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**WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE &
GOVERNMENT UPDATES**

(WEEK ENDING SEPTEMBER 11, 2009)

INTERNATIONAL SITUATION:

The pandemic H1N1 (pH1N1) influenza virus continues to be the dominant influenza virus in circulation in the world. In the **southern hemisphere**, influenza activity continues to decrease or return to baseline. In contrast, more African countries have reported their first laboratory confirmed cases. There have been no significant changes detected in the pH1N1 virus isolated from persons in the Southern hemisphere compared to persons in the Northern Hemisphere. In the **northern hemisphere** activity is variable. In the US, regional increases in influenza activity are being reported, most notably in the south eastern states. Most of Europe is reporting low or moderate respiratory diseases activity, but parts of Eastern Europe are beginning to report increases in activity. *Sources: CDC, ECDC as of September 11; WHO as of September 6.*

CANADA:

The overall influenza activity in Canada remains similar to the previous week; the national ILI consultation rate was slightly higher than expected for this time of the year. The intensity of the pH1N1 infection in the Canadian population is low to moderate with only a small number of hospitalizations (n=11) and two deaths this week. As of September 5, 2009, the total of 1,445 hospitalized cases, 285 cases ICU admissions and 74 deaths had been reported since the beginning of the pandemic. Children < 2 years of age, pregnant women, persons < 65 years of age with underlying medical conditions and Aboriginal people have higher rates of hospitalizations and greater risk of severe outcomes (ICU admissions and deaths). Aboriginal communities experience severe pH1N1 cases compared to the general Canadian population. *Source: FluWatch Week 35, PHAC, as of September 5.*

ONTARIO:

Based on the provincial surveillance information as of September 10, 2009, influenza activity in Ontario is similar compared to the previous week. However, since ILI consultation rates are one of the early indicators of ILI activity, the rise in ILI consultation rate may suggest early increasing pH1N1 activity in Ontario, increased activity of other respiratory viruses, or increased health seeking behavior among the general public. *Source: Ontario Influenza Bulletin, Surveillance Week 35 as of September 10.*

Deaths Among Novel H1N1 Influenza A Virus, April 13-September 9, 2009

- 23 deaths have been reported among confirmed cases.
- Almost all of these fatalities were hospitalized prior to death (83%).
- Age of fatal cases ranged from 6 to 81 years of age; median is 56 years and the average age is 54 years.
- Among confirmed cases that have died, 20 or 87% had underlying chronic medical conditions compared to 66% of hospitalized cases.

Hospitalizations Among Novel H1N1 Influenza A Virus Cases

As of September 9, 2009 in Ontario:

- 370 confirmed cases have been hospitalized to date for greater than 24 hours to date; of these, 350 cases have been discharged.
- The average length of stay range from less than 1 day to 80 days.

- Among cases that are currently or have previously been hospitalized, a number of complex medical conditions have been reported (for example, COPD, kidney disease, heart disease diabetes, etc).
- 89% of cases that were discharged had a length of stay of at least 2 days
- Of the 20 cases are currently hospitalized, a total of 13 were placed on a ventilator and/or were admitted to ICU.

HOSPITALIZATION STATUS	VENTILATOR AND/OR ICU	NOT IN ICU AND NOT ON VENTILATOR	TOTAL
Number of Currently Hospitalized	13	7	20
Number of Hospitalized and Discharged	63	287	350
Total hospitalized to date	76	294	370*

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, September 9, 2009.

* Excludes case with a length of stay of less than 24 hours

AGE GROUP	HOSPITALIZATIONS	RATE/100,000	DEATHS	RATE/100,000
<1	20	14.93	0	0.00
1-4	50	9.15	0	0.00
5-19	107	4.43	3	0.12
20-49	108	1.90	4	0.07
50-64	50	2.08	9	0.37
65+	35	2.03	7	0.41
Total	370	2.86	23	0.18

Source: Ontario Influenza Bulletin (surveillance week 34) MOHLTC, iPHIS data as of 8:30 am, September 9, 2009; Ontario population projections for 2008 PHPDB as of February, 12 2009.

<u>GOVERNMENT UPDATES</u>
<u>CENTRE FOR DISEASE CONTROL (CDC)</u>
<p>September 11, 2009: CDC H1N1 Flu Surveillance Update. http://www.cdc.gov/h1n1flu/update.htm</p> <p>Weekly Flu View Map and Surveillance Report for Week Ending August 5, 2009. http://www.cdc.gov/flu/weekly/</p> <p>Map includes both seasonal flu and H1N1 flu activity. During week 35 (August 30-September 5, 2009), influenza activity increased in the US, however there are still higher levels of ILI than is normal for this time of year. Note: This is the first week that CDC is reporting data from a new system for monitoring the trend of influenza-related hospitalizations and deaths. This new system replaces the weekly report of laboratory confirmed 2009 H1N1-related hospitalizations and deaths. States and territories can now report to CDC either laboratory confirmed or pneumonia and influenza syndromic hospitalizations and deaths resulting from all types or subtypes of influenza, not just those from 2009 H1N1 influenza virus. Counts were reset to zero on August 30, 2009.</p>

Interim Guidance for State and Local Health Departments for Reporting Influenza-Associated Hospitalizations and Deaths for the 2009-2010 Season (September 10, 2009).

<http://www.cdc.gov/H1N1flu/hospitalreporting.htm>

This interim guidance provides information for state and local health departments on how to report influenza-associated deaths and hospitalizations during the 2009-2010 season.

Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for 2009-2010 Season (September 8, 2009).

<http://www.cdc.gov/H1N1flu/recommendations.htm>

This document provides updated guidance on the use of antiviral agents for treatment and chemoprophylaxis of influenza including 2009 H1N1 influenza infection and seasonal influenza, and assist clinicians in prioritizing use of antiviral medications for treatment or chemoprophylaxis for patients at higher risk for influenza-related complications.

CDC Revised Recommendations for the Use of Influenza Antiviral Drugs, Questions & Answers (September 8, 2009).

<http://www.cdc.gov/h1n1flu/antiviral.htm>

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 35 (August 30 - September 5, 2009)

http://www.phac-aspc.gc.ca/fluwatch/09-10/w35_09/pdf/fw2009-35-eng.pdf

The overall influenza activity remains similar to the previous week; the national ILI consultation rate was slightly higher than expected for this time of the year. The peak period of pH1N1 occurred in the first three week of July.

Pandemic Vaccine Prioritization Framework (September 11, 2009):

<http://www.phac-aspc.gc.ca/cpip-pclcpi/vf/index-eng.php>

The Pandemic Vaccine Prioritization Framework has been developed as guidance for those who will be making the recommendations on whether or not priority groups are required and, if they are, on who will be members of those groups.

Public Health Guidance for the prevention and management of Influenza-like-illness (ILI), including the Pandemic (H1N1) 2009 Influenza Virus, related to mass gatherings (September 9, 2009)

<http://www.phac-aspc.gc.ca/alert-alerte/h1n1/phg-ldp-eng.php>

This document provides guidance that local public health officials can use in developing recommendations for organizers of large gatherings in their communities.

Individual and Community Based Measures to Help Prevent Transmission of Influenza-Like-Illness (ILI) in the Community, Including the Pandemic Influenza (H1N1) 2009 Virus (September 10, 2009)

http://www.phac-aspc.gc.ca/alert-alerte/h1n1/hp-ps-info_health-sante-eng.php

This document has been developed to provide guidance to public health authorities regarding non-pharmaceutical measures that may contribute to the reduction of transmission of the pandemic influenza (H1N1) 2009 virus in the community.

PHAC news release: Government of Canada Takes Further Measures to Help Reduce H1N1 Transmission in Communities (September 10, 2009)

http://www.phac-aspc.gc.ca/media/nr-rp/2009/2009_0910-eng.php

This week, the Government of Canada will launch radio ads to remind people to practice regular infection prevention behaviours.

Deaths Associated with Influenza A (H1N1) as of September 10, 2009

<http://www.phac-aspc.gc.ca/alert-alerte/h1n1/surveillance-eng.php>

The Public Health Agency of Canada (PHAC) is committed to sharing information about the impact of the H1N1 flu virus in Canada. Every Tuesday and Thursday at 4 p.m., the Agency will issue national updates on H1N1-associated deaths. In addition, PHAC will issue special reports on any unusual cases or clusters.

ONTARIO- MOHLTC

Ontario Influenza Bulletin 2008-2009 Season, Surveillance Week 35 (August 30, 2009- September 5, 2009).

http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_08/bulletins/flu_bul_01_20090911.pdf

Influenza activity in Ontario is similar compared to the previous week. However, ILI consultation rates have increased.

Newsroom: Ontario helping every household fight the flu (September 9, 2009).

<http://www.news.ontario.ca/mohltc/en/2009/09/ontario-helping-every-household-fight-the-flu.html>

McGuinty government prepares for a different flu season and wants to help prepare all residents for the upcoming flu season. To ensure all Ontarians are properly informed about this flu season, beginning next week every home in Ontario will be receiving information in the mail regarding the vaccination programs.

WORLD HEALTH ORGANIZATION (WHO)

Situation Update 65, September 11 2009:

http://www.who.int/csr/don/2009_09_11/en/index.html

In temperate regions of the northern hemisphere, there are wide geographical variations in the level of influenza activity being reported. In Japan, influenza activity continues to increase past the seasonal epidemic threshold, indicating an early beginning to the annual influenza season. In Canada & the US, influenza activity remain low overall, however regional increases are being detected in the Southeastern United States.

Measures in school settings (September 11, 2009).

http://www.who.int/csr/disease/swineflu/notes/h1n1_school_measures_20090911/en/index.html WHO is issuing advice on measures that can be undertaken in schools to reduce the impact of the H1N1 influenza pandemic. Recommendations draw on recent experiences in several countries as well as studies of the health, economic, and social consequences of school closures.

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

September 11, 2009: ECDC situation report (daily surveillance report).

http://ecdc.europa.eu/en/healthtopics/Documents/090911_Influenza_AH1N1_Situation_Report_1700hrs.pdf

First report of transmission of the pandemic A(H1N1) 2009 influenza virus from humans to birds / ECDC (September 2, 2009)

http://ecdc.europa.eu/en/activities/sciadvice/Lists/ECDC%20Reviews/ECDC_DispForm.aspx?List=512ff74f%2D77d4%2D4ad8%2Db6d6%2Dbf0f23083f30&ID=645

On August 29 Chile's health ministry confirmed that the strain of H1N1 2009 influenza pandemic found in turkey farms was the same as that currently circulating in humans in the Southern hemisphere.

HEALTH/SURVEILLANCE BULLETINS:

Southern Hemisphere

In the southern hemisphere (countries such as Chile, Argentina, Australia, New Zealand, and South Africa), influenza activity continues to decrease or return to baseline. Active transmission persists in tropical regions of the Americas and Asia. Many countries in Central America and the Caribbean continue to report declining activity for the second week in a row. However, countries in the tropical region of South America (countries such as Bolivia, Ecuador, and Venezuela) are reporting increasing levels of respiratory disease. In the tropical regions of Asia, respiratory disease activity remains geographically regional or widespread but the trend is generally increasing in India, Bangladesh, and Cambodia.

Source: WHO as of September 11.

Australia

Australia Influenza Surveillance Summary Report, No. 17, 2009, reporting period: August 29 - September 24 2009.

<http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/ozflucurrent.htm>

Overall, the current national influenza activity appears to be decreasing. Most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is starting to decrease. ILI presentations to the ED are decreasing across all reporting systems this reporting period. Absenteeism rates remained steady in the last week and are below levels seen at the same time in 2007.

The number of people with confirmed H1N1 requiring hospitalization appears to be decreasing. As of September 4, a total of 375 people were hospitalized and 71 are currently in ICU, with a total of 4548 people who are hospitalized. Highest hospitalization rate occurred in young children less than 5 years of age. 4.4% of the hospitalized cases have been reported as pregnant. Indigenous Australians are approximately **8 times more likely** than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 14.7% of all hospitalizations.

Australia, New South Wales: Weekly Summary (as of September 9, 2009)

http://www.emergency.health.nsw.gov.au/swineflu/resources/pdf/case_statistics_090909.pdf

New Zealand

Situation Update in New Zealand as of September 11, 2009 see link:

<http://www.moh.govt.nz/moh.nsf/indexmh/influenza-a-h1n1-update-150-110909>

New Zealand: Weekly 36 Summary (August 31 - September 6, 2009)

http://www.surv.esr.cri.nz/PDF_surveillance/Virology/FluWeekRpt/2009/FluWeekRpt200936.pdf

There has been a decrease in consultations for ILI through sentinel surveillance in week 36. However, the weekly ILI consultation rate is still higher than previous years for the same week. So far, the highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years.

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

September 11: Results point to 1-dose regimen for H1N1 vaccines. US health officials offered more evidence today that a single dose of pandemic H1N1 influenza vaccines may be enough to protect adults, saying preliminary findings in government-sponsored trials reinforce early results from company trials.

<http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/sep1109vaccine.html>

September 10: Inhaled H1N1 vaccine may ship within days. An official from MedImmune, which is making an inhaled vaccine against pandemic H1N1 influenza, stated the company would begin shipping orders to the US government by the end of September. An official from the company said there are no "red flags" in the safety data submitted to the Food and Drug Administration and that 5 million doses will likely be delivered by the end of the month, about 2 weeks ahead of other pandemic vaccine makers.

<http://www.reuters.com/article/GCA-SwineFlu/idUSTRE5895K820090910>

September 9: NIAID launches trial of pandemic vaccine in pregnant women. Federal officials announced the start of the first clinical trial of a pH1N1 vaccine in pregnant women, who face an increase risk of complications from the virus. The trial is to enroll up to 120 women in the 2nd or 3rd trimester of pregnancy.

<http://www3.niaid.nih.gov/NIAID/Templates/Specialized/PreseedableLeftRightNav.aspx?NRMODE=Publis hed&NRNODEGUID=%7bE36BA6A7-6A47-4491-A44F-D3286B9A8327%7d&NRORIGINALURL=%2fnews%2fnewsreleases%2f2009%2fH1N1pregnanttrials%2ehtm&NRCACHEHINT=Guest#>

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Journal of Virology (*added this week*)
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH

- Nothing new on H1N1 this week

BRITISH MEDICAL JOURNAL

1) Should I have an H1N1 flu vaccination after Guillain-Barré syndrome? (*Laura Claire Price, September 8, 2009*)

http://www.bmj.com/cgi/content/full/339/sep09_1/b3577

In December 2008 Laura Claire Price developed severe Guillain-Barré syndrome but is making a good recovery. She finds herself asking the difficult question of whether to be vaccinated against H1N1 flu when she returns to work as a hospital doctor this autumn.

2) Australia's swine flu vaccination plans come under fire (*Melissa Sweet, September 8, 2009*)

http://www.bmj.com/cgi/content/full/339/sep08_1/b3656

The Australian Infection Control Association this week warned the government against proceeding with the vaccination program, stating the planned use of multidose vials (used to vaccinate several people) posed a "significant potential risk to patient safety."

3) Antiviral drugs: distinguish treatment from prophylaxis (*Benjamin J Cowling, Sophia Ng, Ira M Longini, Jr, September 8, 2009*)

http://www.bmj.com/cgi/content/full/339/sep08_1/b3620

The use of antiviral drugs for treatment needs to be distinguished from their use as chemoprophylaxis against infection or illness is important. In the current pandemic oseltamivir treatment has been widely used in many countries as part of "mitigation phase" protocols whereas chemoprophylaxis has rarely been used since the initial "containment phase."

5) Podcast: Tamiflu - the wrong message? (*Twisselman, September 4, 2009*)

<http://podcasts.bmj.com/dtb/2009/09/04/tamiflu-the-wrong-message/>

Dr Ike Iheanacho, *Drug & Therapeutics Bulletin (DTB)* editor, discusses the policy with two members of the *DTB* editorial board, Dr Paul Caldwell, a general practitioner and Dr Mahdad Noursadeghi, an infectious diseases consultant.

CLINICAL INFECTIOUS DISEASES

- Nothing new on H1N1 this week.

EMERGING INFECTIOUS DISEASES

1) Using Satellite Images of Environmental Changes to Predict Infectious Disease Outbreaks (*Timothy E. Ford et al., September 8, 2009*)

<http://www.cdc.gov/eid/content/15/9/1341.htm>

This article reviews infectious diseases and how it relates to the changing human-constructed and natural environments. The article describes airline travel, population increase and displacement, pollution, agricultural activity, changing socioeconomic structures and international conflict contributes to infectious diseases (epidemics and pandemics) worldwide. The researchers discuss advances in the ability to predict these events and, in particular, the critical role that satellite imaging could play in mounting an effective response.

2) A Model-based Assessment of Oseltamivir Prophylaxis Strategies to Prevent Influenza in Nursing Homes (*Carline van den Dool, Eelko Hak, Marc J.M. Bonten, and Jacco Wallinga, September 9, 2009*)

<http://www.cdc.gov/eid/content/15/10/pdfs/08-1129.pdf>

Researchers used a stochastic individual-based model that simulates influenza virus transmission in a long-term care nursing home department to study the protection offered to patients by different strategies of prophylaxis with oseltamivir and determined the effect of emerging resistance. Without resistance, postexposure and continuous prophylaxis reduced the patient infection attack rate from 0.19 to 0.13 (RR 0.67) and 0.05 (RR 0.23), respectively. Postexposure prophylaxis prevented more infections per dose (118 and 323 daily doses needed to prevent 1 infection, respectively) and required fewer doses per season than continuous prophylaxis.

3) Poor Clinical Sensitivity of Rapid Antigen Test for Influenza A Pandemic (H1N1) 2009 Virus (*Jan Felix Drexler, et al., September 9, 2009*)

<http://www.cdc.gov/eid/content/15/10/pdfs/09-1186.pdf>

This study evaluates the clinical applicability of a widely distributed rapid test in patients with pH1N1. Influenza A pandemic (H1N1) 2009 virus RNA was detected by reverse transcription-PCR in 144 clinical samples from Bonn, Germany. A common rapid antigen-based test detected the virus in only 11.1% of these samples. The paramount feature of rapid test-positive samples was high virus concentration. The results from this study suggest that testing of patients suspected of pH1N1 infection with antigen-based assays may produce misleading results in clinical practice. The article concludes, the application of such assays should be discouraged in favor of continued molecular diagnostics.

EMERGING INFECTIOUS DISEASES

1) Influenza (H1N1) 2009 Outbreak and School Closure, Osaka Prefecture, Japan (*Kawaguchi et al., October 2009*)

<http://www.cdc.gov/eid/content/15/10/pdfs/09-1029.pdf>

This report describes the Osaka governments' implementation of school closures as a public health measure to mitigate the spread of pH1N1. The prefectural-wide school closure strategy may have had an impact on not only the reduction of virus transmission and elimination of successive large outbreaks, but also may have fostered greater public awareness about the need for preventive measures.

EUROSURVEILLANCE

1) Detection of Influenza A(H1N1)v virus by real-time RT-PCR (*M Panning et al., September 10, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19329>

This study examined and validated real-time RT-PCR assay for the influenza A (H1N1) following industry-standard criteria. The novel real-time RT-PCR assay for the influenza A matrix gene recommended in 2007 by the World Health Organization was modified to work under the same reaction conditions as the influenza A(H1N1)v virus-specific test. Both assays were equally sensitive. Clinical applicability of both assays was demonstrated by screening of almost 2,000 suspected influenza (H1N1)v specimens. The

new methodology proved its principle and might assist public health laboratories in the upcoming influenza pandemic.

JOURNAL OF INFECTIOUS DISEASES

- Nothing new on H1N1 this week.

JOURNAL OF VIROLOGY (*added this week*)

1) Elastase-Dependent Live Attenuated Swine Influenza A Viruses Are Immunogenic and Confer Protection against Swine Influenza A Virus Infection in Pigs (*Aleksandar Masic, et al., September 8, 2009*)

<http://jvi.asm.org/cgi/content/full/83/19/10198>

This study investigated immunogenicity and the ability of pigs to protect against the SIV infection was assessed. Two vaccinations with R345V provided pigs with complete protection from homologous H1N1 SIV infection and partial protection from heterologous subtypic H3N2 SIV infection. This protection was characterized by significantly reduced macroscopic and microscopic lung lesions, lower virus titers from the respiratory tract, and lower levels of proinflammatory cytokines. The results from this study suggest that elastase-dependent SIV mutants can be used as live-virus against swine influenza in pigs.

2) Single-Reaction Genomic Amplification Accelerates Sequencing and Vaccine Production for Classical and Swine Origin Human Influenza A Viruses (*Bin Zhou, et al., September 8, 2009*)

<http://jvi.asm.org/cgi/content/abstract/83/19/10309>

This study developed a multisegment reverse transcription-PCR (M-RT-PCR) approach that simultaneously amplifies eight genomic RNA segments, irrespective of virus subtype. M-RT-PCR amplicons can be used for high-throughput sequencing and/or cloned into modified reverse-genetics plasmids via regions of sequence identity. These procedures rescued a contemporary H3N2 virus and a swine origin H1N1 virus directly from human swab specimens. Together, M-RT-PCR and the modified reverse-genetics plasmids that the authors designed streamline the creation of vaccine seed stocks (9 to 12 days). The study demonstrated the importance of rapid genomic analysis and creation of vaccines.

LANCET

1) Influenza vaccination attitudes and practices among US registered nurses (*Sarah J. Clark, Anne E. Cowan, and Pascale M. Wortley, September 8, 2009*)

<http://download.thelancet.com/flatcontentassets/H1N1-flu/vaccination/vaccination-64.pdf>

The influenza vaccination rate among US health care personnel (HCP) remains low and may vary by occupational categories. The objective of this study was to explore knowledge, attitudes, and beliefs associated with influenza vaccination in a broad population of registered nurses. The study used a cross-sectional mail survey of registered nurses in 4 US states. The majority of respondents (59%) reported receiving influenza vaccine during the 2005-2006 influenza season. The most common reason for being vaccinated was protecting oneself from illness (95%), and the most common reason for not being vaccinated was concern about adverse reactions (39%). Future efforts to improve vaccination rates should include data on vaccine effectiveness and adverse effects, as well as descriptions of high-risk populations.

2) Pandemic Flu Virus's Binding Properties May Contribute to Lung Pathology (*Heidi Splete, September 9, 2009*)

<http://www.thelancet.com/H1N1-flu/egmn/0c03b677>

The pandemic influenza A(H1N1) virus appears to replicate faster and strike harder in the lungs of animal models, compared with the seasonal H1N1 virus, according to correspondence published in the journal *Nature Biotechnology* on Sept. 10. Differences in the receptor-binding characteristics of the viruses may partly explain the differences in virulence and severity, said Dr. Robert A. Childs. The researchers used

carbohydrate microarray analysis to compare the receptor-binding characteristics of two isolates of the pandemic influenza A (H1N1) virus with a seasonal H1N1 virus.

MORBIDITY AND MORTALITY REPORT

1) Update: Influenza Activity - United States, April-August 2009 (*September 10, 2009*)

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58e0910a1.htm?s_cid=mm58e0910a1_x

Pandemic H1N1 influenza activity peaked in the US during May and June and declined during July and early August. From mid-April to August 30, a total of 9,079 hospitalizations and 593 deaths associated with laboratory-confirmed 2009 pandemic influenza A (H1N1) virus infections. Data from the 122 Cities Mortality Reporting System indicate that the proportion of deaths attributed to pneumonia and influenza was within the bounds of what is expected in the summer and did not exceed the epidemic threshold for 2 or more consecutive weeks at any time during April - August. 47 paediatric deaths associated with laboratory-confirmed pandemic H1N1 influenza occurred during April 26 - August 29. Six states (Alabama, Alaska, Florida, Georgia, Mississippi, and South Carolina) and Puerto Rico reported widespread influenza activity for the most recent reporting week (August 23-29)

2) Oseltamivir-Resistant 2009 Pandemic Influenza A (H1N1) Virus Infection in Two Summer Campers Receiving Prophylaxis - North Carolina, 2009 (*September 11, 2009*)

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5835a1.htm?s_cid=mm5835a1_x

On July 14, CDC was contacted by a physician at a summer camp in North Carolina regarding two cases of influenza-like illness (ILI) in adolescent girls receiving oseltamivir chemoprophylaxis during an ILI outbreak that had begun June 18. The two girls stayed in the same cabin, and both received oseltamivir during a mass chemoprophylaxis program. On July 20 and July 22, the North Carolina State Laboratory of Public Health confirmed pandemic H1N1 virus infection in respiratory specimens from both girls. On August 14 and August 19, CDC detected the H275Y mutation in neuraminidase from both specimens. The H275Y mutation is associated with resistance to oseltamivir. This is the first report of oseltamivir resistance in pandemic H1N1 cases with an epidemiologic link.

3) Receipt of Influenza Vaccine During Pregnancy Among Women With Live Births - Georgia and Rhode Island, 2004-2007 (*September 11, 2009*)

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5835a2.htm?s_cid=mm5835a2_x

To assess the percentage of women who were vaccinated during pregnancy among women with recent live births, CDC analyzed data from the Pregnancy Risk Assessment and Monitoring System (PRAMS) from Georgia and Rhode Island. In Georgia, the prevalence of influenza vaccination during the woman's most recent pregnancy increased from 10.4% in 2004 to 15.5% in 2006. In Rhode Island, vaccination prevalence increased from 21.9% in 2004 to 33.4% in 2007. Increased efforts are needed to assess vaccine coverage during pregnancy and to educate providers and pregnant women about ACIP and ACOG recommendations on providing intramuscular, inactivated influenza vaccine during any trimester of pregnancy.

NATURE

1) First swine flu death on the Galapagos (Henry Nicholls, September 8, 2009)

<http://www.nature.com/news/2009/090908/full/news.2009.889.html>

Swine flu has reached the Galapagos Islands, and the first human fatality there has caused widespread alarm, threatening to undermine a booming tourist industry — mixed news for conservation efforts on the Ecuadorian archipelago. Since the middle of August, when the first case of pandemic H1N1 influenza on the Galapagos was confirmed, the population of Puerto Ayora on Santa Cruz — the island with the biggest human population — has been on high alert.

NEW ENGLAND JOURNAL OF MEDICINE

1) Response after one dose of a monovalent Influenza A(H1N1) 2009 Vaccine : preliminary report (*M.E. Greenberg et al., September 11, 2009*)

<http://content.nejm.org/cgi/content/full/NEJMoa0907413?query=TOC>

This report evaluates the immunogenicity and safety of the vaccine 21 days after the first of two scheduled doses. A total of 240 subjects were enrolled and underwent randomization to receive either 15 µg or 30 µg of hemagglutinin antigen by intramuscular injection. By day 21 after vaccination, antibody titers of 1:40 or more were observed in 116 of 120 subjects (96.7%) who received the 15-µg dose and in 112 of 120 subjects (93.3%) who received the 30-µg dose. No deaths, serious adverse events, or adverse events of special interest were reported. Local discomfort (e.g., injection-site tenderness or pain) was reported by 46.3% of subjects, and systemic symptoms (e.g., headache) by 45.0% of subjects. A single 15-µg dose of 2009 H1N1 vaccine was immunogenic in adults, with mild-to-moderate vaccine-associated reactions

2) Trial of Influenza A (H1N1) 2009 monovalent MF59-Adjuvanted vaccine : preliminary report (*T.W. Clark et al., September 11, 2009*)

<http://content.nejm.org/cgi/content/full/NEJMoa0907650?query=TOC>

The authors conducted a single-center study, involving 175 adults, 18 to 50 years of age, to test the monovalent influenza A/California/2009 (H1N1) surface-antigen vaccine. Subjects were randomly assigned to receive two intramuscular injections of vaccine containing 7.5 µg of hemagglutinin on day 0 in each arm or one injection on day 0 and the other on day 7, 14, or 21; or two 3.75-µg doses of MF59-adjuvanted vaccine, or 7.5 or 15 µg of nonadjuvanted vaccine, administered 21 days apart. Antibody responses were measured on days 0, 14, 21, and 42 after injection of the first dose. Results of an interim analysis of the responses to the 7.5-µg dose of MF59-adjuvanted vaccine by days 14 and 21 are presented. In preliminary analyses, the monovalent influenza A (H1N1) 2009 MF59-adjuvanted vaccine generates antibody responses likely to be associated with protection within 14 days after a single dose is administered

3) Cross-reactive antibody responses to the 2009 pandemic H1N1 Influenza virus (*K. Hancock et al., September 11, 2009*)

<http://content.nejm.org/cgi/content/full/NEJMoa0906453?query=TOC>

The authors measured cross-reactive antibodies to pandemic H1N1 virus (2009 H1N1) in stored serum samples from persons who either donated blood or were vaccinated with recent seasonal or 1976 swine influenza vaccines. Vaccination with recent seasonal nonadjuvanted or adjuvanted influenza vaccines induced little or no cross-reactive antibody response to 2009 H1N1 in any age group. Persons under the age of 30 years had little evidence of cross-reactive antibodies to the pandemic virus. However, a proportion of older adults had preexisting cross-reactive antibodies.

PLOS ONE

1) Use of cumulative incidence of novel Influenza A/ H1N1 in foreign travelers to estimate lower bounds on cumulative incidence in Mexico (*Marc Lipitsch et al., September 9, 2009*)

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006895>

The authors used a simple approach to leverage measures of incident influenza A/H1N1 among a relatively small and well observed group of US, UK, Spanish and Canadian travelers who had visited Mexico to estimate the incidence among a much larger and less well surveyed population of Mexican residents. They find that the number of cases in Mexican residents may exceed the number of confirmed cases by two to three orders of magnitude. While the extent of disease spread is greater than previously appreciated, the estimate suggests that severe disease is uncommon since the total number of cases is likely to be much larger than those of confirmed cases.

2) Influenza outbreak during Sydney World Youth Day 2008: the utility of laboratory testing and case definitions on mass gathering outbreak containment (*Sebastiaan J. van Hal et al., September 9, 2009*)

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006620>

An influenza outbreak was identified during World Youth Day 2008 in Sydney. From the data collected on pilgrims presenting to a single clinic, a Markov model was developed and validated against the actual epidemic curve. Simulations were performed to examine the utility of different clinical case definitions and laboratory testing strategies for containment of influenza outbreaks. Clinical case definitions were found to have the greatest impact on averting further cases with no added benefit when combined with any laboratory test.

PLOS CURRENTS

-Nothing new on H1N1 this week.

SCIENCE

-Nothing new on H1N1 this week