Pandemic Influenza: Tackling the Tough Issues

Bird Flu – H5N1 Update

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Avian Influenza - General

- Caused by Type A Influenza – multi-host pathogen
- Most virulent group – H5 and H7 can lead to HPAI
Avian Influenza - General

- H5N1 – 1997 Hong Kong – 1.4M birds
- H7N7 – 2003 Europe – 33M birds
- H5N1 – 2004/5/6 Asia
  - >200M birds
Pandemic Influenza & H5N1

• Previously considered nonpathogenic for humans

• 1997—Hong Kong
  • 18 humans infected, six died
  • H5N1 virus linked to outbreak in live bird market and area farms

H5N1 Strain of Type A
www.bact.wisc.edu
Pandemic Influenza & H5N1

• 2003—The Netherlands
  • 83 confirmed cases in humans, one death H7N7 strain

H5N1 Strain of Type A
www.bact.wisc.edu
Pandemic Influenza and H5N1—Human Transmission

- 2004-2005—Southeast Asia
- 79 cases, 49 deaths
  - Vietnam, Thailand, Cambodia
- Within the vicinity of poultry outbreaks
- No sustained human-to-human transmission

Bird Flu in Asia
www.cbsnews.com
Pandemic Influenza and H5N1—Human Transmission

• 2006: spread to North Africa and eastern Europe - 115 cases, 79 deaths (68% CFR)

• 2007: 88 cases, 59 deaths (67% CFR)
“Bird Flu” - Current Situation (2009)

- HPAI due to H5N1 - 12 countries currently - 50 cumulative
- H5N1 Human Infections - 3 Countries: China, Egypt, Vietnam
- 22 confirmed human cases
- 7 deaths (~32%)
- Not in North America
- Role of Migratory Birds – evident
“Bird Flu” - Current Situation (2009)

- LBMS – most likely conduit
- Vaccine(s) in development; antiviral drugs – 2 clades complicating the picture
- Human to human transmission still not a factor
- 417 confirmed cases; 257 deaths (~62% CFR)
Global Picture - Cumulative

Analysis of avian influenza sampling. [Credit FWS]
Human Avian Influenza A (H5N1) Cases by Age Group & Outcome

As of 23 March 2009, total of 412 cases were reported to WHO. The 12 cases in Turkey were excluded.
An Alarming Trend?

“In the past few months, the media buzz around ‘bird flu’ has died down, but the H5N1 strain of avian influenza has not. It remains a serious danger that we must all face together.”

Secretary Mike Leavitt, HHS
May 15, 2007
Pandemic Influenza: Tackling the Tough Issues

Swine Flu – H1N1 Update

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“Swine Flu” - Current Situation (2009)

- WHO Pandemic Alert Scale at Phase 4
- Sustained human-to-human transmission
- Human Infections - #___ Countries
- Confirmed cases in #___ States
- Origin thought to be Mexico
“Swine Flu” - Current Situation (2009)

- Rapidly & cryptically spread through travel
- Sensitive to Oseltamivir and Zanamivir
- CDC has approved test - rRT-PCR Swine Flu Panel diagnostic
- Current seasonal vaccine is unlikely to offer any cross protection
Cause for concern – not alarm

• “The swine flu outbreak is a cause for concern and requires a heightened state of alert, but is not a cause for alarm.”

President Barack Obama
April 27, 2009
Virchow’s Reminder

"Between animal and human medicine, there is no dividing line—nor should there be."

Dr. Rudolf Virchow, 1856