Ontario
Agency for Health Protection and Promotion

480 University Avenue, Suite 300
Toronto, ON M5G 1V2
T 647.260.7100 F 647.260.7600
www.oahpp.ca

WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES

(WEEK ENDING OCTOBER 16, 2009)

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

October 16, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

Weekly Flu View Map and Surveillance Report for Week Ending October 10, 2009.
http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 40 (October 04-10, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season *(October 16, 2009).*
http://www.cdc.gov/h1n1flu/recommendations.htm
These recommendations have been updated to provide additional guidance for clinicians in prescribing antiviral medications for treatment and prevention of influenza during the 2009-2010 season. In general, the priority use of antiviral medications during this season continues to be in people who are hospitalized with influenza and those at increased risk of influenza-related complications as outlined in the recommendations last updated on September 22, 2009.

Recommendations for the Use of Antiviral Medications for the Management of Influenza in Children and Adolescent for the 2009-2010 Season- Pediatric Supplement for Health Care Providers *(October 16, 2009)*.
http://www.cdc.gov/h1n1flu/recommendations_pediatric_supplement.htm
This document provides supplemental recommendations for health care providers of children and adolescents on the use of antiviral medications for the treatment and chemoprophylaxis of influenza including 2009 H1N1 influenza infection and seasonal influenza, and assist clinicians in prioritizing use of antiviral medications for hospitalized patients and those at higher risk for influenza-related complications.

Planning Guide for Vaccinating Pediatric Patients Against 2009 H1N1 Influenza in Primary Healthcare Setting *(October 16, 2009)*.
http://www.cdc.gov/h1n1flu/vaccination/pediatricpatients.htm
Purpose of this document is to provide guidance for planning and conducting 2009 H1N1 influenza vaccination of pediatric patients in primary healthcare settings.

2009 H1N1 Flu and Seasonal Flu Information for Rheumatology Health Professionals *(October 15, 2009)*.
http://www.cdc.gov/h1n1flu/arthritis_clinicians.htm

2009 H1N1 Flu (referred to as "swine flu" early on) and Seasonal Flu Information for Rheumatology Health Professionals *(October 15, 2009)*.

http://www.cdc.gov/h1n1flu/arthritis_clinicians.htm

Interim Guidance on Infection Control Measure for 2009 H1N1 Influenza in Healthcare setting, Including Protection of Healthcare Personnel *(October 14, 2009)*.
http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm
CDC is releasing updated interim guidance on infection control measures to prevent transmission of 2009 H1N1 influenza in healthcare facilities

Q&A: CDC's Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare setting, including Protection of Healthcare Personnel *(October 14, 2009)*.
http://www.cdc.gov/h1n1flu/guidance/control_measures_qa.htm

Q&A: Respiratory Protection for Preventing 2009 H1N1 Influenza Among Healthcare Personnel *(October 14, 2009)*.
http://www.cdc.gov/h1n1flu/guidelines_infection_control_qa.htm

Questions and Answers about CDC's Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel *(October 14, 2009)*.
http://www.cdc.gov/H1N1flu/guidance/control_measures_qa.htm

2009 H1N1 Influenza Vaccine *(October 16, 2009)*
http://www.cdc.gov/h1n1flu/vaccination/public/vaccination_qa_pub.htm

CDC National Institute for Occupational Safety and Health
Occupational Health Issues Associated with H1N1 Influenza Virus *(October 16, 2009)*
http://www.cdc.gov/niosh/topics/H1N1flu/healthcare-risk.html
Risk of Serious Illness Among Healthcare Personnel Associated With 2009 H1N1 Influenza: What Is NIOSH Learning?

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 40 (October 04-10, 2009)
http://www.phac-aspc.gc.ca/fluwatch/09-10/w38_09/pdf/fw2009-38-eng.pdf
The overall influenza activity increased for a fourth consecutive week and was higher than expected for this time of the year.ill relatively low. The total number of influenza outbreaks was lower than last week but still high for this time of the year with 28 influenza outbreaks.

Deaths Associated with Influenza A (H1N1) as of October 15, 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.

Frequently asked questions-H1N1 Flu Virus *(October 15, 2009).*
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/faq_rg_h1n1-eng.php

Canada Supports Scientific Research to Deepen Knowledge of H1N1 flu Virus *(October 14, 2009).*
http://www.cihr.ca/e/40508.html

Regulation of H1N1 Vaccine *(October 14, 2009).*
http://www.phac-aspc.gc.ca/alert-alerte/h1n1/vacc/faq_rg_h1n1-reg-eng.php

ONTARIO

Ontario Influenza Bulletin 2009-2010, Surveillance Week 40 (October 4-10, 2009)
http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_09/bulletins/flu_bul_01_20091016.pdf
Influenza activity in Ontario is higher compared to the previous week. Many of the measures indicate that influenza activity in week 40 has increased compared to activity in week 39.

MOHLTC: Ontario Takes Additional Steps to Reduce H1N1 Transmission (*October 16, 2009)*
http://www.news.ontario.ca/mohltc/en/2009/10/ontario-takes-additional-steps-to-reduce-h1n1-transmission.html

MOHLTC Guidance for Management of Patients with ILI in Emergency Departments during Pandemic (H1N1) 2009- Summary (*October 14, 2009)*
http://www.health.gov.on.ca/en/ccom/flu/h1n1/pro/docs/emergency_guidance.pdf

MOHLTC Guidance for the Management of ILI in Ambulatory Care Settings during Pandemic (H1N1) 2009- Summary *(October 14, 2009)*
http://www.health.gov.on.ca/en/ccom/flu/h1n1/pro/docs/ambulatory_guidance.pdf

MOHLTC Guidance for Management of Patients with ILI in Long-Term Care Settings during the Pandemic (H1N1) 2009- Summary Guidance Document *(October 14, 2009)*
http://www.health.gov.on.ca/en/ccom/flu/h1n1/pro/docs/ltc_guidance.pdf

MOHLTC Guidance for Pharmacists and Pharmacies on Ontario's Antiviral Distribution Strategy for Managing ILI during Pandemic (H1N1) 2009- Summary *(October 15, 2009)*
http://www.health.gov.on.ca/en/ccom/flu/h1n1/pro/docs/pharmacies_guidance.pdf

Kingston, Frontenac and Lennox & Addington (KFL&A): Regional Syndromic Surveillance Influenza Report (October 07-13, 2009)
http://www.quesst.ca/report/Syndromic%20Surveillance%20Weekly%20Flu%20Report%20091014.pdf

BC CENTER FOR DISEASE CONTROL (BC CDC):

BC CDC: H1N1 flu virus update *(October 13, 2009)*
http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/H1N1FluVirusHumanSwineFlu.htm

Weekly BC Pandemic H1N1 Surveillance Update as of October 13, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm#

WORLD HEALTH ORGANIZATION (WHO)

Global Situation Update 70, October 11, 2009:
http://www.who.int/csr/don/2009_10_09/en/index.html
Influenza activity continues to increase in the northern zones across the world. In North America, the US is now experiencing nationwide rates of ILI well above seasonal baseline rates with high rates of pandemic H1N1 2009 virus detections in clinical laboratory specimens. Mexico also reports high intensity and active transmission in some areas of the country. Western Europe and northern Asia are experiencing increased rates of ILI, well above baseline in some countries but activity is generally not as widespread as in North America.

Clinical features of severe cases of pandemic influenza *(October 16, 2009)*
http://www.who.int/csr/disease/swineflu/notes/h1n1_clinical_features_20091016/en/index.html

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

October 19, 2009: Weekly ECDC Executive Update, Pandemic influenza A(H1N1) Issue 15
http://www.ecdc.europa.eu/en/healthtopics/Documents/091019_Influenza_A(H1N1)_Weekly_Executive_Update.pdf

October 16, 2009: ECDC Daily Update, Pandemic (H1N1) 2009
http://www.ecdc.europa.eu/en/healthtopics/Documents/091016_Influenza_AH1N1_Situation_Report_0900hrs.pdf

Recommendation to include influenza A(H1N1) 2009 in the 2010 Southern Hemisphere seasonal vaccines plus change of the influenza A(H3N2) component *(October 14, 2009)*
http://ecdc.europa.eu/en/activities/sciadvice/Lists/ECDC%20Reviews/ECDC_DispForm.aspx?List=512ff74f%2D77d4%2D4ad8%2Db6d6%2Dbf0f23083f30&ID=666&Source=http%3A%2F%2Fstaging%2Eecdcdmz%2Eeuropa%2Eeu%2Fen%2Factivities%2Fsciadvice%2FLists%2FECDC%2520Reviews%2FAllItems%2Easpx

UK'S HEALTH PROTECTION AGENCY (HPA) AND UK DEPARTMENT OF HEALTH

Pandemic (H1N1) 2009 Influenza: information for health professionals
http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1240812235133

Enhanced surveillance of Guillain-Barré syndrome during the influenza pandemic
http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1252326220342?p=1242949541960

UK Department of Health: Rationale for Staff Vaccination
http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_107214.pdf

October 2009: The H1N1 swine flu vaccination programme 2009-2010 *(October 15, 2009)*
http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_107190.pdf

HEALTH/SURVEILLANCE BULLETINS:

Australia

Australia Influenza Surveillance Summary Report, No. 22, 2009, reporting period: October 03-09 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.

New Zealand

New Zealand: Weekly 41 Summary (October 05-11, 2009)
http://www.surv.esr.cri.nz/PDF_surveillance/Virology/FluWeekRpt/2009/FluWeekRpt200941.pdf
There has been a decrease in consultations for ILI through sentinel surveillance in week 41. 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)

October 19 2009: Concerned that H1N1 and seasonal flu will overwhelm providers this winter, the Minnesota Department of Health plans to launch a statewide hot line to triage people and prescribe medicine over the phone. Officials said the service will offer quick access to antiviral drugs for people at risk and also help people who lack health insurance.
http://www.startribune.com/lifestyle/health/virus/64710452.html?elr=KArksUUUoDEy3LGDiO7aiU

October 15 2009: In response to questions from citizens at a meeting yesterday, a Food and Drug Administration (FDA) official said the agency would make a decision "fairly soon" about permitting emergency use of the experimental antiviral drug peramivir to help patients severely ill with pandemic H1N1 influenza.
http://www.cidrap.umn.edu/cidrap/content/influenza/swineflu/news/oct1509peramivir.html

JOURNALS SCANNED:

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

AMERICAN JOURNAL OF PUBLIC HEALTH

- No new H1N1 content this week

BRITISH MEDICAL JOURNAL

- No new H1N1 content this week

CLINICAL INFECTIOUS DISEASES

1) Diagnostic Importance of Relative Lymphopenia as a Marker of Swine Influenza (H1N1) in Adults *(Cunha BA, Pherez FM)*
http://www.journals.uchicago.edu/doi/full/10.1086/644496

Early in the swine influenza (H1N1) pandemic (April and May 2009), a New York City emergency department was busy with 856 patient requests for rapid influenza A testing and/or evaluation. Unlike severe influenza A, which has characteristic findings, mild or moderate influenza A is clinically indistinguishable from influenza-like illness. The authors review laboratory results and found relative lymphopenia appears to be a laboratory marker of H1N1. Adults who test positive for H1N1, relative lymphopenia with or without thrombocytopenia was common, but leukopenia was not present. In adults who test positive for influenza A by the rapid influenza test, relative lymphopenia appears to be a marker to identify those likely to have H1N1 and thus to merit specific RT-PCR testing.

2) Severe Acute Respiratory Disease in the Setting of an Epidemic of Swine Origin Type A H1N1 Influenza at a Reference Hospital in Entre Ríos, Argentina *(Bantar C et al.)*
http://www.journals.uchicago.edu/doi/full/10.1086/644500

This article provides a descriptive analysis of the reported confirmed pandemic H1N1 cases in Argentina, including 52 cases (resulting in 1 death) in the province of Entre Ríos. The first confirmed case of novel H1N1 influenza in this province was reported on 18 June 2009, and the number of suspected cases increased to 330 by 4 July 2009. The findings from this preliminary analysis suggests that younger rather than older people are more susceptible to pandemic H1N1, like during the 1918 influenza epidemic, and that infected patients of any age should be observed carefully for the occurrence of complications. Such a situation is different from that of seasonal influenza, which affects children <5 years of age and persons ⩾65 years of age. This article shows that severe acute respiratory disease may have a significant impact on the healthcare system in the setting of an epidemic of pandemic H1N1 influenza, which affects previously healthy young people.

CMAJ

1) Modelling mitigation strategies for pandemic (H1N1) 2009. *(Zivkovic Gojovic M, Sander B, Fisman D, Krahn MD, Bauch CT. October 13, 2009.)*
http://www.cmaj.ca/cgi/rapidpdf/cmaj.091641v1?ijkey=3ee0ca112ef686b9aa40a2dc75faf0aa86649dfe

This study uses simulation models to project the effectiveness of mitigation strategies, but the choice of the best scenario may change depending on model assumptions and uncertainties. The authors developed a simulation model of a pandemic (H1N1) 2009 outbreak in a structured population using demographic data from a medium-sized city in Ontario and epidemiologic influenza pandemic data. The authors projected the attack rate (AR) under different combinations of vaccination, school closure and antiviral drug strategies. The researchers used "combinatorial uncertainty analysis" to assess the impact on epidemiologic uncertainty. This permitted us to identify the general features of public health response programs that resulted in the lowest attack rates. The authors found that delays in vaccination of 30 days or more reduced the effectiveness of vaccination in lowering the AR. However, pre-existing immunity in 15% or more of the population kept the attack rates low, even if the whole population was not vaccinated or vaccination was delayed. School closure was effective in reducing the AR, but this is not necessary if vaccine is available early or if pre-existing immunity is strong within the community. The

study suggests that early action, such as rapid vaccine deployment, is disproportionately effective in reducing the AR.

EMERGING INFECTIOUS DISEASES

- No new H1N1 content this week

EUROSURVEILLANCE

1) Use Of An Inactivated Vaccine In Mitigating Pandemic Influenza A(H1n1) Spread: A Modelling Study To Assess The Impact Of Vaccination Timing And Prioritisation Strategies *(Sypsa V, Pavlopoulou I, Hatzakis A . 2009)*
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19356

The impact of prioritization and of timing of vaccination strategies on reducing transmission of pandemic influenza A(H1N1) was evaluated in a community with the structure of the Greek population using a stochastic simulation model. In the absence of intervention, an illness attack rate (AR) of 34.5% is anticipated. The authors found that vaccinating the priority groups before the epidemic (such as pregnant women, people who live with or care for children <6 months of age, healthcare/emergency services personnel, etc.) will have a negligible impact on the overall AR. Vaccinating the recommended groups before the epidemic (priority groups as well as all persons 6 months–24 years old and high-risk individuals 25-64 years old) is anticipated to result in overall and age-specific ARs within the range of seasonal influenza. Early initiation of vaccination early during the epidemic (AR≤1% of the population) is predicted to result in overall ARs up to 15.2%-19.9% depending on vaccination coverage rates. The authors found that when vaccination is initiated late (AR: 5%), only coverage of 80% of the whole population at daily vaccination rates could reduce ARs to approximately 15%.

2) Pandemic H1n1 Influenza: Predicting The Course Of A Pandemic And Assessing The Efficacy Of The Planned Vaccination Programme In The United States *(Towers S.)*
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19358

The authors use data on confirmed cases of pandemic influenza A(H1N1), disseminated by the United States CDC to fit the parameters of a seasonally forced Susceptible, Infective, Recovered (SIR) model. They use the resulting model to predict the course of the H1N1 influenza pandemic in fall 2009, and assess the efficacy of the planned CDC H1N1 vaccination campaign. The model predicts that there will be a significant wave in fall of 63% of the population being infected, and that this wave will peak so early that the planned CDC vaccination campaign will likely not have a large effect on the total number of people with pandemic H1N1 infection.

3) Pandemic Influenza A(H1n1) 2009 Vaccines In The European Union (Johansen K.)
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19361

This article reviews composition of authorized pandemic vaccines from four manufacturers which are now available for use within the European Union (EU). The majority of the severely ill will be from known risk groups and the best strategy will be to start vaccinating in line with the recommendation from the EU Health Security Committee prioritising adults and children with chronic conditions, pregnant women and healthcare workers. The vaccine strain in all authorized pandemic vaccines worldwide is based on the same initial isolate of influenza A/California/7/2009 (H1N1)v but the vaccines differ in conditions for virus propagation, antigen preparation, antigen content and whether they are adjuvanted or not.

Delivery of the vaccines to the risk groups will pose difficulties where those with chronic illnesses are not readily identifiable to the healthcare services.

3) Resistance Of Turkeys To Experimental Infection With An Early 2009 Italian Human Influenza A(H1N1)V Virus Isolate *(Terregino C, De Nardi R, Nisi R, Cilloni F, Salviato A, Fasolato M, Capua I.)*
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19360

The authors performed an experimental infection of 21 and 70 day-old meat turkeys with an early human isolate of the pandemic H1N1 2009 influenza virus exhibiting an α-2,3 receptor binding profile. Virus was not recovered by molecular or conventional methods from blood, tracheal and cloacal swabs, lungs, intestine or muscle tissue. Seroconversion was detected in a limited number of birds with the homologous antigen only. These findings suggest that in its present form, the pandemic H1N1 influenza virus is not likely to be transmitted to meat turkeys and does not represent an animal/food safety issue for this species.

JAMA

1) Preparing for the Sickest Patients With 2009 Influenza A(H1N1) *(White DB, Angus DC.)*
http://jama.ama-assn.org/cgi/content/full/2009.1539

The authors review evidence about the nature and severity of the disease for preparation for the re-emergence of pandemic H1N1 influenza virus. The authors examine the current issue of *JAMA*, and describe the three reports. The authors describe epidemiological limitations of each study. They explain the difficulties to ascertain the true incidence of H1N1 infection in the population and accurate proportion of affected patients who required hospitalization, and other critical care interventions. It is also difficult to infer benefits of certain therapeutic interventions because of the potential for selection bias and residual confounding related to differences between groups that did and did not receive treatment. The authors raise questions on the ability of the influenza virus to mutate and whether the virus that will emerge this fall will produce similar rates and severity of clinical infection.

2) Extracorporeal Membrane Oxygenation for 2009 Influenza A(H1N1) Acute Respiratory Distress Syndrome (*The Australia and New Zealand Extracorporeal Membrane Oxygenation (ANZ ECMO) Influenza Investigators.)*
http://jama.ama-assn.org/cgi/content/full/2009.1535

The pandemic H1N1 influenza affected Australia and New Zealand during the 2009 southern hemisphere winter and has caused an epidemic of critical illness. This study describes the characteristics of all patients with pandemic H1N1 2009 influenza associated acute respiratory distress syndrome (ARDS) treated with extracorpeal membrane oxygenation (ECMO) and reports incidence, resource utilization, and patient outcomes. An observational study of all 68 patients with pandemic H1N1 influenza associated ARDS treated with ECMO in 15 ICUs in Australia and New Zealand between June 1 and August 31, 2009. The study found that 68 patients with severe influenza-associated ARDS were treated with ECMO, of whom 61 had either confirmed pandemic H1N1 or influenza A not subtyped, representing an incidence rate of 2.6 ECMO cases per million population. An additional 133 patients with influenza A received mechanical ventilation but no ECMO in the same ICUs. The 68 patients who received ECMO had a median age of 34.4 years and 34 patients were men. The median duration of ECMO support was 10 days. At the time of reporting, 70.6% of patients had survived to ICU discharge, of whom 32 had survived to hospital discharge and 16 remained as hospital inpatients. Fourteen patients had died and 6 remained in the ICU, 2 of whom were still receiving ECMO. The results from the study showed that during this time period, the ICUs at referral centers provided mechanical

ventilation for many patients with pandemic H1N1-associated respiratory failure had one third of whom received ECMO. These young adults with severe hypoxemia had a 21% mortality rate at the end of the study period.

3) Critically Ill Patients With 2009 Influenza A(H1N1) in Mexico *(Guillermo Domínguez-Cherit G, Lapinsky SE, Macias AE, Pinto R, Espinosa-Perez L, de la Torre A, et al.)* http://jama.ama-assn.org/cgi/content/full/2009.1536

The population and health care system in Mexico City experienced the first and greatest early burden of critical illness from pandemic H1N1 (pH1N1) influenza infection. This study describes baseline characteristics, treatment, and outcomes of consecutive critically ill patients infected with pH1N1 in Mexico hospitals. This is an observational study of 58 critically ill patients with pH1N1 influenza at 6 hospitals between March 24 and June 1, 2009. The main outcome measured was the primary outcome measure was mortality. This study found that critical illness occurred in 58 of 899 patients. Patients were young; all presented with fever and all but 1 with respiratory symptoms. Few patients had comorbid respiratory disorders, but 36% were obese. Time from hospital to ICU admission was short (median, 1 day), and all patients but 2 received mechanical ventilation for severe acute respiratory distress syndrome and refractory hypoxemia (median day 1 ratio of PaO_2 to fraction of inspired oxygen, 83 mm Hg). By 60 days, 24 patients had died (41.4%; 95% CI 28.9%-55.0%). Patients who died had greater initial severity of illness, worse hypoxemia, higher creatine kinase levels, higher creatinine levels, and ongoing organ dysfunction. After adjusting for a reduced opportunity of patients dying early to receive neuraminidase inhibitors, neuraminidase inhibitor treatment (vs no treatment) was associated with improved survival (odds ratio, 7.4; 95% CI 1.8-31.0).

4) Critically Ill Patients With 2009 Influenza A(H1N1) Infection in Canada *(Kumar A, Zarychanski R, Pinto R, Cook DJ, John Marshall J, Jacques Lacroix J, et al;)* http://jama.ama-assn.org/cgi/content/full/2009.1496

The authors describe characteristics, treatment, and outcomes of critically ill patients in Canada with pandemic H1N1 influenza infection. This is a prospective observational study of 168 critically ill patients with pandemic H1N1 infection in 38 adult and pediatric ICUs in Canada between April 16 and August 12, 2009. The primary outcome measures were 28-day and 90-day mortality. The results show that critical illness occurred in 215 patients with confirmed (n = 162) community-acquired pandemic H1N1 infection. Among the 168 patients who were confirmed or probable cases, the mean age was 32.3 (21.4) years; 113 were female and 50 were children. Overall mortality among critically ill patients at 28 days was 14.3% (95% CI 9.5%-20.7%). There were 43 patients who were aboriginal Canadians (25.6%). The median time from symptom onset to hospital admission was 4 days and from hospitalization to ICU admission was 1 day. Shock and nonpulmonary acute organ dysfunction was common. Neuraminidase inhibitors were administered to 152 or 90.5% patients. All patients were severely hypoxemic (mean ratio of PaO_2 to FIO_2 of 147 [128] mm Hg) at ICU admission. Mechanical ventilation was received by 136 patients. The median duration of ventilation was 12 days and ICU stay was 12 days. Overall mortality among critically ill patients at 90 days was 17.3% (95% CI 12.0%-24.0%; n = 29). The study found that critical illness due to pandemic H1N1 in Canada occurred rapidly after hospital admission, often in young adults, and was associated with severe hypoxemia, multisystem organ failure, a requirement for prolonged mechanical ventilation, and the frequent use of rescue therapies.

JOURNAL OF INFECTIOUS DISEASES

- No new H1N1 content this week

LANCET

1) Atypical clinical presentation of H1N1 influenza in a dialysis patient. *(Wiebe C, Reslerova M, Komenda P, Bueti J, Rigatto C, Sood MM. Lancet. 2009 October 10, 2009)*
http://www.thelancet.com/journals/lancet/article/PIIS0140673609615968/fulltext?rss=yes

This study examines the presentation and clinical course of H1N1 influenza in the dialysis population and compares this to the general population. Observations from this case (and another that is not mentioned in this review) suggest that presentation in dialysis patients may differ. Most pandemic H1N1 influenza cases meet the definition for ILI of fever plus cough or sore throat. However, these case definitions were not seen in two of our dialysis patients. Uraemia-induced immune dysfunction might lead to this atypical presentation in dialysis patients. The current recommendations for treatment of H1N1 influenza are oseltamivir or zanamivir. This article shows that pandemic H1N1 influenza is an important differential diagnosis in dialysis patients who are short of breath or febrile.

MMWR

1) Announcement: New System for Monitoring Emergency Department Visits for Influenza-Like Illness *(MMWR Weekly October 9, 2009)*
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5839a5.htm?s_cid=mm5839a5_x

CDC has announced its partnership with the International Society for Disease Surveillance and the Public Health Informatics Institute to enhance surveillance for ILI through a system called "Distribute." The Distribute system aggregates information from hospital emergency department (ED) syndromic surveillance systems operated by state and local health departments. This new ILI surveillance system complements the existing CDC influenza surveillance systems by providing further characterization of geographic- and age-specific trends. The number of states or local areas represented on the Distribute web page will increase over time as additional health departments participate in the Distribute system.

NATURE

- No new H1N1 content this week

NEW ENGLAND JOURNAL OF MEDICINE

- No new H1N1 content this week

PLOS CURRENTS: INFLUENZA

- No new H1N1 content this week

PLOS ONE

- No new H1N1 content this week

SCIENCE

- No new H1N1 content this week

VACCINE

1) Swine influenza matrix 2 (M2) protein contributes to protection against infection with different H1 swine influenza virus (SIV) isolates *(Kitikoon P et al. Vaccine October 16, 2009)*

The authors used a swine influenza virus (SIV) vaccine-challenge pig model to study the potential of a conserved matrix 2 (M2) protein vaccine alone or in combination with an inactivated H1N1-vaccine to protect against H1N1 and H1N2 viruses. The H1N1-vaccine and heterologous H1N2-challenge virus model has previously been shown to prolong fever and increase SIV-associated pneumonic lesions. The M2 vaccine in combination with the H1N1-vaccine reduced the H1N2 induced fever but not virus shedding. The M2 vaccine alone reduced respiratory signs and pneumonic lesions to levels similar to the negative control pigs following H1N2 infection. This study found that the M2 protein has potential as a vaccine for SIV-associated disease prevention. However, development of an immune response towards the major envelope HA protein was required to reduce SIV shedding.

2) Antibody response to influenza immunization in coronary artery disease patients: A controlled trial *(Keshtkar-Jahromi M, Hossein V, Mohammad R, Sharareh G, Seyed-Mostafa R. October 9, 2009)*
http://www.sciencedirect.com/science?_ob=GatewayURL&_origin=IRSSCONTENT&_method=citationSearch&_piikey=S0264410X09014686&_version=1&md5=d63e69995de0515ba62acc55c41af601

This study evaluated the safety of and humoral immune response to the anti-influenza vaccine in coronary artery disease (CAD) patients. The trivalent vaccine was administered to 137 eligible CAD patients and 67 age- and sex-matched healthy individuals. Antibody (Ab) titers were measured before and 1 month after vaccination. CAD and healthy controls (HC) groups were not significantly different in serologic response and magnitude of change in antibody titers against each of the vaccine antigens. In multivariate analyses, regular exercise and using multivitamin supplements were independently associated with better antibody response among CAD patients. This study found no major cardiac or general adverse effects associated with vaccines. Influenza vaccine was found safe in CAD patients and antibody responses were similar to HCs.

3) Intramuscular immunization with a vesicular stomatitis virus recombinant expressing the influenza hemagglutinin provides post-exposure protection against lethal influenza challenge *(Barefoot BE, Athearn K, Sample CJ, Ramsburg EA. October 9, 2009)*
http://www.sciencedirect.com/science?_ob=GatewayURL&_origin=IRSSCONTENT&_method=citationSearch&_piikey=S0264410X09014728&_version=1&md5=1e509ec6c4ac4aed611a01c01aab1597

The authors have developed a novel vaccine based on recombinant vesicular stomatitis virus which expresses the influenza hemagglutinin (rVSV HA) and protects mice from lethal influenza challenge when the vaccine is administered intramuscularly at least 24 h after delivery of the influenza challenge virus. Vaccines currently licensed for seasonal influenza induce antibodies against the influenza but require at least 2 weeks after immunization for the development of protective immunity. The study found that this was the first vaccine that effectively protects animals from lethal influenza challenge when delivered by a systemic route after influenza exposure has occurred. The results of this study are consistent with a model in which vaccination induces an immediate antiviral cytokine response, followed by development of humoral and cellular immune responses which act to reduce pulmonary viral loads and accelerate recovery