

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

(WEEK 28- ENDING IN JULY 24, 2009)

CASE COUNTS*:

As of July 27, 2009, over 120 countries have officially reported 163, 789 cases of influenza A (H1N1) infection, including 998 deaths. Please see hyperlinks in table for most up to date case counts.

COUNTRIES/PROVINCES	CASE COUNTS	DEATHS	HOSPITALIZATIONS
CANADA (PHAC)	10,156	55	1,115
- BC	382	2	14
- AB	1348	4	87
- SK	859	4	11
- MB	831	7	201
- ON	3,636	18	302
- QC	2,259	19	488
- NB	42	0	1
- NS	330	0	8
- PEI	5	0	1
- NL	44	0	0
- Yukon	1	0	0
- NWT	14	0	0
- Nunavut	405	1	38
U.S. (CDC)	43, 771	302	* As of July 16 2009, the WHO will no longer issue the global tables showing the numbers of confirmed cases for all countries. However, as part of continued efforts to document the global spread of the H1N1 pandemic, regular updates will be provided describing the situation in the newly affected countries. Thus, the reported cases presented in this table will severely underestimate the true incidence in the country and will not be comparable to counties still recommending laboratory tests of all suspected influenza cases.
E.U. and EFTA (ECDC)	16,969	33	
Mexico	15,383	140	
Chile	11,641	79	
Argentina	3,056	137	
Australia	17,061	50	
New Zealand	2,585	11	
Total	163,789	998	

Note: PHAC numbers updated last at 3:00pm (EST) on July 15; CDC numbers updated last at 11:00 am on July 24; ECDC numbers updated last at 5:00 pm (CEST) on July 27, 2009

NOTE: Testing parameters are influenced by the most current knowledge of the H1N1 virus and risk groups. Therefore, the frequency of laboratory tests conducted and the risk groups that are being tested may change over time.

DEATHS AMONG NOVEL H1N1 INFLUENZA A VIRUS, APRIL 13-JULY 22, 2009

- 18 deaths have been reported, representing a population-based mortality rate of 0.1 deaths per 100,000 population.
- 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 58 years and average is 55 years.
- Among confirmed cases that have died, 13 or 72% had underlying chronic medical conditions compared to 55% of hospitalized cases.

HOSPITALIZATIONS AMONG NOVEL H1N1 INFLUENZA A VIRUS CASES

As of July 22, 2009 in Ontario:

- 302 confirmed cases have been hospitalized to date, also representing a population-based hospitalization rate of 2.3 hospital admissions per 100,000 population in Ontario.
- Of these, 250 cases have been discharged.
- The average length of stay was less than 24 hours to 45 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 52 cases are currently hospitalized, a total of 29 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	29	23	52
Number of Hospitalized and Discharged	25	224	249
Total hospitalized to date	54	247	301*

Source: MOHLTC Ontario Influenza Bulletin, iPHIS data as of 8:30 am, July 22, 2009.

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

HOSPITALIZATION STATUS	HOSPITALIZED CASES*	NON-HOSPITALIZED CASES	TOTAL CASES
Less than 20 years	148	2170	2318
Greater than or equal to 20 years	152	1409	1561
Total	300	3579	3879

Source: MOHLTC, iPHIS data as of 8:30 am, July 22, 2009. Age was unknown for 11 cases

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

July 24, 2009: CDC H1N1 Flu Surveillance Update. The site can be found at:
<http://www.cdc.gov/h1n1flu/update.htm>

Weekly Flu View Map and Surveillance Report for Week Ending July 18, 2009

Map includes both seasonal flu and H1N1 flu activity. During week 28, (July 12—July 18 2009), influenza activity decreased in the US, however there are still higher levels of ILI than is normal for this time of year. Approximately 99% of all influenza A subtyped viruses being reported to CDC this week are influenza A H1N1 virus. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Five influenza-associated pediatric deaths were reported and four of the five deaths were associated with novel influenza A (H1N1) virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels.
<http://www.cdc.gov/flu/weekly/>

July 20, 2009: Questions & Answers - Novel H1N1 Influenza Vaccine

http://www.cdc.gov/h1n1flu/vaccination/public/vaccination_qa_pub.htm

July 14, 2009: CDC Update: Possible Novel H1N1 Flu Screening for International Travelers.

Due to the outbreak of novel H1N1 flu occurring in the United States and many other countries, airport staff in some countries may check the health of arriving passengers. Many countries, including Japan and China, are screening arriving passengers for illness due to novel H1N1 flu. These health screenings are being used to reduce the spread of novel H1N1 flu.

<http://wwwn.cdc.gov/travel/content/news-announcements/delays-H1N1-screening.aspx>

July 17, 2009: Travel Notices - Novel H1N1 Flu: Global Situation

CDC recommends that travelers at high risk for complications from any form of flu discuss their travel plans with their doctor. Together, they should look carefully at the H1N1 flu situation in their destination and the available health-care options in the area. They should discuss their specific health situations and possible increased risk of traveling to the area affected by novel H1N1 flu.

<http://wwwn.cdc.gov/travel/content/outbreak-notice/novel-h1n1-flu-global-situation.aspx>

July 14, 2009: Interim CDC Guidance on Day and Residential Camps in Response to Human Infections with the Novel Influenza A (H1N1) Virus

This document provides interim guidance on suggested means to reduce the spread of the novel influenza A (H1N1) virus in day, residential, or overnight camp settings. Recommendations are interim, based on current knowledge of the H1N1 outbreak in the United States, and may be revised as more information becomes available.

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

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 28 (July 12 - 28, 2009)

The overall influenza activity increased slightly this week ; the national ILI consultation rate (27 consultations per 1,000 visits vs. 21) and the reported activity level (7 regions

reported localized activity vs. 4) are higher compared to the last week. However, the proportion of influenza positive tests decreased for the fifth consecutive week. The proportion of specimen tested positive for Pandemic (H1N1) 2009 was 98.7% this week.
http://www.phac-aspc.gc.ca/fluwatch/08-09/w28_09/pdf/fw2009-28-eng.pdf

July 23, 2009: Deaths Associated with H1N1 flu virus in Canada

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.

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

July 23, 2009: Canada Takes Further Action to Better Understand the H1N1 Flu Virus

The Public Health Agency of Canada's National Microbiology Laboratory Canada is partnering with intensive care units across the country in a study to determine how and why severe illness affects some people after they become infected with H1N1 Influenza, Minister of Health Leona Aglukkaq and Canada's Chief Public Health Officer, Dr. David Butler-Jones announced today.

http://www.phac-aspc.gc.ca/media/nr-rp/2009/2009_0723-eng.php

WORLD HEALTH ORGANIZATION (WHO)

July 23/27, 2009: WHO offices issue pandemic flu surveillance updates. The World Health Organization (WHO) recently posted surveillance and status updates for regions where the pandemic H1N1 is just gaining a foothold, including the Mideast, Africa, and parts of Asia and the Pacific, which showed Southeast Asia as the hardest hit of those areas.

http://www.who.int/csr/don/2009_07_27/en/index.html

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

July 27, 2009: ECDC situation report (daily surveillance report).

http://ecdc.europa.eu/en/files/pdf/Health_topics/Situation_Report_090727_1700hrs.pdf

July 20, 2009: Managing schools during the current A (H1N1) 2009-10 pandemic – Reactive and proactive school closures in Europe.

Proactive school closures, that is, closing schools ahead of a pandemic arriving in an area, is a public health measure that has been commonly suggested for mitigating the impact of pandemics.

http://ecdc.europa.eu/en/health_content/phdev/090720_ph.aspx

HEALTH/SURVEILLANCE BULLETINS:

Countries reporting first case(s) of pandemic H1N1

July 23, 2009: Kazakhstan - Kazakhstan yesterday reported its first three novel H1N1 cases, involving three students who were diagnosed after returning from London.

<http://www.sabcnews.com/portal/site/SABCNews/menuitem.5c4f8fe7ee929f602ea12ea1674daeb9/?vgnnextoid=9c075729816a2210VgnVCM10000077d4ea9bRCRD&vgnnextfmt=default>

July 22, 2009: *Hungary* - Hungary today reported its first novel H1N1 death, in a 41-year-old man who had underlying heart and lung problems, Reuters reported. The country has so far confirmed 37 cases, and two patients are hospitalized with mild illnesses.

<http://www.reuters.com/article/americasCrisis/idUSLM334123>

July 21, 2009: *Namibia* - Namibia has reported its first two cases of novel H1N1 infection, both in young people who traveled abroad, a July 20th Agence France-Presse (AFP) report said. One case was in a 13 year old boy who went on a rugby trip to South Africa with 20 other students; the other involved a "young student" who was treated at a hospital after returning from Europe, the story said. Two neighboring countries, South Africa and Botswana, had their first cases in June and last week, respectively.

http://www.int.iol.co.za/index.php?set_id=1&click_id=68&art_id=nw20090720204819945C218738

Southern Hemisphere

July 23, 2009: Southern hemisphere sees H3N2 seasonal flu variant. Laboratory experts in the southern hemisphere are reporting the circulation of a drifted strain of the seasonal H3N2 flu virus, raising the threat of a vaccine mismatch for the northern hemisphere's upcoming flu season. Officials, overwhelmed by handling a deluge of pandemic H1N1 samples, aren't sure how common the variant is. It was first identified in March by researchers in British Columbia.

http://www.google.com/hostednews/canadianpress/article/ALeqM5jPDEE_BdufsSNlxDs5NN-W0GiWoQ

Australia

July 27, 2009: Total confirmed cases as of 12:00 AEST are 17,061; Total deaths associated with pandemic H1N1 influenza is 50. Currently, there are 378 hospitalized cases of pandemic H1N1 and 103 of these are in ICUs. The total number of hospitalizations in Australia since H1N1 Influenza was identified is 2014.

July 22, 2009: The first trials of a Federal Government-commissioned swine flu vaccine that is likely to be distributed globally will begin in Adelaide, South Australia on July 22, 2009. Rachel David from vaccine makers CSL says the Royal Adelaide Hospital trials will take about seven months, but there will be enough data by September for the Government to start planning distribution in October. A trial on children aged from six months to nine years will start at Adelaide's Women's and Children's Hospital next month. The Federal Government has ordered 21 million doses of the vaccine.

<http://www.abc.net.au/news/stories/2009/07/22/2632625.htm>

July 22, 2009: Australia, China launch novel H1N1 vaccine trials. Two Australian pharmaceutical companies said they began human trials this week of their pandemic H1N1 vaccines. CSL, based in Melbourne, said it hoped that results will allow release of the government-contracted vaccine in October, and Vaxine said it hoped to have results

in 6 to 8 weeks. Meanwhile, two Chinese companies said they launched clinical trials of novel H1N1 vaccines. They are Hualan Biological Engineering and Sinovac.

<http://www.stuff.co.nz/world/swine-flu/2664951/Australia-starts-swine-flu-vaccine-trials>

Australia, New South Wales: Weekly Summary (as of July 22, 2009)

The latest 7 day count of 1229 presentations with ILI is nearly four times higher than the highest seasonal peak of the last 6 years. Australia has moved their pandemic planning phase to "Protect", in which testing parameters have changed to testing those with more severe illness who require hospitalization. As of July 15 2009, highest number of hospitalized confirmed cases of pandemic H1N1 is in children aged 0-4 years. As of July 15, 2009, there were 654 confirmed H1N1 hospitalized cases, 96 of those cases required ICU admission and have been 30-59 year age group

http://www.emergency.health.nsw.gov.au/swineflu/resources/pdf/case_statistics_230709.pdf

New Zealand

July 27, 2009: New Zealand now has 2662 laboratory-confirmed cases. The level of illness would be much higher than the number of laboratory-confirmed cases reported daily. Testing is now done only in the management of severe cases. Also, many people with swine flu are able to look after themselves at home and do not need to see their GP. There have now been 12 deaths in New Zealand linked to the pandemic. All who have died had underlying health conditions.

<http://www.moh.govt.nz/moh.nsf/indexmh/influenza-a-h1n1-update-116-270709>

New Zealand: Weekly Summary (July 13-19, 2009)

The report describes the continuing sharp increase in ILI through the sentinel surveillance. The highest ILI consultation rates have been reported among children and teenagers between the ages of 0-19 years. The current ILI rate of influenza is higher than at the same time last year. A total of 26 Influenza A H1N1 viruses have been tested for oseltamivir-resistant by either phenotypic assay or a molecular assay and all 26 have come back positive.

http://www.surv.esr.cri.nz/PDF_surveillance/Virology/FluWeekRpt/2009/FluWeekRpt200929.pdf

South America & the Americas

July 18, 2009: *Argentina* - The government declared a nationwide animal health emergency following the discovery of the new H1N1 flu virus in at least one pig herd.

<http://www.buenosairesherald.com/BreakingNews/View/6666>

PAHO Pandemic H1N1 epidemiology summary last updated July 10, 2009. As of July 10, 2009 76,761 confirmed cases of Influenza A H1N1 2009 infection, including 505 deaths, have been notified in 31 countries of the Americas.

http://new.paho.org/hq/index.php?option=com_content&task=view&id=1574&Itemid=1167

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

July 23, 2009: Canadian employers are reporting "huge increases" in absenteeism tied to concerns about the H1N1 virus, according to Karen Seward of Shepell-fgi, a Canadian firm that provides health and productivity services to businesses. Seward said her company is getting many questions from employers about handling absences. She said employers and public health officials are giving conflicting advice about when sick workers should see a doctor.

<http://www.thespec.com/article/605227>

July 23, 2009: British businesses lag on preparedness

Absenteeism in British workplaces is three times normal for this time of year, a consultant group told the British government this week, leading to fears that businesses will struggle when the H1N1 influenza pandemic peaks. Many companies have instituted hygiene steps, but an expert said most haven't planned for absences, such as making telecommuting plans, boosting customer self-service systems, and identifying key workers.

http://www.ft.com/cms/s/0/93f305ae-76f0-11de-b23c-00144feabdc0.html?nclick_check=1

July 23, 2009: Muslim countries bar high-risk groups from hajj. Health ministers from Middle Eastern countries who met yesterday to discuss pandemic flu risks decided to ban children, the elderly, and those with chronic health conditions from attending the hajj pilgrimage in Saudi Arabia in late November. The ban applies to children under 12 and adults over 65. Some Muslim clerics have opposed pilgrimage travel bans and have said flu risks are exaggerated.

<http://www.google.com/hostednews/ap/article/ALeqM5j1QLBhDS5eGcWH27j3B9HajsT8hwD99K8P880>

July 22, 2009: Canada, Japan finds new oseltamivir-resistant cases. Canada reported its first and Japan its second case of oseltamivir (Tamiflu)-resistant pandemic H1N1 flu. The Canadian patient is a 60-year-old Quebec man who was treated with the drug, and public health officials said it appears to be an isolated incident. The Japanese patient is from Yamaguchi and received the drug as postexposure prophylaxis. The patient's virus was sensitive to zanamivir, and officials said there was no sign of additional spread.

http://www.google.com/hostednews/canadianpress/article/ALeqM5gaNQxQtkte8cDFnwA_JRXyesKjAQ

July 22, 2009: Canadian inspectors got sick after exposure to infected pigs

The Canadian Food Inspection Agency said yesterday that two of its employees contracted the novel H1N1 virus during their investigation earlier this spring of an Alberta pig herd that had the virus. The employees reportedly removed their protective masks, contrary to recommended procedures, in the hog barn after their equipment fogged up. They got sick within days of their exposure to the virus in the barn.

<http://www.vancouversun.com/health/Swine+inspectors+became+infected+themselves+Alberta+farm/1814007/story.html>

July 22, 2009: Sanofi set to launch human vaccine trials. An official from Sanofi Pasteur today said the company would begin human trials of its pandemic H1N1 vaccine in early August and expects to have a vaccine ready by November or December. The clinical trials, which could last about 2 months, will take place in the United States, France, and

one other European country. The company said it doesn't know yet how much antigen will be needed for each dose.

<http://www.bloomberg.com/apps/news?pid=20601090&sid=aRMVoTrA1Ktw>

July 22, 2009: Glaxo issues vaccine update, triples Relenza production
In an update on its pandemic activities, GlaxoSmithKline (GSK) said in a press release today that it is talking with regulatory agencies about testing its pandemic H1N1 vaccine, which consists of antigen and its AS03 adjuvant, to be combined before administration. The firm said its first orders will be delivered to countries in September, but the delivery pace will depend on production yield. GSK also said it tripled production of its antiviral drug, zanamivir (Relenza).

http://www.gsk.com/media/pressreleases/2009/2009_pressrelease_10077.htm

JOURNALS SCANNED:

- American Journal of Public Health
- British Medical Journal
- Canadian Medical Association Journal (CMAJ)
- Clinical Infectious Diseases
- Emerging Infectious Diseases
- Eurosurveillance
- Journal of Infectious Diseases
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One

AMERICAN JOURNAL OF PUBLIC HEALTH

- Nothing new on H1N1 since June 18.

BRITISH MEDICAL JOURNAL

1) "You can't have swine flu" (*Susan Mayor July 22, 2009*)

http://www.bmj.com/cgi/content/full/339/jul22_1/b2969

A journalist with BMJ presents her views about her experience with influenza A (H1N1): 'My observational study (n=1) suggests that the assumption that swine flu causes only mild illness may have been simplistic. Sadly, the recent deaths of people who apparently had no underlying illness also indicates that assumptions that swine flu poses no real risk may have been premature.'

2) Predicting and preparing for pandemic flu (*Fiona Godlee July 23, 2009*)

http://www.bmj.com/cgi/content/full/339/jul23_1/b2988

This editorial stresses the importance of accurate forecasting in the influenza A(H1N1) pandemic in order to plan for the coming months.

3) How well is the UK managing the influenza A/H1N1 pandemic? (*Roy M Anderson July 25, 2009*)

http://www.bmj.com/cgi/content/full/339/jul15_4/b2897

In this editorial, the author answers the question posed in the title. In his opinion, the UK is doing a good job of managing the influenza A (H1N1) pandemic. He points to the quick response of government to the pandemic, detailed and prompt epidemiologic analysis at the beginning of the pandemic and the large stockpile of antiviral medication and their early use as prophylaxis as examples of the UK's ample response to the influenza A (H1N1) pandemic.

4) Government tries to end confusion over swine flu advice to pregnant women (*Adrian O'Dowd July 22, 2009*)

http://www.bmj.com/cgi/content/full/339/jul22_1/b2984

The government has issued new guidance that comes after a weekend of conflicting messages about pregnancy and influenza A (H1N1) infection from different sources. A statement from England's chief medical officer, said that the health department was not advising pregnant women to avoid going to work or busy public places. But it advised that they should observe good hand hygiene, avoid contact wherever possible with someone who is known or suspected to have swine flu, and to contact their GP if they had flu-like symptoms. Pregnant healthcare workers should avoid seeing patients with flu-like symptoms if this is possible and practical, the Royal College of General Practitioners says.

5) A/H1N1 influenza update (*Adrian O'Dowd July 23, 2009*)

http://www.bmj.com/cgi/content/full/339/jul23_1/b2977

Journalist Adrian O'Dowd reports on the most up to date information regarding pandemic influenza A (H1N1). He answers such questions as: 'What more do we know about A/H1N1 compared with two months ago?' 'What are the latest predictions on how serious this virus is?' And 'What are the likely arrangements for distribution of the A/H1N1 vaccine?'

6) Research Methods & Reporting: Assessing the severity of the novel influenza A/H1N1 pandemic (*Tini Garske, et al. July 14, 2009*)

http://www.bmj.com/cgi/content/full/339/jul14_3/b2840

This article describes two potential sources of bias in measuring the case fatality ratio for the novel influenza A (H1N1) pandemic. Study designs and statistical methods are proposed to obtain accurate estimates for the case fatality ratio. The first source of bias is in case ascertainment, where typically only severe cases of influenza will end up being reported. The second is delays between onset, death, and reporting. Thus among reported cases there may be people who will die but are still alive at the time of statistical analysis. This is known statistically as censoring.

CANADIAN MEDICAL ASSOCIATION JOURNAL (CMAJ)

1) Infectious disease experts expect the unexpected with respect to swine flu (*Paul Webster*)

<http://www.cmaj.ca/cgi/rapidpdf/cmaj.091176>

Top influenza control officials from Mexico, Canada and the United States warn that the Novel A (H1N1) influenza pandemic may intensify further, while a vaccine won't be available in Canada until November.

2) Analysis: Modelling an influenza pandemic: a guide for the perplexed (*David Fisman and Pandemic Influenza Outbreak Research Modelling Team*)
<http://www.cmaj.ca/cgi/rapidpdf/cmaj.090885>

Mathematical models can be used to synthesize data on newly emerging pathogens and can project plausible scenarios. Using previously estimated numbers including the effective reproductive number and average generation time, it is possible to estimate the final size of an epidemic, with or without control measures. Models can also account for antiviral resistance and what the most useful strategy for providing antiviral medication to control influenza.

3) Investigation of the first cases of human-to-human infection with the new swine-origin influenza A (H1N1) virus in Canada (*Jennifer Cutler et al.*)
<http://www.cmaj.ca/cgi/rapidpdf/cmaj.090859>

This paper outlines the epidemiologic and clinical characteristics for the first cluster of novel influenza A (H1N1) among students in a private school in Nova Scotia. A cluster of cases of acute respiratory illness were first reported on April 23, 2009. An outbreak investigation found that some of the students had traveled to Mexico in the previous weeks. Samples had to be sent to the National Microbiology Lab in Winnipeg, as the technology to identify novel influenza A (H1N1) was not in place yet in the provinces. Control measures included isolating cases, using oseltamivir on cases to reduce infectious period and giving oseltamivir prophylaxis to students and staff. As of May 8, 2009, there were 99 suspected and probable cases of novel influenza A (H1N1) associated with this cluster.

CLINICAL INFECTIOUS DISEASES

1) Benefits of a universal influenza immunization program: more than the reduction in the use of antibiotics (*W. Paul Glezen July 22, 2009*)
<http://www.journals.uchicago.edu/doi/full/10.1086/605088>

The Universal Influenza Immunization Program is a program unique to Ontario. Since it was implemented, Ontario has a higher rate of vaccine coverage compared to the rest of Canada and most American states. The increased vaccine coverage rates for preschool- and school-aged children have the potential not only to reduce morbidity among those with the highest influenza attack rates but also to provide indirect protection (herd protection) for their older contacts in the community. The Ontario experience provides a proven model for improving influenza control in the United States.

2) Brief report: The Effect of Universal Influenza Immunization on Antibiotic Prescriptions: An Ecological Study (*Jeffrey C. Kwong et al. July 22, 2009*)
<http://www.journals.uchicago.edu/doi/full/10.1086/605087>

The Canadian province of Ontario introduced universal influenza immunization in 2000, offering free vaccines to the entire population. From 1996–1997 to post-2000, overall vaccine uptake increased from 18% to 38% in Ontario, compared with an increase from 13% to 24% in other provinces. The authors compared changes in rates of influenza-associated respiratory antibiotic prescriptions before and after universal immunization in Ontario with corresponding changes in other provinces. Universal influenza immunization is associated with reduced influenza-associated antibiotic prescriptions. Rates of influenza-associated antibiotic prescriptions decreased from 17.9 to 6.4 per 1000 people in Ontario, compared with a decrease from 8.3 to 8.2 per 1000 people in other provinces.

3) Do Declination Statements Increase Health Care Worker Influenza Vaccination Rates? (*Thomas R. Talbot July 21, 2009*)

<http://www.journals.uchicago.edu/doi/full/10.1086/605554>

In response to health care worker influenza vaccination rates that are below desired targets, strategies designed to stimulate vaccination have been proposed, including the use of declination statements for those refusing vaccination. The impact of these statements has not been thoroughly investigated and may be affected by their specific language and context. This review examines the available data on the use and impact of declination statements to increase health care worker vaccination rates and notes some potential pitfalls and issues that may arise with their use.

EMERGING INFECTIOUS DISEASES

1) Genomic diversity of Oseltamivir-resistant Influenza A (H1N1) virus in Luxembourg, 2007-2008 (*N.A. Gerloff et al. July 22, 2009*)

<http://www.cdc.gov/eid/content/15/9/pdfs/09-0452.pdf>

The authors of this study investigated the genetic diversity in all 8 gene segments of representative oseltamivir-resistant influenza viruses A (H1N1) (ORVs) and oseltamivir-sensitive viruses (OSVs) collected during December 2007–March 2008 by the National Influenza Sentinel Surveillance System in Luxembourg. The His275Tyr (N1 numbering) mutation in the neuraminidase (NA) genes of influenza virus A (H1N1) that confers resistance to oseltamivir has previously been associated with impaired virus replication, infectivity, and pathogenicity. They speculate that the unexpected fitness of the 2007–08 influenza viruses (H1N1) may be caused by a new genetic background that is most likely encoded in the PB2 gene.

2) Nurses' contacts and potential for infectious disease transmission (*H. Bernard et al. July 22, 2009*)

<http://www.cdc.gov/eid/content/15/9/pdfs/08-1475.pdf>

During an influenza pandemic, illness among nurses might result in staff shortage. The authors aimed to show the value of individual data from the healthcare sector for mathematical modeling of infectious disease transmission. Using a paper diary approach, they compared nurses' daily contacts with those of matched controls from a representative population survey. For nurses, 51% of work-related contacts were with patients (74% involving skin-to-skin contact, and 63% lasted <15 minutes). The data, used with simulation models, can help predict staff availability and provide information for pandemic preparedness planning.

EUROSURVEILLANCE

1) Modified surveillance of Influenza A (H1N1) virus infections in France (*Influenza A (H1N1) Investigation Teams, July 23, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19276>

Up to early July 2009, surveillance of H1N1 cases in France was based on the identification of all possible cases in order to implement, around each of them, control measures aimed at delaying the spread of the virus. The global dissemination of the virus and the starting community transmission in France led us to shift to a population-based surveillance relying mainly on the identification and investigation of clusters of influenza-like illness, on the identification and individual follow-up of confirmed hospitalized cases as well as on the monitoring, through various sentinel systems, of the use of ambulatory and hospital care for influenza-like symptoms.

2) Enhanced surveillance of Influenza A (H1N1) in Greece during the containment phase (*T. Lytras et al. July 23, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19275>

Following the emergence of a novel influenza virus (influenza A(H1N1)v) with pandemic potential in late April 2009, public health measures were put in place in an effort to contain disease spread in Greece. These included enhanced surveillance of infections due to influenza A(H1N1)v virus, in order to continuously ascertain the situation and guide further public health action. On 15 July, Greece moved to mitigation phase. This report summarizes surveillance findings in Greece during the delaying (or “containment”) phase, from 30 April to 14 July 2009.

3) Clinical features of cases of Influenza A (H1N1) in Osaka Prefecture, Japan, May 2009 (*N. Komiya et al. July 23, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19272>

This report describes the clinical characteristics of influenza A(H1N1)v virus infection in Osaka. By the end of May, 171 cases had been reported in Osaka. Most patients were from one school. No patient had a serious underlying medical condition. Clinical symptoms were mild and resembled those of seasonal influenza. The sensitivity of the rapid antigen test was 77%. Antivirals were given to the majority of the cases. Early antiviral treatment may have shortened the duration of fever.

4) Europe’s initial experience with pandemic (H1N1) 2009: mitigation and delaying policies and practices (*A. Nicoll and D. Coulombier, July 23, 2009*)

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19279>

To date the distribution of transmission of pandemic influenza (H1N1) has been highly heterogeneous between and within countries in Europe, with one country the United Kingdom (UK) experiencing the most cases and the highest transmission rates. Most infections are mild but there are steadily increasing numbers of people needing hospital care and more deaths are being reported. An initial difference in practice between Europe and North America was over case-finding and treatment with some authorities in Europe using active case-finding, contact tracing and treatment/prophylaxis with antivirals to try and delay transmission. This article details the history of this practice in

the past two months and explains how and why countries are moving to mitigation, especially treating with antivirals those at higher risk of experiencing severe disease.

JOURNAL OF INFECTIOUS DISEASES

1) Influenza in hospitalized adults: gaining insight into a significant problem (*Michael G. Ison, August 15, 2009*)

<http://www.journals.uchicago.edu/doi/full/10.1086/600384>

This was the first study of hospitalized patients to perform careful and serial sampling of the respiratory tract to monitor the duration of viral shedding and to correlate these findings with clinical symptoms.

2) Viral loads and duration of viral shedding in adult patients hospitalized with Influenza (*Nelson Lee et al. August 15, 2009*)

<http://www.journals.uchicago.edu/doi/full/10.1086/600383>

Patients hospitalized with severe influenza have more active and prolonged viral replication. Weakened host defenses slow viral clearance, whereas antivirals started within the first 4 days of illness enhance viral clearance.

THE LANCET

1) Non-invasive ventilation in acute respiratory failure (*Stefano Nava and Nicholas Hill. 18 July 2009*)

[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)60496-7/fulltext#article_upsell](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60496-7/fulltext#article_upsell)

Non-invasive mechanical ventilation has been increasingly used to avoid or serve as an alternative to intubation. Compared with medical therapy, and in some instances with invasive mechanical ventilation, it improves survival and reduces complications in selected patients with acute respiratory failure.

LANCET INFECTIOUS DISEASES

Much of the August 2009 issue discusses the H1N1 pandemic

<http://www.lancet.com/journals/laninf/issue/current>

1) Running faster to stay in the same place (*Editorial, p. 455. August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70180-X/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70180-X/fulltext)

For a UK based infectious diseases journal, albeit one with a global perspective, August would not, in any other year, be the obvious month for an influenza themed issue. But 2009 is not just any other year for influenza—for the first time in their careers, clinicians and researchers are facing the global challenge of an influenza pandemic. This issue also coincides with *The Lancet* Conference on Influenza in the Asia–Pacific to be held in Beijing, Aug 21–23, in which international experts come together to discuss various aspects of influenza research from insights on the virus, to surveillance, and, pertinently, pandemic response.

2) Possible origin of current influenza A H1N1 viruses (*Hong Zhang, Ling Chen, August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70181-1/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70181-1/fulltext)

The ongoing outbreak of swine-origin influenza A H1N1 in Mexico, the USA, and 40 other countries reminds us that the risk of an influenza pandemic is high and will persist in the future.

3) Influenza in the tropics (*Yee-Sin Leo, David C Lye, Angela Chow, August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70182-3/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70182-3/fulltext)

Compared with temperate countries, data on tropical influenza remain scarce. Russell and colleagues suggest that epidemics of new variants of influenza are seeded into temperate regions from continuously circulating viruses in east and southeast Asia through temporary regionally overlapping epidemics.

4) Economics of stockpiling for an influenza pandemic (*Praveen Dhankhar, Erik J Dasbach, Elamin H Elbasha, August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70183-5/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70183-5/fulltext)

Secondary bacterial infections (especially *Streptococcus pneumoniae* infections) were the leading cause of death during past influenza pandemics. One way to prevent pneumococcal infections in adults during the next pandemic is to stockpile pneumococcal vaccines. The usefulness of strategies such as stockpiling can be evaluated using cost-effectiveness analysis.

5) Influenza at the 26th ICC (*John McConnell, August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70187-2/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70187-2/fulltext)

The 26th International Congress of Chemotherapy and Infection, in Toronto, Ontario, Canada (June 18—21), was held just a week after declaration by WHO of an influenza pandemic. A session on the pandemic-causing H1N1 virus was a highlight of the conference, and is described below. Frank Plummer (National Microbiology Laboratory, Winnipeg, Manitoba, Canada) presented details of Canada's early involvement in identifying the novel H1N1 virus.

6) Containment abandoned for unstoppable pandemic (*Peter Hayward, August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70188-4/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70188-4/fulltext)

Since the last update in *The Lancet Infectious Diseases*, the situation of swine-origin influenza A H1N1 has continued to change day to day.

7) Closure of schools during an influenza pandemic (Review) (*Simon Cauchemez et al. August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70176-8/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70176-8/fulltext)

This article reviews non-pharmaceutical interventions, for example school closure, that are commonly suggested for mitigating influenza pandemics. Health officials taking the decision to close schools must weigh the potential health benefits of reducing transmission and thus case numbers against high economic and social costs, difficult ethical issues, and the possible disruption of key services such as health care. Also, if schools are expected to close as a deliberate policy option, or just because of high

levels of staff absenteeism, it is important to plan to mitigate the negative features of closure.

8) Influenza in immunosuppressed populations: a review of infection frequency, morbidity, mortality, and vaccine responses (*Ken M Kunisaki, Edward N Janoff, August 2009*)

[http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(09\)70175-6/fulltext](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(09)70175-6/fulltext)

Multiple guidelines recommend influenza vaccination for patients infected with HIV, who have received solid-organ transplants, who have received haemopoietic stem-cell transplants, and patients on haemodialysis. However, immunosuppression might also limit vaccine responses. To better inform policy, we reviewed the published work relevant to incidence, outcomes, and prevention of influenza infection in these patients, and in patients being treated chemotherapy and with systemic corticosteroids.

MORBIDITY AND MORTALITY WEEKLY REPORT (MMWR)

1) Neurologic Complications Associated with Novel Influenza A (H1N1) Virus Infection Among Children (*July 24, 2009*)

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5828a2.htm>

This report highlights the potential for children with novel influenza A (H1N1) virus infection to experience neurological complications. It describes four cases of patients, aged 7-17, who were admitted to hospital with signs of influenza-like illness (ILI) and seizures or altered mental status. Physicians who are caring for children hospitalized with influenza-like illness and unexplained seizures or mental status changes should consider that the neurological symptoms may be related to influenza, send respiratory specimens for testing, and start treatment with antiviral medications used against flu.

2) Prevention and control of seasonal influenza with vaccines (*Anthony E. Fiore, July 24, 2009*)

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr58e0724a1.htm?s_cid=rr58e0724a1_x

This report updates the 2008 recommendations by CDC's Advisory Committee on Immunization Practices (ACIP) regarding the use of influenza vaccine for the prevention and control of seasonal influenza. Information on vaccination issues related to the recently identified novel influenza A H1N1 virus will be published later in 2009. Vaccination efforts should begin as soon as vaccine is available and continue through the influenza season. Approximately 83% of the United States population is specifically recommended for annual vaccination against seasonal influenza; however, <40% of the U.S. population received the 2008--09 influenza vaccine.

NATURE

1) Regulators face tough flu-jab choices (*Declan Butler, July 21, 2009*)

<http://www.nature.com/news/2009/090721/full/460446a.html>

Regulatory agencies may have to approve pandemic vaccines — both adjuvanted and non-adjuvanted — without all the data they would normally require, warns Marie-Paule Kieny, the WHO's vaccine research director. Some preliminary clinical and safety data may be available by September, when flu cases could surge in the Northern

Hemisphere, but complete data for adults are unlikely to be available until the end of December and not until February 2010 for children. Regulators would accompany pandemic vaccine rollouts with parallel clinical trials, and, as in any mass-vaccination campaign, extensive surveillance would monitor for any adverse side effects.

NEW ENGLAND JOURNAL OF MEDICINE

1) Pneumonia and respiratory failure from swine-origin Influenza A (H1N1) in Mexico (*Rogelio Perez-Padilla et al. July 20, 2009*)

<http://content.nejm.org/cgi/content/full/NEJMoa0904252v1>

In late March 2009, an outbreak of a respiratory illness later proved to be caused by novel swine-origin influenza A (H1N1) virus (S-OIV) was identified in Mexico. This study describes the clinical and epidemiologic characteristics of persons hospitalized for pneumonia at the national tertiary hospital for respiratory illnesses in Mexico City who had laboratory-confirmed S-OIV infection. A total of 18 cases of pneumonia and confirmed S-OIV infection were identified among 98 patients hospitalized for acute respiratory illness. Over 50% of the 18 case patients were between 13 and 47 years of age, and only 8 had preexisting medical conditions. Twelve patients required mechanical ventilation, and seven died. S-OIV infection can cause severe illness, the acute respiratory distress syndrome, and death in previously healthy persons who are young to middle-aged.

2) Severe respiratory disease concurrent with the circulation of H1N1 Influenza (*Gerardo Chowell et al. July 20, 2009*)

<http://content.nejm.org/cgi/content/full/NEJMoa0904023v1>

In the spring of 2009, an outbreak of severe pneumonia was reported in conjunction with the concurrent isolation of a novel swine-origin influenza A (H1N1) virus (S-OIV) in Mexico. During the study period, 87% of deaths and 71% of cases of severe pneumonia involved patients between the ages of 5 and 59 years, as compared with average rates of 17% and 32%, respectively, in that age group during the referent periods. Features of this epidemic were similar to those of past influenza pandemics in that circulation of the new influenza virus was associated with an off-season wave of disease affecting a younger population. During the early phase of the pandemic, there was a sudden increase in the rate of severe pneumonia and a shift in the age distribution of patients with such illness, which was similar to past pandemics. This also suggests relative protection for persons who were exposed to H1N1 strains during childhood before the 1957 pandemic. These findings suggest a rationale for focusing prevention efforts on younger populations.

3) Correspondence - Rapid-test sensitivity for Novel Swine-Origin Influenza A(H1N1) in Humans (*Dennis J. Faix et al. July 20, 2009*)

<http://content.nejm.org/cgi/reprint/NEJMc0904264v1.pdf>

The Naval Health Research Center serves as the Navy hub for the Department of Defense's Global Emerging Infections Surveillance and Response System (GEIS), in which it monitors influenza-like illness among recruit trainees of all military service members. The first two human cases of novel swine-origin influenza A (H1N1) virus in the United States were detected through these programs. The centre processed 3066 specimens with the use of a real-time reverse-transcriptase-PCR (RT-PCR) assay. The

study findings suggest that rapid-test sensitivity may vary according to the influenza A subtype. Further investigation is needed to confirm these results and evaluate possible explanations. This finding has implications for the diagnosis and treatment of patients with influenza-like illness now and during the next influenza season. As seasonal and zoonotic influenza viruses continue to drift and shift, we must continuously assess the sensitivity and specificity of available diagnostic tests.

PLOS ONE

-Nothing new on H1N1 this week