

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

(WEEK ENDING SEPTEMBER 25, 2009)

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

September 25, 2009: CDC H1N1 Flu Surveillance Update.

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

Weekly Flu View Map and Surveillance Report for Week Ending September 19, 2009. <http://www.cdc.gov/flu/weekly/>

Map includes both seasonal flu and H1N1 flu activity. During week 37 (September 13-19, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Updated Interim Recommendations for Obstetric Health Care Providers Related to Use of Antiviral Medications in the Treatment and Prevention of Influenza for 2009-2010 Season (September 22, 2009).

http://www.cdc.gov/H1N1flu/pregnancy/antiviral_messages.htm

Interim CDC Guidance for Public Gatherings in Response to Human Infections with Novel Influenza A (H1N1) (September 23, 2009).

http://www.cdc.gov/h1n1flu/guidance/public_gatherings.htm

This document provides interim guidance for state, local, territorial, and tribal officials to use in developing recommendations for large public gatherings in their communities. Such gatherings can include college and university commencement exercises, church services, sporting events, concerts, social and cultural celebrations, weddings, conferences, and other similar activities attended by relatively large groups of people.

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 36 (September 6 - 12, 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 is within range of expected level at this time of the year. The peak period of pH1N1 occurred in the first three weeks of June.

News Release: Government of Canada launches television advertising on infection prevention in partnership with provinces and territories (September 21, 2009).

http://www.phac-aspc.gc.ca/media/nr-rp/2009/2009_0921-eng.php

Deaths Associated with Influenza A (H1N1) as of September 22, 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 37 (September 13-19, 2009).

http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_08/bulletins/flu_bul_01_20090925.pdf

Influenza activity in Ontario is similar compared to the previous week. Many of the measures indicate that influenza activity in week 37 were similar or slightly higher compared to activity in week 36.

News Room: Ontario Announces Flu Shot Rollout for Seasonal and H1N1 Vaccines (September 24, 2009).

<http://www.news.ontario.ca/mohltc/en/2009/09/ontario-announces-flu-shot-rollout-for-seasonal-and-h1n1-vaccines.html>

Ontario will provide seasonal flu shots to people aged 65 and over and residents of long-term care homes in October, followed by the H1N1 flu vaccination program for all Ontarians. Seasonal flu vaccine will be available to the rest of the province following the H1N1 flu vaccination program.

WORLD HEALTH ORGANIZATION (WHO)

Situation Update 67, September 25, 2009:

http://www.who.int/csr/don/2009_09_25/en/index.html

In the temperate regions of the northern hemisphere, influenza-like-illness (ILI) activity continues to increase in many areas. In North America, the US has reported continued increases in activity above the seasonal baseline for the last 2 to 3 weeks, primarily in the southeast but now also appearing in the upper midwest and the northeast. In Europe and Central/Western Asia, the UK is reporting regional increases in ILI activity in Northern Ireland and Scotland. In Japan, influenza activity continues to be slightly above the seasonal epidemic threshold.

Antiviral use and the risk of drug resistance (September 25, 2009).

http://www.who.int/csr/disease/swineflu/notes/h1n1_antiviral_use_20090925/en/index.html

Growing international experience in the treatment of pandemic H1N1 virus infections underscores the importance of early treatment with the antiviral drugs, oseltamivir or zanamivir.

Pandemic influenza vaccines: current status (September 24, 2009).

http://www.who.int/csr/disease/swineflu/notes/pandemic_influenza_vaccines_20090924/en/index.html

Regulatory authorities have licensed pandemic vaccines in Australia, China and the United States of America, soon to be followed by Japan and several countries in Europe.

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

September 25, 2009: ECDC Daily Pandemic H1N1 2009 Update

http://ecdc.europa.eu/en/healthtopics/Documents/090925_Influenza_AH1N1_Situation_Report_0900hrs.pdf

Pandemic H1N1: Current pandemic risk assessment (September 25, 2009)

http://ecdc.europa.eu/en/healthtopics/Documents/0908_Influenza_AH1N1_Risk_Assessment.pdf

September 25, 2009: Weekly influenza surveillance overview, Week 38.

http://ecdc.europa.eu/en/publications/Publications/Forms/ECDC_DispForm.aspx?ID=447

HEALTH/SURVEILLANCE BULLETINS:

Southern Hemisphere

In the tropical regions of the Americas and Asia, influenza activity remains variable. In parts of India, Bangladesh and Cambodia, influenza transmission continues to be active, while other countries in the Southeast Asia have been recently reporting declining transmission (Indonesia, Singapore and Thailand). Although most countries in the tropical regions of the Americas are still reporting regional to widespread influenza activity, there is no consistent pattern in the trend of respiratory diseases. Peru and Mexico have reported an increasing trend in some areas, while most others are reporting an unchanged or decreasing trend (most notably Bolivia, Venezuela and Brazil).

In the southern hemisphere, influenza transmission has largely returned to baseline (Chile, Argentina, and New Zealand) or is continuing to decline (Australia and South Africa). *Source: WHO as of September 25.*

Australia

Australia Influenza Surveillance Summary Report, No. 19, 2009, reporting period: September 12- 18 2009.

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

Nationally, most jurisdictions have reported that pandemic H1N1 2009 activity has peaked and is decreasing nationally with a number of regions reporting no new notifications in the last week, indicating that the first wave of the pandemic has subsided.

Seven jurisdictions have reported no new hospitalizations in the week ending September 18 2009. In total, 4,720 people have been hospitalized, with 13 % admitted to ICU. The overall hospitalizations rate is 21/100,000 populations and the highest hospitalization rate occurred in young children less than 5 years of age. 32% of the hospitalized cases have been reported as pregnant, which reinforces the fact that pregnancy particularly in the second and third trimesters is a risk factor for hospitalization with pH1N1. Indigenous Australians are approximately 10 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009, representing 20% of all hospitalizations.

Australia, New South Wales: Weekly Summary (as of September 23, 2009)

http://www.emergency.health.nsw.gov.au/swineflu/resources/pdf/case_statistics_230909.pdf

New Zealand

Situation Update in New Zealand as of September 23, 2009 see link:

<http://www.moh.govt.nz/moh.nsf/indexmh/influenza-a-h1n1-update-152-230909>

New Zealand: Weekly 38 Summary (September 14-20, 2009)

http://www.surv.esr.cri.nz/PDF_surveillance/Virology/FluWeekRpt/2009/FluWeekRpt200938.pdf

There has been a decrease in consultations for ILI through sentinel surveillance in week 38. 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 25, 2009: As H1N1 sweeps US, officials brace for vaccine launch. The pandemic H1N1 virus is spreading widely through the United States, and as health officials feverishly prepare to distribute the first vaccine doses due to arrive in early October, the public should expect some initial bumps in the road.

<http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/sep2509season.html>

OTHER:

1) Randomized Control Trial to Study the Efficacy of the Surgical Mask Versus the N95 Respirator to Prevent Influenza (*McMaster University, September 19, 2008*)

<http://clinicaltrials.gov/ct2/show/results/NCT00756574>

The study aimed to compare the efficacy of surgical mask to the N95 respirator in protecting nurses from influenza in the hospital setting. The investigators propose a non-inferiority randomized controlled trial whereby nurse were randomized to either using a surgical mask or an N95 respirator when caring for patients with febrile respiratory illness during the influenza season. The hypothesis is that the surgical mask offers similar protection against influenza to that of the N95. The specific objective of the study is to assess whether the rates of influenza, as well as secondary outcomes (ILI, workplace absenteeism, physician visit) are similar among nurses using surgical mask compared to those using an N95 respirator.

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal (*added this week*)
- 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) Flu's unexpected bonus (*Andrew Jack, September 18, 2009*)

http://www.bmj.com/cgi/content/full/339/sep18_2/b3811

With over 96 countries stockpiling oseltamivir, Andrew Jack, pharmaceuticals correspondent, examines countries who have benefited from pandemic flu.

2) Chief medical officer warns that swine flu may be on the rise again (*Nayanah Siva, September 18, 2009*)

http://www.bmj.com/cgi/content/full/339/sep18_2/b3863

The incidence of swine flu has risen in the past week in England, the first weekly increase in incidence since late July. Liam Donaldson, England's chief medical officer, said that although the increase is slight, it may be "the start of an upturn."

3) Physical interventions to interrupt or reduce the spread of respiratory viruses: systematic review (*Tom Jefferson, et al., September 22, 2009*)

http://www.bmj.com/cgi/content/full/339/sep21_1/b3675

This study provides a systematic review of the evidence of effectiveness of physical interventions to interrupt or reduce the spread of respiratory viruses. The review found that routine long term implementation of some of the measures to interrupt or reduce the spread of respiratory viruses might be difficult. However, many simple and low cost interventions reduce the transmission of epidemic respiratory viruses. More resources should be invested into studying which physical interventions are the most effective, flexible, and cost effective means of minimising the impact of acute respiratory tract infections.

CANADIAN MEDICAL ASSOCIATION JOURNAL (*added this week*)

1) Flu vaccination campaign poses monitoring difficulties (*Roger Collier, September 21, 2009*)

<http://www.cmaj.ca/cgi/rapidpdf/cmaj.109-3044v1>

Provincial health authorities will have to shift into scramble mode this fall if they are to fully monitor the efficacy and safety of the pH1N1 vaccine as it will be administered near or during a resurgence of the virus, according to infectious diseases experts and public health officials. Health officials in Ontario express confidence that the province will be able to effectively monitor the vaccine's safety. Experts say that Canada is experienced in monitoring and reporting adverse events post-vaccine administrations to the public.

2) Flu pandemic prompts other vaccination delays (*Roger Collier, September 21, 2009*)
<http://www.cmaj.ca/cgi/rapidpdf/cmaj.109-3043v1>

Health officials in many provinces are concerned about lacking the necessary human resources to administer the H1N1 vaccine during this fall's flu season. For example, Nova Scotia is deferring by a year its human papillomavirus and meningococcal C vaccination program for Grade 7 students to free human resources to administer the pH1N1 to students in Grade 7 and Grade 8.

3) Improved flu screening needed at airports (*Paul Webster, September 21, 2009*)
<http://www.cmaj.ca/cgi/rapidpdf/cmaj.109-3053v1>

The author reviews the role of air travel in international disease spread of infectious diseases based on an important study conducted infectious disease researchers in Toronto. Airports in Toronto and Vancouver act as major gateways for infectious diseases and the federal government must better manage health risks arising from international air travel, warns a landmark report prepared for the Public Health Agency of Canada (PHAC). A PHAC spokesperson plans to review this study with officials in order to ensure updates are considered for Canada's pandemic influenza plan.

4) Pandemic (H1N1) 2009 lives in some people for at least eight days (*September 24, 2009*)
http://www.cmaj.ca/earlyreleases/24sept09_pandemic_h1n1.shtml

A team of Quebec researchers have found that the pH1N1 virus remains alive on the eighth day in 8-13 % of people after they develop flu symptoms, a team of Quebec researchers has determined. The results of the study indicate that a large number of people with pH1N1 are still contagious after their fever breaks, and at least a proportion of people with the virus may be able to transmit it to others for a day or two longer than those who have seasonal influenza.

CLINICAL INFECTIOUS DISEASES

- Nothing new on H1N1 this week.

EMERGING INFECTIOUS DISEASES

1) Xing Z, Cardona CJ. Preexisting immunity to pandemic (H1N1) 2009 [letter] (*Z. Xing & C.J. Cardona, September 25*)
<http://www.cdc.gov/eid/content/15/11/pdfs/09-0685.pdf>

This study performed a survey for known human immune epitopes present in the various proteins of seasonal influenza A virus strains and known to be efficient in stimulating lymphocytes. Although there are no experiments establishing a solid link, cross-reactive immunity or repeated exposure to seasonal influenza or vaccination may resulted in partial protection of patients infected with influenza virus (H5N1). This study suggests that the same type of immunity may have happened in persons exposed to pandemic (H1N1) 2009 virus as well.

2) Serologic survey of pandemic (H1N1) 2009 virus, Guangxi Province, China [letter] (*Chen H, Wang Y, Liu W, Zhang J, Dong B, Fan X, et al., September 25, 2009*)
<http://www.cdc.gov/eid/content/15/11/pdfs/09-0868.pdf>

Human pandemics occur when a new virus subtype emerges that is capable of human-to-human transmission in a population with little or no neutralizing antibodies to the new

virus. The current pH1N1 outbreak presents the first opportunity to directly observe this process. This study examined assays to detect antibodies in 4, 043 serum samples from residents of 2 countries in Guangxi Province, People's Republic of China, collected during July-August 2008. The results suggest that most persons in the study are seronegative for pH1N1 2009 virus, which is different from US findings. Differences may be due to high proportion of seasonal influenza vaccination coverage in the US compared to the unvaccinated population in southern China.

EUROSURVEILLANCE

1) Enhanced surveillance of initial cases of pandemic H1N1 2009 influenza in Ireland, April - July 2009 (*J Martin et al., September 25, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19337>

This study provides a detailed case-based epidemiological investigation on all cases presented in the community and acute health care setting. The researchers report on the enhanced case based surveillance of the first 156 confirmed cases of pH1N1 2009 influenza up to 18 July 2009, when the strategy changed from containment to mitigation, and detailed case based surveillance of all cases ceased.

2) Oseltamivir susceptibility in south-western France during the 2007-8 and 2008-9 influenza epidemics and the ongoing influenza pandemic 2009 (*S Burrel, L Roncin, M E Lafon, H Fleury, September 25, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19334>

The recent emergence of seasonal pH1N1 strains resistant to oseltamivir makes it necessary to monitor carefully the susceptibility of human influenza viruses to neuraminidase inhibitors. This study reported the prevalence of the oseltamivir resistance among Influenza A viruses (seasonal H1N1, seasonal H3N2, and pH1N1) circulating in south-western France over the past three years. This resistance may occur in the absence of antiviral drug use and also emerge rapidly under treatment. Presently two anti-influenza drugs are commercially available: oseltamivir and zanamivir, which selectively inhibit the neuraminidase of both influenza A and B viruses. Oseltamivir is preferred over zanamivir because it is administered by the oral route. NAIs have been prescribed worldwide since 1999. In France, their use was limited before the influenza pandemic 2009.

3) Sub-optimal hand sanitizer usage in a hospital entrance during an influenza pandemic, New Zealand, August 2009 (*R Murray et al., September 17, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19331>

An observational study was undertaken to examine hand hygiene behaviours by people passing a hand sanitizer station in the foyer of a public hospital in New Zealand in August 2009. Of the 2,941 subjects observed, 449 (18.0%, 95% confidence interval: 16.6, 19.6) used the hand sanitizer. The results from this study indicate sub-optimal response to the health promotion initiatives in the setting of a pandemic. These findings suggest the need for more effective health promotion of hand hygiene and also the need to provide baseline measurements for future evaluation of hygiene practices.

4) Economic consequences to society of pandemic H1N1 influenza 2009 – preliminary results for Sweden (*L Brouwers, B Cakici M Camitz, A Tegnell, M Boman, September 17, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19333>

This study involved experiments using a microsimulation platform show that vaccination against pH1N1 influenza is highly cost-effective. Swedish society may reduce the costs of pandemic by approximately EUR 250 million if at least 60 per cent of the population is vaccinated, even if costs related to death cases are excluded. The cost reduction primarily results from reduced absenteeism. The results from this study are preliminary and based on comprehensive assumptions about the infectiousness and morbidity of the pandemic, which are uncertain in the current situation.

JOURNAL OF INFECTIOUS DISEASES

1) Recent Human Influenza A/H3N2 Virus Evolution Driven by Novel Selection Factors in Addition to Antigenic Drift (*Matthew J. Memoli, Brett W. Jagger, Vivien G. Dugan, Li Qi, Jadon P. Jackson, and Jeffery K. Taubenberger, October 15, 2009*)

<http://www.journals.uchicago.edu/doi/full/10.1086/605893>

In this study, the authors examined the hypothesis that Fujian-like viruses from the 2003–2004 influenza season (clades A and B) and the derivative California-like strain associated with the dominant selective sweep in 2004–2005 (clade B') would exhibit different phenotypic properties that correlated with the selection of clade B' viruses in 2004–2005. The phenotypic properties of representative viruses from each clade were characterized in both cell culture and ferrets, and the role of the small number of amino acid mutations in the internal segments encoding the viral RNP of the clade B' viruses was examined using an in vitro reporter assay. The newly dominant 2004–2005 clade B', grew to higher titers in MDCK cells and ferret tissues and caused more severe disease in ferrets. The polymerase complex of this virus demonstrated enhanced activity in vitro, correlating directly to the enhanced replicative fitness and virulence in vivo.

JOURNAL OF VIROLOGY (added this week)

1) Zanamivir-Resistant Influenza Viruses with a Novel Neuraminidase Mutation (*Aeron C. Hurt, et al., October 2009*)

<http://jvi.asm.org/cgi/content/abstract/83/20/10366?etoc>

The authors investigated the frequency of oseltamivir and zanamivir resistance in circulating seasonal influenza A (H1N1) viruses in Australasia and Southeast Asia. Analysis of 391 influenza A (H1N1) viruses isolated between 2006 and early 2008 from Australasia and Southeast Asia revealed nine viruses (2.3%) that demonstrated markedly reduced zanamivir susceptibility and contained a previously undescribed Gln136Lys (Q136K) neuraminidase mutation. The mutation had no effect on oseltamivir susceptibility but caused approximately a 300-fold and a 70-fold reduction in zanamivir and peramivir susceptibility, respectively. Compared to susceptible influenza A (H1N1) viruses, the Q136K mutant strains displayed greater viral fitness than the wild-type virus in MDCK cells but equivalent infectivity and transmissibility in a ferret model.

LANCET

-Nothing new on H1N1 this week

LANCET INFECTIOUS DISEASES

1) Influenza as a trigger for acute myocardial infarction or death from cardiovascular disease: a systematic review (*Charlotte Warren-Gash, Liam Smeeth, Andrew C, Hayward, October 2009*)

<http://www.thelancet.com/journals/laninf/article/PIIS1473309909702336/abstract?rss=yes>

Cardiac complications of influenza infection, such as myocarditis, are well recognised, but the role of influenza as a trigger of acute myocardial infarction is less clear. The authors of this study did a systematic review of the evidence that influenza triggers acute myocardial infarction or cardiovascular death. They examined the effectiveness of influenza vaccines at protecting against cardiac events and did a meta-analysis of data from randomised controlled trials. Many observational studies reported consistent associations between influenza and acute myocardial infarction. There was weaker evidence of an association with cardiovascular death. Two small randomised trials assessed the protection provided by influenza vaccine against cardiac events. One trial found that influenza vaccination gave significant protection against cardiovascular death, the other trial was inconclusive.

MORBIDITY AND MORTALITY REPORT

1) Performance of Rapid Influenza Diagnostic Tests During Two School Outbreaks of 2009 Pandemic Influenza A (H1N1) Virus Infection - Connecticut, 2009 (*September 25, 2009*)

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5837a1.htm?s_cid=mm5837a1_x

This report summarizes the findings from the performance assessment of a rapid influenza diagnostic test (RIDT) for influenza A and B. Compared with rRT-PCR, the sensitivity of the RIDT for detecting infection in patients with 2009 pandemic influenza A (H1N1) was 47%, and the specificity was 86%. Sensitivity and specificity did not vary substantially by the presence or absence of CDC-defined influenza-like illness (ILI) or by time from symptom onset to specimen acquisition. In this group of patients, although positive RIDT results performed well in predicting confirmed infection with pandemic H1N1 virus (positive predictive value: 92%), negative tests did not accurately predict the absence of infection (negative predictive value: 32%). These results affirm recent CDC recommendations against using negative RIDT results for management of patients with possible 2009 pandemic influenza A (H1N1) infection.

NATURE

- Nothing new on H1N1 this week.

NEW ENGLAND JOURNAL OF MEDICINE

1) Comparative efficacy of inactivated and live attenuated influenza vaccines (*A.S. Monto et al., September 24, 2009*)

<http://content.nejm.org/cgi/content/full/361/13/1260>

The authors of this study carried out a randomized, double-blind, placebo-controlled trial of licensed inactivated and live attenuated influenza vaccines in healthy adults during the 2007–2008 influenza season and estimated the absolute and relative efficacies of the two vaccines. A total of 1952 subjects were enrolled and received study vaccines in the fall of 2007. The absolute efficacy against the influenza A virus was 72% (95% CI, 49 to 84) for the inactivated vaccine and 29% (95% CI, –14 to 55) for the live attenuated vaccine, with a relative efficacy of 60% (95% CI, 33 to 77) for the inactivated vaccine. In the 2007–2008 season, the inactivated vaccine was efficacious in preventing laboratory-confirmed symptomatic influenza A (predominately H3N2) in healthy adults. The live attenuated vaccine also prevented influenza illnesses but was less efficacious.

2) Risk of confusion in dosing Tamiflu oral suspension in children
<http://content.nejm.org/cgi/content/full/NEJMc0908840?query=TOC>

Most families and caregivers would not be able to identify or perform the cumbersome calculations required to administer Tamiflu safely to children, because the instructions on the pharmacy label, on the manufacturer's printed label, and in the accompanying Consumer Medication Information and the prepackage dosing syringe are misaligned. Thus, there is a high chance for dosing errors, compromised treatment, or toxic effects. Unless immediate steps are taken to improve the prescribing instructions for this drug in children, its safe use will be compromised. The authors recommend that all pharmacies be instructed to ensure that the label instructions for use are in the same dosing units as those on the measurement device dispensed with oseltamivir. In addition, the Consumer Medication Information must be improved and the public alerted to the potential for oseltamivir dosing errors.

PLOS ONE

1) The feasibility of using high resolution genome sequencing of Influenza A viruses to detect mixed infections and quasispecies (*Muthannan A. Ramakrishnan, et al., September 23, 2009*)
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007105>

The authors describe a new approach to comprehensively identify mixed infections and quasispecies in low passage influenza A isolates and cloacal swabs and add to the understanding of the ecology of influenza A virus populations. They evaluated quasispecies and mixed infections by de novo sequencing the whole genomes of 10 virus isolates, including eight avian influenza viruses grown in embryonated chicken eggs, and two tissue cultured H3N2 swine influenza viruses. Two waterfowl cloacal swabs were included in the analysis. Genomic subpopulations or quasispecies of viruses were identified in four egg grown avian influenza isolates and one cell cultured swine virus. A bald eagle isolate and the second cloacal swab showed evidence of mixed infections with two (H1 and H2) and three (H1, H3, and H4) HA subtypes, respectively.

2) Economic analysis of pandemic influenza vaccination strategies in Singapore (*Vernon J Lee et al., September 23, 2009*)
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007108>

The authors analyzed the economic outcomes of pandemic vaccination (immediate vaccination and vaccine stockpiling) compared with treatment-only in Singapore using a decision-based model to perform cost-benefit and cost-effectiveness analyses. They also explored the annual insurance premium (willingness to pay) depending on the perceived risk of the next pandemic occurring. Vaccine stockpiling is not cost-effective in most scenarios even with 100% vaccine effectiveness. The annual insurance premium was highest with immediate vaccination, and was lower with increased duration to the next pandemic. The premium was also higher with higher vaccine effectiveness, attack rates, and case-fatality rates. High-risk sub-groups warrant higher premiums than low-risk sub-groups.

PLOS CURRENTS

1) KNOL: Point of care strategy for rapid diagnosis of novel A/H1N1 influenza virus (*Nougairede A et al., September 22, 2009*)

<http://knol.google.com/k/antoine-nougairade/point-of-care-strategy-for-rapid/lnkryb5rtott/3?collectionId=28qm4w0q65e4w.1&position=1#>

In late June 2009, the authors implemented for public hospitals of Marseille Point of Care strategy for rapid diagnosis of novel A/H1N1 influenza virus. During two months, they have tested more than 900 specimens in both Point Of Care laboratories. They believe that implementation of Point of Care strategy for the largest number of suspect cases may improve quality of patients care and our knowledge of the epidemiology of the pandemic.

SCIENCE

-Nothing new on H1N1 this week