HIGHLIGHTS

• Debate: The Pandemic Potential of H7N9:
  o WHO’s Latest Risk Assessment June 7 Report
  o NEJM: NIAID authors/Fauci review the origin, rarity, and unpredictability of pandemic influenza, and are hedging their bet on the question of the threat posed by H7N9 Article News1 News2
  o Significant H7N9 shedding from chickens/quail and role in transmission News
  o MIT: A single AA change significantly improves HA binding strength to human receptors Press Release Cell article 1; H5N1 also has pandemic potential Cell article 2 News

• H7N9 Assessment:
  o China ends all emergency response to H7N9 News
  o CDC updates advisory on human H7N9 infections: test only severely ill patients CDC Update News
  o WHO: Report on emergence & characteristics of H7N9 so far; Report and WHO recommendations News
  o Lancet: Concern about antiviral resistance mutation (NA Arg292Lys) in hospitalized H7N9 patients Article
  o Arch Int Med: Report of the first 24 H7N9 deaths in China Article
  o Science China: Role of live bird markets on the emergence of new pathogens Article

Literature Highlights (see also literature section):

• Options for the Control of Influenza, Cape Town SA -- Abstract deadline June 19
• J Virol: Glycosylation of HA protein influences both virulence and antigenicity of 1918 pandemic/seasonal H1N1 viruses Article
• WHO new pandemic guidelines. Changes include new 4 phase alert system (rather than 7) Report News Blog
• Oseltamivir treatment benefits in outpatient setting, but not in hospitalized children:
  o Treatment for flu in Hospitalized Children Article - Oseltamivir use didn’t change outcomes
  o Early therapy with NA inhibitors on A (H1N1) pdm 2009 (RI) Article - improved outpatient pediatric outcomes
• Virus Res: The emergence and diversification of panzootic H5N1 influenza viruses Article
• Influenza transmission:
  o Nat Communications: Aerosol transmission is an important mode of influenza A virus spread Article; Press Release
  o J Infect Chemo: Laninamiviroctanoate for post-exposure prophylaxis of influenza in household contacts: a randomized double blind placebo controlled trial; shows 77-78% reduction Pubmed
  o Prot. Res: Age, Sex differences in the Glycopatterns of Human Salivary May explain H9N2 Age patterns Article News
  o Curr Opin Virol: Clearance of influenza virus infections by T cells: risk of collateral damage? Article
  o AJPH: Model finds paid sick leave could reduce influenza transmission by 6% in the workplace News
• H7N9 emergence:
  o Lancet: Human co-infection with novel AI H7N9 and flu A H3N2 viruses in Jiangsu province, China Article Co-infection of H7N9 and H3N2 draws the question of humans as a mixing vessel
  o Plos Path: Influenza Virus Reassortment Occurs with High Frequency in the Absence of Segment Mismatch Article Researchers reveal co-infection is a major determinant of reassortment in absence of mismatch
  o J Formosan Med Assoc: Is avian influenza A (H7N9) virus staggering its way to humans? Article; sequence analysis of internal genes reveals avian origin with several human signature AA changes
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: 28.0% Note: Unless labeled “suspected”, all cases confirmed/accepted by WHO.

Deaths/Cases: WHO
- Suspected 38th death: Shanghai man succumbs after 2 months of illness News
- Suspected 39th death reported in official Chinese report News, 14 cases remain hospitalized News

ANIMAL OUTBREAKS/UPDATES

- WHO AI Monthly Risk assessment Report
- Genome Res: Complete Genome Sequence of a New H9N2 Avian Influenza Virus Isolated in China Article
- Duck genome sequencedwill facilitate better understanding of host/virus interaction Press Release Article
- H5N1 found in rare smuggled birds in Austria News
- Eight new H7N3 outbreaks reported in Mexico OIE
- H7 Outbreaks in Europe:
  - The Netherlands- H7N1 in free range poultry; almost 50% attack rate; all birds culled OIE News
  - Denmark-H7 discovered in Mallards OIE

VACCINES/DIAGNOSTICS AND ANTIVIRALS

- WHO Provisional recommendations on H7N9 CVV is to use A/Anhui/1/2013-like viruses WHO
- Virus Res: H5N1 vaccines in humans Article
- H7N9 Vaccine:
  - VLP vaccine from Medicago’s Phase I mice studies show high titres after 1 injection Press Release News
  - Inovio's DNA vaccine, quickly made in 2 wks., generates protective response in mice in Phase I P.Release
- US FDA approves Fluzone, Sanofi's quadrivalent flu vaccine for use in >6mo. Press release
- CID: Flu Vaccination Not Associated w/ Detection of Non-flu Resp. Viruses in Seasonal Studies of flu Vaccine Effectiveness Article
- CIDRAP’s review of the NVAC meeting and the state of H7N9 vaccines Meeting Agenda CIDRAP
- Phase II for Medicago’s H5N1 vaccine to begin News
- Seasonal Influenza vaccine:
  - Pediatric vaccine effectiveness, China 2010-2012 is 55% in lab confirmed case control study Article
  - CDC-NIAID supported community trial demonstrates cost effectiveness of school vaccine pgms. News

PANDEMIC PREPAREDNESS EFFORTS

- CDC Guidance Documents released:
  - How to fine tune states’ pandemic plans with the Top Ten Pandemic Response Planning Tips Click
  - Interim Risk Assessment and Biosafety Level Recommendations for Working With Influenza A(H7N9) Viruses Click
  - Int. Guidance on Case Definitions to be Used for Novel Influenza A (H7N9) Case Investigations in the United States Click
  - Int. Guidance on Specimen Collection, Processing, and Testing for Patients with suspected AI (H7N9) Virus Click
- PloS One: Systematic review to answer which preparedness strategies are cost effective Article
- The “virtual” fight against the next pandemic – blogs, science, and journalism merge News
**GENERAL INFLUENZA SECTION**

**WHO Update of Global Influenza** subtype distribution in a World Graph and By Country. Full Report

### Influenza Surveillance

<table>
<thead>
<tr>
<th></th>
<th>Flu Positives</th>
<th>Prominent circulating subtype</th>
<th>Pediatric Deaths</th>
<th>Hospitalizations</th>
<th>ILI Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>US</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wk 22/23</td>
<td>4.5%</td>
<td>Influenza B</td>
<td>2</td>
<td>Only up to week 17</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>WORLD</strong></td>
<td>6.1%</td>
<td>(H1N1)pdm09</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- **WHO releases** Influenza at the human-animal interface update (last one in April) Report
- **2012-2013 flu season: N. hemisphere 2012-13 H3N2 season** WHO judged moderately severe in the US MMWR
- **H3N2 human deaths in Bolivia** as S. Hemisphere flu season gears up News

### ALL LITERATURE & REPORTS

- **Biotechniques**: Devt. of a high density HA microarray to determine breadth of influenza Ab responses Article
- **BMC PH**: Human H5N1 infections in Cambodia 2005–2011: case series and cost-of-illness Article
- **CID**: Serology study of subclinical A (H7H9) infection in healthcare/other workers in Zhejiang China Article
- **CurrOpinVirol**: Role of T cell immunity in recovery from influenza infection Article
- **EID**: Active Surveillance for Influenza A Virus among Swine, Midwestern US, 2009-2011 Pubmed
- **Eur J ClinMicrobi Infect Dis**: Seroprevalence of H9N2 among poultry workers in Shandong Province, China Article
- **InfOthRespVir**: 1st Asia-Pac. Forum- antiviral treatment of flu, A.Pacific Alliance for Control of flu, Bangkok, 14 June ’12 Pubmed
- **J Virol**: Sequencing viral genomes from a single isolated plaque Pubmed (Protocol)
- **J AntimicrobChemother**: Virological self-sampling to monitor influenza antiviral susceptibility in a community cohort Pubmed
- **Nat Biotech**: Broad protection against influenza infection by vectored immunoprophylaxis in mice Article
- **Nucleic Acid Res**: The genetic code constrains yet facilitates Darwinian evolution Pubmed
- **Plos One**:  
  - Characterization of Influenza Vaccine Immunogenicity Using Influenza Antigen Microarrays Article  
  - Intranasal Imm. of BacVirus DisplayedHA Confers Protectionagainst High Path H7N7 ReassortantFlu Article  
  - Mortality attributable to seasonal/pandemic flu, australia, 2003-2009 Pubmed
- **ProcBiolSci**: Is low pathogenic AI virus virulent for wild waterbirds? Article
- **Rec Soc Bras Med Trop**:  
  - Pandemic influenza A (H1N1) 2009: epidemiological analysis of cases in a tropical/semi-arid region of Brazil Pubmed  
  - Characteristics, clinical manifestations and outcomes of pandemic A (H1N1) 2009 in the elderly Pubmed
- **Vet Res**: A global model of avian influenza prediction in wild birds: the importance of northern regions Pubmed
- **Virus Res**: Natural History of Highly Pathogenic Avian Influenza H5N1 Pubmed

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