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WEEKLY SYNTHESIS OF SURVEILLANCE INFORMATION, LITERATURE & GOVERNMENT UPDATES

(WEEK ENDING OCTOBER 2, 2009)

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

October 02, 2009: CDC H1N1 Flu Surveillance Update.
http://www.cdc.gov/h1n1flu/update.htm

Weekly Flu View Map and Surveillance Report for Week Ending September 26, 2009. http://www.cdc.gov/flu/weekly/
Map includes both seasonal flu and H1N1 flu activity. During week 38 (September 20-26, 2009), influenza activity increased in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Interim Recommendations for Clinical Use of Influenza Diagnostic Tests During the 2009-10 Influenza Season *(September 29, 2009)*.
http://www.cdc.gov/h1n1flu/guidance/diagnostic_tests.htm

Patients with Asthma: Considerations for Clinicians Regarding 2009 H1N1 Influenza Virus *(October 02, 2009)*.
http://www.cdc.gov/h1n1flu/asthma_clinicians.htm
This document provides updated interim recommendations on influenza diagnostic testing for clinicians treating patients with suspected 2009 H1N1 influenza virus infection and to assist clinicians with testing decisions for the 2009-10 influenza season.

Clinician Guidance: 2009-2010 Influenza Season Triage Algorithm for Adults (>18 Years) With Influenza-Like Illness *(October 02, 2009).*
http://www.cdc.gov/h1n1flu/clinicians/pdf/adultalgorithm.pdf
This algorithm is designed only to assist physicians and those under their supervision in identifying indicators of and responses to symptoms of flu-like illness (i.e., fever with cough or sore throat). It does not provide guidance for other medical conditions nor is it intended to substitute for professional medical advice.

2009 H1N1 Influenza Vaccine and Pregnant Women: Information for Healthcare Providers *(October 02, 2009).*
http://www.cdc.gov/h1n1flu/vaccination/providers_qa.htm
The purpose of this document is to provide information for healthcare providers on 2009 H1N1 influenza vaccination and pregnant women.

2009 H1N1 Influenza Shots and Pregnant Women: Questions & Answers for Patients *(October 02, 2009).*
http://www.cdc.gov/h1n1flu/vaccination/pregnant_qa.htm

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 38 (September 20-26, 2009)
http://www.phac-aspc.gc.ca/fluwatch/09-10/w38_09/pdf/fw2009-38-eng.pdf
The overall influenza activity increased for a second consecutive week, but still relatively low. The national ILI consultation rate remained similar to the previous week but was slightly above the expected range for this time of the year. The proportion of positive tests and the number of regions with localized or widespread activity were also higher than the previous week.

Deaths Associated with Influenza A (H1N1) as of October 01, 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 38 (September 20- 26, 2009).
http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_08/bulletins/flu_bul_01_20091002.pdf
Influenza activity in Ontario is similar compared to the previous week. Many of the measures indicate that influenza activity in week 38 was similar or slightly higher compared to activity in week 37.

Kingston, Frontenac and Lennox & Addington (KFL&A): Regional Syndromic Surveillance Influenza Report (September 23-29, 2009)
http://www.quesst.ca/report/Syndromic%20Surveillance%20Weekly%20Flu%20Report%2020090930.pdf

BC CENTER FOR DISEASE CONTROL (BC CDC):

BC Pandemic H1N1 Surveillance Update as of September 28, 2009:
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm#

WORLD HEALTH ORGANIZATION (WHO)

Situation Update 68, October 02, 2009:
http://www.who.int/csr/don/2009_10_02/en/index.html
Transmission of influenza virus and rates of ILI continue to increase in the temperate regions of the northern hemisphere. In North America, influenza transmission is geographically widespread and continues to increase. Levels of ILI have continued to increase and remain above the seasonal baseline for the past 4 weeks in most regions of the US. In Mexico, a high intensity of respiratory diseases has been reported for two consecutive weeks (week 37 - 38), with large increases in cases being reported in the

north and northwest of the country. About 85% of reported specimens were the pandemic strain.

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

October 05, 2009: ECDC Executive Update, Pandemic influenza A(H1N1) Issue 13
http://www.ecdc.europa.eu/en/healthtopics/Documents/091005_Influenza_A(H1N1)_Weekly_Executive_Update.pdf

October 02, 2009: ECDC Daily Update, Pandemic (H1N1) 2009
http://www.ecdc.europa.eu/en/healthtopics/Documents/091002_Influenza_AH1N1_Situation_Report_0900hrs.pdf

HEALTH/SURVEILLANCE BULLETINS:

Southern Hemisphere

In the tropical regions of the Americas and Asia, influenza transmission remains active but the trends in respiratory diseases activity are mixed. Although respiratory disease activity is geographically regional to widespread throughout the tropical region of the Americas, many countries have been recently reporting a declining, while others recently reported an increasing trend (Columbia and Cuba). In tropical regions of Asia, there continues to be an increasing trend in respiratory diseases in parts of India and in Cambodia. In the southern hemisphere, influenza transmission has largely returned to baseline (Chile, Argentina, and New Zealand) or has declined substantially (Australia and South Africa). *Source: WHO as of October 02, 2009.*

Australia

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

Situation Update in New Zealand as of September 30, 2009 see link:
http://www.moh.govt.nz/moh.nsf/indexmh/influenza-a-h1n1-update-153-300909

New Zealand: Weekly 39 Summary (September 21-27, 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)

October 1, 2009: Sanofi study confirmed H1N1 vaccine 1-dose efficacy**.** Sanofi today announced the results of additional trials that confirm the company's pandemic H1N1 vaccine is effective with just one dose, similar to initial findings from a National Institutes of Health study.
http://www.sanofipasteur.us/sanofi-pasteur2/sp-media/SP_US/EN/54/953/FINAL%20H1N1%20POST%20DOSE%201%20TRIAL.pdf?siteCode=SP_US

September 30, 2009: Australia begins vaccination campaign. Australia began nationwide vaccinations against H1N1 influenza today, administering the first shots in what is intended to be a 21-million-dose campaign.
http://news.sky.com/skynews/Home/World-News/Swine-Flu-Australia-Launches-Worlds-First-Nationwide-Vaccination-Programme/Article/200909415395887

JOURNALS SCANNED:

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- 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
- Lancet
- MMWR
- Nature
- New England Journal of Medicine
- PLoS One
- PLoS Currents
- Science

AMERICAN JOURNAL OF PUBLIC HEALTH (PH1N1 SPECIAL)

1) A Primer on Strategies for Prevention and Control of Seasonal and Pandemic Influenza *(Scott Santibañez, et al., October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S216

This supplement to the *American Journal of Public Health* focuses on the challenges faced by at-risk and vulnerable populations in preparing for and responding to an influenza pandemic. The authors provide background information for subsequent articles found in this supplement. The article summarizes seasonal influenza epidemiology, transmission, clinical illness, diagnosis, vaccines, and antiviral medications. Furthermore, pandemic influenza vaccines, antiviral medications and non-pharmaceutical interventions are discussed.

2) Estimating Influenza-Associated Deaths in the United States *(William W. Thompson, et al., October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S225

Recently published estimates of US deaths associated with influenza circulation suggest that previous estimates substantially overestimate deaths associated with influenza and conclude that the number of deaths during a future pandemic could be prevented because of improved medical care. The authors review data sources and methods used to estimate influenza-associated deaths. They suggest that discrepancies between the recent estimate and previous estimates of the number of influenza-associated deaths are attributable primarily to the use of different outcomes and methods. The authors also believe that secondary bacterial infections will likely result in substantial morbidity and mortality during a future influenza pandemic, despite medical progress. In order to plan to reduce the health effects of this, the US must be ready to make the best estimate of influenza's impact using rigorous and sound methods and understand how mortality estimates for a pandemic compare with those for seasonal influenza.

3) Pandemic Influenza and Pregnancy: An Opportunity to Reassess Maternal Bioethics *(Ruth M. Farrell and Richard H. Beigi, October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S231

The authors reviewed the important ethical challenges presented by pregnant women and highlighted the considerations for all vulnerable groups when planning for a pandemic at both the local and the national level. The authors bring to light a key question in how to effectively and ethically distribute existing limited resources. The challenges arise when considering pregnant patients during pandemic planning efforts illustrates the practical and ethical considerations needed to effectively address the unique care of all other populations.

4) Pandemic Influenza Planning: Addressing the Needs of Children *(Elizabeth Stevenson, et al., October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S255

Children represent one quarter of the US population. Because of its enormous size and special needs, it is critically important to address this population group in pandemic influenza planning. The authors describe ways in which children are vulnerable in a pandemic, provide an overview of existing plans, summarize the resources available, and, given the current experience with influenza H1N1, outline the evolving lessons learned with respect to planning for a severe influenza pandemic. This article focuses on issues affecting children such as vaccinations, medication availability, hospital capacity and mental health concerns and emphasizes strategies that will protect children exposure to the pandemic H1N1 virus, including infection control practices and activities in schools and child care programs.

5) Pandemic Influenza Preparedness and Vulnerable Populations in Tribal Communities *(Amy V. Groom, et al., October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S271

American Indian and Alaska Native (AIAN) governments are sovereign entities with inherent authority to establish and administer public health programs within their communities and will be critical partners in national efforts to prepare for pandemic influenza. Within AIAN communities, some subpopulations will be particularly vulnerable during an influenza pandemic because of their underlying health conditions, whereas others will be at increased risk because of limited access to prevention or treatment

interventions. This article outline potential issues to consider in identifying and providing services for selected vulnerable populations within tribal communities. The authors also highlight pandemic influenza preparedness resources available to tribal leaders and their partners in state and local health departments, community-based organizations, and the private sector.

6) Protecting Home Health Care Workers: A Challenge to Pandemic Influenza Preparedness Planning *(Sherry Baron, et al., October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S301

Home health care is a critical element in a pandemic influenza emergency response. Roughly 85% of the 1.5 million workers delivering in-home care to clients are low-wage paraprofessionals, mostly women, and represent members of racial and ethnic minority groups. Home health care workers' ability and willingness to respond during a pandemic depends on appropriate communication, training, and adequate protections, including influenza vaccination and respiratory protection. Preparedness planning should also include support for child care and transportation and help home health care workers protect their income and access to health care. The authors summarize findings from a national stake holder meeting, which highlighted the need to integrate home health care employers, workers, community advocates, and labour unions into the planning process.

7) Effective Health Risk Communication About Pandemic Influenza for Vulnerable Populations *(Elaine Vaughan and Timothy Tinker, October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S324

The authors summarize recent scientific evidence on communication challenges and examine how sociocultural, economic, psychological, and health factors can put at risk or facilitate public health interventions that require a cooperative public. If ignored, current communication gaps for vulnerable populations could result in unequal protection across society during an influenza pandemic. Current communication plans for pandemic influenza could be strengthened by more emphasis on managing a dynamic risk event and improving the fit between communication processes and life circumstances that influence behavior during a pandemic.

8) Pandemic Influenza: Implications for Programs Controlling for HIV Infection, Tuberculosis, and Chronic Viral Hepatitis *(James D. Heffelfinger, et al., October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S333

Among vulnerable populations during an influenza pandemic are persons with or at risk for HIV infection, tuberculosis, or chronic viral hepatitis. HIV-infected persons have higher rates of hospitalization, prolonged illness, and increased mortality from influenza compared with the general population. Persons with tuberculosis and chronic viral hepatitis may also be at increased risk of morbidity and mortality from influenza because of altered immunity and chronic illness. These populations also face social and structural barriers that will be exacerbated by a pandemic. Authors conclude that critical public health priorities should expand the existing infrastructure and pandemic planning should include preparations to reduce the risks for these populations.

9) Changes in Prescribing of Antiviral Medications for Influenza Associated With New Treatment Guidelines (Adam L. Hersh, Judith H. Maselli, and Michael D. Cabana)
http://www.ajph.org/cgi/content/full/99/S2/S362

In 2006, the CDC recommended discontinuing the use of adamantanes to treat influenza because of high levels of resistance to this class of antivirals. The authors examined

changes in prescribing practices resulting from this recommendation and found that prescribing of adamantanes declined nationwide. This article provides evidence of a rapid change in clinical practice associated with the dissemination of treatment guidelines. The authors reinforce the importance in evaluating the effectiveness with which public health recommendations are translated into practice is important given the ongoing emergence of resistance to antiviral drugs and a novel H1N1 influenza virus.

10) Pandemic Influenza and Community Preparedness (Helen Marshall, et al., October 2, 2009)
http://www.ajph.org/cgi/content/full/99/S2/S365

This study aimed to examine community knowledge about and attitudes towards the threat of pandemic influenza and assess the community acceptability of strategies to reduce its effect. The study used computer-aided telephone interviews using cross-section sampling design of rural and metropolitan residents of South Australia. The authors found that community knowledge about the pandemic influenza was poor despite widespread concern. They article suggest public education about pandemic influenza is essential if strategies to reduce the impact of the disease are to be effective.

11) Effects of an Ongoing Epidemic on the Annual Influenza Vaccination Rate and Vaccination Timing Among the Medicare Elderly: 2000-2005 *(Byung-Kwang Yoo, et al., October 2, 2009)*
http://www.ajph.org/cgi/content/full/99/S2/S383

The authors examine the short-term responsiveness of influenza vaccine demand to variation in timing and severity of influenza epidemics since 2000. They tested the hypothesis that weekly influenza epidemic activity is associate with annual an daily influenza vaccine receipt. Cross-sectional survival analysis from 2000-2001 to 2004-2005 influenza seasons among community-dwellings using Medicare Current Beneficiary Survey. The outcome variable was daily vaccine receipt, with other covariate including biweekly changes in epidemic and vaccine supply at 9 census region levels. The study found that the short-term epidemic responsiveness in predicting demand for influenza vaccination may improve vaccine distribution and the annual vaccination rate, and might assist pandemic preparedness planning.

BRITISH MEDICAL JOURNAL

1) European agency approves swine flu vaccines for licensing *(Sophie Cook, September 29, 2009)*
http://www.bmj.com/cgi/content/full/339/sep29_2/b3992

Two pandemic H1N1 vaccines, including one of those to be used in the UK's vaccination programme, were approved for licensing by the European Medicines Agency. The agency's committee for medicinal products for human use expedited the assessment of the vaccines—Focetria from Novartis and Pandemrix from GlaxoSmithKline—and recommended that they be granted a license by the European Commission.

2) UN seeks $1.5bn and donations of vaccines to help poor nations fight swine flu **(***John Zarocostas, September 29, 2009)*
http://www.bmj.com/cgi/content/full/339/sep29_2/b3988

The United nations health officials have called for rich nations to pledge more money and donate vaccines against pandemic H1N1 virus to help developing countries fight the pandemic. The goal is to provide developing nations that depend entirely on donations

with enough vaccine to cover 5% to 10% of the population, says the report, compiled by WHO and UN health experts.

CANADIAN MEDICAL ASSOCIATION JOURNAL (CMAJ)

1) Conflict emerges over value of handwashing as a preventive flu transmission measure *(October 1, 2009)*
http://www.cmaj.ca/earlyreleases/1oct09_conflict_handwashing.shtml

There's no evidence that good hand hygiene practices prevent influenza transmission, according to a Council of Canadian Academies report commissioned by the Public Health Agency of Canada. Despite those 2007 findings, PHAC still recommends handwashing as the primary preventive measure against flu transmission. The contradictory evidence and recommendations on preventive measures and other pandemic (H1N1) 2009 issues leaves Canadian doctors at a loss as to the best advice to provide patients, says College of Family Physicians of Canada President Dr. Sarah Kredentser.

2) Preparing for pandemic (H1N1) 2009 *(Paul C. Hébert and Noni MacDonald)*
http://www.cmaj.ca/cgi/reprint/181/6-7/E102

This article outlines the steps that must be taken in order to prepare for a fall outbreak of pandemic H1N1 influenza. Some of the recommendations made include creating national leadership on pandemic H1N1 influenza and communication between all levels of government.

3) Physicians, CIHR call for more H1N1 research funds *(Laura Eggertson)*
http://www.cmaj.ca/cgi/reprint/181/6-7/E108

Canadian physicians and researchers are calling on the federal and provincial governments to join other industrialized countries in fast-tracking funding for immediate applied research on the pandemic (H1N1) 2009 influenza virus to help combat an expected second wave of infection.

CLINICAL INFECTIOUS DISEASES

1) Salicylates and Pandemic Influenza Mortality, 1918–1919 Pharmacology, Pathology, and Historic Evidence *(Karen M. Starko, September 30, 2009)*
http://www.journals.uchicago.edu/doi/abs/10.1086/606060

The hypothesis presented herein is that aspirin contributed to the incidence and severity of viral pathology, bacterial infection, and death in the 1918-1919 influenza pandemic, because physicians of the day were unaware that the regimens (8.0–31.2 g per day) produce levels associated with hyperventilation and pulmonary edema in 33% and 3% of recipients, respectively. Recently, pulmonary edema was found at autopsy in 46% of 26 salicylate-intoxicated adults. Experimentally, salicylates increase lung fluid and protein levels and impair mucociliary clearance. In 1918, the US Surgeon General, the US Navy, and the *Journal of the American Medical Association* recommended use of aspirin just *before* the October death spike. If these recommendations were followed, and if pulmonary edema occurred in 3% of persons, a significant proportion of the deaths may be attributable to aspirin.

EMERGING INFECTIOUS DISEASES

- Nothing new on H1N1 this week.

EUROSURVEILLANCE

1) Residual immunity in older people against the influenza A(H1N1) – recent experience in northern *Spain (E Pérez-Trallero et al., October 1, 2009)*
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19344

The authors analyzed age at infection in symptomatic patients with influenza in the Basque Country (northern Spain), reported through the sentinel influenza surveillance system which monitors 2.2-2.5% of the population. Between September 1999 and August 2009, influenza A(H3N2) or seasonal influenza A(H1N1) was detected in 941 patients, and from April to August 2009, pandemic influenza A(H1N1) was detected in 112 patients. The H3/H1 seasonal influenza ratio was between 3.3 and 3.4 in the under 60 year-olds, but 9.8 in older individuals, suggesting that people born before 1950 have residual immunity against the influenza A H1N1 subtype (both seasonal and pandemic).

2) Early estimates of 2009 pandemic influenza A(H1N1) virus activity in general practice in France: incidence of influenza-like illness and age distribution of reported cases *(C Turbelin et al., October 1, 2009)*
http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19341

In the end of August 2009, an unusually elevated level of influenza-like illness (ILI) activity was reported to the French Sentinel Network. The authors quantified the observed excess in ILI cases in France during summer 2009 and characterised age patterns in reported cases. An excess of cases has been observed since 5 July, with a time increasing trend. The cumulated estimated excess number of ILI cases was 269,935 [179,585; 316,512], corresponding to 0.5% French population over the period. Compared to the same period in the past years, relative cumulated incidence was greater among young subjects and lower among subjects over 65 years-old. Compared to past epidemics, the relative cumulated incidence was greater in children less than five years-old.

JOURNAL OF INFECTIOUS DISEASES

-Nothing new this week on H1N1

LANCET

-Nothing new this week on H1N1

MORBIDITY AND MORTALITY WEEKLY REPORT

1) Early Release: Bacterial Coinfections in Lung Tissue Specimens from Fatal Cases of 2009 Pandemic Influenza A (H1N1) -United States, May-August 2009 (September 29 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm58e0929a1.htm?s_cid=mm58e0929a1_x

During May 1-August 20, 2009, medical examiners and local and state health departments submitted specimens to CDC from 77 U.S. patients with fatal cases of confirmed 2009 pandemic influenza A (H1N1). This report summarizes the demographic and clinical findings from these cases and the laboratory evaluation of the specimens. Evidence of concurrent bacterial infection was found in specimens from 22 (29%) of the 77 patients, including 10 caused by *Streptococcus pneumoniae*. Duration of illness was available for 17 of the 22 patients; median duration was 6 days (range: 1-25 days).

Fourteen of 18 patients for whom information was available sought medical care while ill, and eight (44%) were hospitalized.

2) Influenza Vaccination Coverage Among Children Aged 6 Months-18 Years - Eight Immunization Information System Sentinel Sites, United States, 2008-09 Influenza Season (October 2, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5838a1.htm?s_cid=mm5838a1_e

To update previous estimates by assessing influenza vaccination coverage among children aged 6 months-18 years during the 2008-09 season, CDC averaged data from the eight immunization information system (IIS) sentinel sites. The results indicated that average (unweighted) vaccination coverage with ≥1 influenza vaccine doses decreased with increasing age from 47.8% for children aged 6-23 months to 9.1% for those aged 13-18 years. Among sites, average coverage with ≥1 doses among children aged 6-23 months increased from 40.8% during the 2007-08 influenza season to 47.8% during the 2008-09 season; however, coverage levels remained suboptimal.

3) Influenza Vaccination Coverage Among Children Aged 6-23 Months - United States, 2007--08 Influenza Season (October 2, 2009)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5838a2.htm?s_cid=mm5838a2_e

To assess influenza vaccination coverage among children aged 6-23 months during September-December of the 2007-08 influenza season, CDC analyzed data from the 2008 National Immunization Survey (NIS). The results of those analyses indicated that, during the 4 months, 40.7% of children aged 6-23 months received ≥1 doses of influenza vaccine, and 23.4% were fully vaccinated. Substantial variability was observed among the 50 states and participating local areas; the percentage of children with full vaccination ranged from 6.4% to 40.9% among states and local areas. Nationally, the percentage of children aged 6-23 months receiving ≥1 doses of influenza vaccine increased from 31.8% in 2006-07 to 40.7% in 2007-08, and the percentage with full vaccination increased from 21.3% to 23.4%; however, influenza vaccination coverage among children remains low.

NATURE

- Nothing new on H1N1 this week.

NEW ENGLAND JOURNAL OF MEDICINE

1) Novel H1N1 Influenza and Respiratory Protection for Health Care Workers *(K.I. Shine et al., October 1, 2009)*
http://content.nejm.org/cgi/content/full/NEJMp0908437?query=TOC

On September 3, 2009, the Institute of Medicine (IOM) released a report entitled *Respiratory Protection for Healthcare Workers in the Workplace against Novel H1N1 Influenza A*. The IOM committee reviewed evidence showing that airborne exposure plays some role in the transmission of novel H1N1 influenza A virus. The extent of such transmission and how it compares with that of transmission through contact or droplet-spray exposure is uncertain. However, the evidence for some degree of airborne transmission increases the importance of good respiratory protection. It has been demonstrated that N95 respirators filter out 95 to 99% of relevant aerosol particles. Although these respirators function best when they are individually fitted, unfitted respirators do have efficacy. The available evidence indicates that the tight fit and

enhanced filtration capacity of these devices offer better protection against aerosol particles than do surgical masks.

2) CDC and FDA Response to Risk of Confusion in Dosing Tamiflu Oral Suspension (letter to editor)
http://content.nejm.org/cgi/content/full/NEJMc0909190v1

Together, the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) have acted promptly to provide information that emphasizes appropriate dosing and dispensing of Tamiflu for oral suspension. All communications recommend that, when dispensing commercially manufactured Tamiflu for oral suspension, pharmacists should ensure that the units of measure on the dosing instructions match those on the device provided. When dispensing this suspension for children younger than 1 year of age, according to the Emergency Use Authorization, the syringe in the package should always be replaced with an appropriate measuring device, because doses for children younger than 1 year of age cannot be measured with the manufacturer's syringe.

3) Risk of Confusion in Dosing Tamiflu Oral Suspension in Children (letter to Editor)
http://content.nejm.org/cgi/content/full/NEJMc0908840v2

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) Stabilization of influenza vaccine enhances protection by microneedle delivery in the mouse skin *(Fu-Shi Quan, et al., September 25, 2009)*
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007152

The authors hypothesized that vaccine delivery to the skin using a patch containing vaccine-coated microneedles could be an attractive approach to improve influenza vaccination compliance and efficacy. A single microneedle-based vaccination using stabilized influenza vaccine was found to be superior to intramuscular immunization in controlling virus replication as well as in inducing rapid recall immune responses post challenge.

2) Home educating in an extended family culture and aging society may fare best during a pandemic *(Wayne Dawson and Kenji Yamamoto, September 28, 2009)*
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0007221

To help understand the impact of an epidemic on family structure in a networked population, an individual based computer model that randomly generates networked cities with a specified range of population and disease characteristics and individual schedules, infectivity, transmission and hygiene factors was developed. Several salient

issues emerged. First, a city of highly active individuals may in fact diminish the number of fatalities because the average duration of the interactions between agents is reduced. Second, home schooling can significantly improve survival because the institutional clustering of weak individuals is minimized. Third, the worst scenario for an aging population is the nuclear family where the aged population is confined to large housing facilities.

PLoS Currents

1) Rapid Research Note**:** The severity of pandemic H1N1 influenza in the United States. April – July 2009 *(Marc Lipsitch, et al., September 25, 2009)*
http://www.ncbi.nlm.nih.gov/rrn/RRN1042

An autumn-winter pandemic wave of pH1N1 with comparable severity per case could lead to a number of deaths in the range from considerably below that associated with seasonal influenza to slightly higher, but with greatest impact in young children and non-elderly adults. These estimates of impact depend on assumptions about total incidence of infection and would be larger if incidence of symptomatic infection were higher or shifted toward adults, if viral virulence increased, or if suboptimal treatment resulted from stress on the health care system; numbers would decrease if the proportion infected or symptomatic were lower.

2) Rapid Research Note: SegMonitor: Influenza analysis pipeline and visualization (Norman MacDonald, Donovan Parks, and Robert Beiko, September 23, 2009)
http://www.ncbi.nlm.nih.gov/rrn/RRN1040

The authors have developed an influenza sequence pipeline, polymorphism data warehouse, and an interactive web-based analysis program to assist in managing the flow of sequence data. The system provides a framework for studying polymorphic associations with various metadata, for downloading subsets based on metadata criteria, as well as for tracking polymorphisms geographically and temporally. SeqMonitor is accessible at http://ratite.cs.dal.ca/SeqMonitor

3) Pandemic influenza dynamics and the breakdown of herd immunity *(Guy Katriel, September 30, 2009)*
http://knol.google.com/k/guy-katriel/pandemic-influenza-dynamics-and-the/1vf7it3yc9xzl/1?collectionId=28qm4w0q65e4w.1&position=1#

In this article, the authors use first-approximation parameter estimates for the SIR model to compare seasonal and pandemic influenza, and then explore the implications of the existing classical epidemiological theory. In particular, they note the dramatic nonlinear increase in attack rate as a function of the percentage of susceptibles initially present in the population. This has severe consequences for the pandemic, given the general lack of immunity in the global population.

Science

-Nothing new on H1N1 this week