**HIGHLIGHTS**

**WHO**

- Meeting of the 66th World Health Assembly
  - WHO Director-General's opening speech praises China for quick and open response to H7N9
  - WHA approves 6 yr. strategic operational document (Report) and voices major concern for MERS

- WHO laboratory protocols for H7N9 detection published—Inhibition assay, Microneutralization assay

**Literature (see also literature section, below)**

- Lancet: Oseltamivir resistance easily emerges in H7N9 patients Article News 1 News 2 News 3. CDC continues to recommend antivirals Article.
- NIH sponsored clinical trial: Tamiflu double dose isn't better for severe influenza Article News
- Science: NIH-funded research confirms contact of ferrets & pigs results in H7N9 transmission Article News 1 News 2. NIAID press release; concern about transmission in markets continues News.
- NEJM: Clinical Findings in 111 H7N9 Cases; 42% cases ≥ 65 years, male:female = 2:1, 61% had underlying medical conditions, 97% had pneumonia, 27% died. Article News
- Sci Trans Med:
  - Glycosylations in Globular Head of HA Protein Modulate Virulence and Antigenic Properties of H1N1 Article
  - Protecting mice/ferrets against 1918 flu & H5N1 w gene therapy Article Press release News

**HUMAN H7N9 CASES**

Human Cases: Official WHO Worldwide (as of 05-30-13): 132 Cases, 37 Deaths; 1 death/1 case since 05-17-13; CFR: 28% (Unless labeled “suspected”, all cases confirmed/accepted by WHO).

**Deaths/Cases:** WHO

- 37th death: 1 case earlier reported died News
- Since May 8 only one new case in 6y/o boy in Beijing News 1 (Chinese translation) News 2

**ANIMAL OUTBREAKS/UPDATES**

- FAO report on risk management in the food chain, including guidelines for poultry market control measures Report
- OIE reports H7N9 in Fuli market, Guangdong Report
- OIE reports H7N1 outbreak in Spain; > 12,000 birds culled Report
- 6.5Billion in H7N9 losses to the economy in China News
- Wash. state, a first stop for migrating birds, wants to test poultry for H7N9 News
VACCINES/DIAGNOSTICS AND ANTIVIRALS
- WHO: Status on development, availability of H7N9 candidate vaccine strains Report 1 Report 2
- Lancet: Rapid diagnostics urgently needed for killer infections Article
- Eurosurveillance: A comparison of rapid point-of-care tests for the detection of H7N9; pcr is most effective Article
- Australia’s national science agency develops H7N9 test kits News
- Researchers in Israel stress the need to develop drugs which enhance T cell response Article
- EpiVax has four H7N9 vaccines in the pipeline Article

GLOBAL PANDEMIC PREPAREDNESS EFFORTS
- 10 years after SARS, countries still fall short of pandemic preparedness agreements Article
- Microbes and Infect: Birds of ill omen - is H7N9 the harbinger of the next pandemic? Article
- GAO releases a report on developing a disease surveillance strategy in livestock and poultry Report
- ASM meeting video – experts discuss H7N9 threat News

ALL INFLUENZA HIGHLIGHTS
WHO Summary Global Update of Influenza (Summary, Full report); subtype distribution World Graph and By Country

Influenza Surveillance

<table>
<thead>
<tr>
<th></th>
<th>% Flu Positives</th>
<th>Prominent circulating subtype</th>
<th>Pediatric Deaths</th>
<th>Hospitalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Wk 20/21</td>
<td>3.2%</td>
<td>Influenza B</td>
<td>7</td>
<td>50% in persons &gt;65 years</td>
</tr>
<tr>
<td>WORLD Wk 18/19</td>
<td>8.0%</td>
<td>(H1N1)pdm09</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- Columbia U and China CDC forge partnership with a joint pathogen discovery lab in Beijing Press release
- More about narcolepsy with Pandemic 2009 vaccine in Finland Press Release News 1 News 2
- Bats as a potential reservoir for new influenza viruses? Article
- Simultaneous emergence of new viruses, surveillance, and the source of the next pandemic? News
- Canadian use of pharmacy-based influenza surveillance to track antiviral use in near real time Article News
- H1N1pdm09 activity and 17 Deaths in Venezuela News

LITERATURE & REPORTS
- Bioinformatics: EpiCombFlu: Exploring known influenza epitopes and their combination to design universal influenza vaccine PubMed
- Clin Microbiol Infect: Visual detection of H7N9 infection with subtype-specific reverse transcription PubMed
- Curr Opin Virol: What can we predict about viral evolution and emergence? Article Special Issue on Emerg Viruses (TOC)
- Curr Opin Microb: Viral pathogen discovery Article
- J Virol:
  o In vivo bioluminescent imaging of influenza A virus infection, characterization of novel cross-protective monoclonal antibodies Article
  o Induction of cross-reactive Ab to H7N9 recombinant Newcastle virus expressing a N. American lineage H7 subtype Article
  o Recombinant IgA is sufficient to prevent influenza virus transmission in guinea pigs Article
  o Protection against lethal influenza with a viral mimic Article
- eLife Sciences Journal:
  - Influenza evolution navigates stability valleys - Evolution of 1968 flu virus to 2007 PubMed
  - Stability-mediated epistasis constrains the evol. of an flu protein Article

- J Crit Care: H7N9 infections: Intensivists as virus hunters Editorial

- JID: Low prevalence of H7N9 Ab in Vietnam Article News

- J Gen Virol: Genotype patterns of contemporary reassorted H3N2 virus in US swine Article

- MMWR: Value of Pharmacy-Based Influenza Surveillance — Ontario, Canada, 2009 Article

- NEJM:
  - Live-Animal Markets and Influenza A (H7N9); researchers explore genetic similarity between a poultry butcher’s H7N9 strain and feces close to her stall, showing 98.9 to 100% similarity Article
  - Serologic Study finds low level H7N9 antibodies among poultry workers Article

- Plos One:
  - Influenza Mortality in the US, 2009 Pandemic: Burden, Timing and Age Distribution Article
  - Sequence-Specific, Visual Identification of the Influenza Virus NS Gene Article
  - A Lattice Model for Influenza Spreading Article

- Plos Path: Prolonged Influenza Virus Shedding and Antiviral Resistance in Immunocompromised Patients and Ferrets Article


- Sci Trans Med: Intranasal Ab Gene Transfer in Mice and Ferrets Elicits Broad Protection Against Pandemic Influenza Article

- Vaccine: Influenza-related health care utilization and productivity losses during seasons with and without a match between the seasonal and vaccine virus B lineage Article

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