - Detection of 2009 H1N1
- Sequencing
  - Multiple genes to evaluate
  - Data publically available

Diagnostic Challenges cont.

- Test modifications over time to address genetic shift/drift
- Serology
  - Cross reactivity/lack of cross reactivity issues
  - HI's labor intensive and not conducive to surveillance-multiple antigen issues
  - Need for paired serology

Discussion

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