

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

(WEEK ENDING DECEMBER 18, 2009)

PLEASE NOTE THE NEXT EDITION WILL BE JANUARY 12, 2009

GOVERNMENT UPDATES

CENTRE FOR DISEASE CONTROL (CDC)

December 11 2009: CDC H1N1 Flu Surveillance Update.

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

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

<http://www.cdc.gov/flu/weekly/>

Map includes both seasonal flu and H1N1 flu activity. During week 49 (December 6-12, 2009), influenza activity decreased slightly in the US, however the proportion of outpatient visits for ILI was above the national baseline.

Updated Interim Recommendations: Special Considerations for Clinicians Regarding 2009 H1N1 Influenza in Severely Immunosuppressed Patients (December 16, 2009)

<http://www.cdc.gov/h1n1flu/immunosuppression/index.htm>

Non-Safety-Related Voluntary Recall of Certain Lots of Sanofi Pasteur H1N1 Pediatric Vaccine (December 15, 2009)

http://www.cdc.gov/h1n1flu/vaccination/syringes_qa.htm

Q & A for parents: recall of some batches of children's H1N1 flu vaccine (December 18)

http://www.cdc.gov/h1n1flu/vaccination/sanofi_parents_qa.htm

H1N1 Flu: Resources for Obstetric Health Care Providers (December 14, 2009)

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

PUBLIC HEALTH AGENCY OF CANADA (PHAC)

FluWatch Week 49 (December 6-12, 2009)

http://www.phac-aspc.gc.ca/fluwatch/09-10/w49_09/index-eng.php

On week 49, the overall influenza activity continued to decline for the fourth consecutive week in Canada. The ILI consultation rate was below the expected range for this time of the year and only 6.6% of the specimens tested were positive for influenza. The Pandemic (H1N1) 2009 strain still accounted for nearly 100% of the positive influenza A subtyped specimens this week.

Deaths Associated with Influenza A (H1N1) as of December 17, 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.

Weekly Distribution of the H1N1 Vaccine (December 12, 2009)

<http://www.phac-aspc.gc.ca/alert-alerter/h1n1/vacc/dist-eng.php>

Vaccine Surveillance Report- AEFI (December 09, 2009)

<http://www.phac-aspc.gc.ca/alert-alerter/h1n1/vacc/addeve-eng.php>

Guidance: Infection Prevention and Control Measures for Occupational Health Management for all Health Care Settings (December 15, 2009)

http://www.phac-aspc.gc.ca/alert-alerter/h1n1/guidance_lignesdirectrices/humpan-eng.php

This guidance document has been developed to provide guidance for the occupational health (OH) and infection prevention and control (IPC) management of health care workers (HCWs) and other staff to prevent the transmission of Pandemic (H1N1) 2009 Flu Virus in all settings where health care is provided.

ONTARIO

Ontario Influenza Bulletin 2009-2010, Surveillance Week 49 (Dec 06-11, 2009)

http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_09/bulletins/flu_bul_01_20091218.pdf

Overall, influenza activity in Ontario is lower compared to the previous week. All of the measures indicate that influenza activity is lower in week 49 to week 48. Starting in week 45 (Nov.8-14) influenza activity in Ontario has declined each week.

BC CENTER FOR DISEASE CONTROL (BC CDC):

BC CDC: H1N1 flu virus update (December 15, 2009)

<http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/2009HealthAlerts/H1N1FluViru sHumanSwineFlu.htm>

Weekly BC Pandemic H1N1 Surveillance Update as of December 14, 2009:

<http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm>

WORLD HEALTH ORGANIZATION (WHO)

Global Situation Update78, December 18, 2009

http://www.who.int/csr/don/2009_12_18a/en/index.html

In United States and Canada, active influenza transmission persists but overall levels of ILI have declined substantially to near seasonal baselines. In the US, proportional mortality due to pneumonia and influenza mortality has remained consistently elevated above the epidemic threshold for the past 10 weeks; however, weekly numbers of lab-confirmed hospitalizations and deaths continue to decline over the past month.

Pandemic (H1N1) 2009 influenza vaccine deployment update (December 17, 2009)

http://www.who.int/csr/disease/swineflu/vaccines/h1n1_vaccination_deployment_update_20091217.pdf

EUROPEAN CENTRE FOR DISEASE PREVENTION & CONTROL (ECDC)

December 18, 2009: ECDC Daily Update, Pandemic (H1N1) 2009

http://ecdc.europa.eu/en/healthtopics/Documents/091218_Influenza_AH1N1_Situation_Report_0900hrs.pdf

HEALTH/SURVEILLANCE BULLETINS:

CENTER FOR INFECTIOUS DISEASE RESEARCH AND POLICY (CIDRAP)

WHO finds no change in pandemic severity pattern (Dec 18, 2009)

http://www.who.int/csr/don/2009_12_18a/en/index.html

Some countries eye returning surplus pandemic vaccine (December 18, 2009)

<http://www.reuters.com/article/idUSLDE5BH0X320091218>

Modelers list H1N1 research needs to help form policy (December 17, 2009)

<http://knol.google.com/k/maria-van-kerkhove/studies-needed-to-address-public-health/agr0htar1u6r/18#>

India suspects placental transmission of flu (December 17, 2009)

<http://www.hindu.com/2009/12/17/stories/2009121758162000.htm>

Surveillance, research needed on flu in Africa (December 15, 2009)

<http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1000182>

JOURNALS SCANNED:

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

AMERICAN JOURNAL OF PUBLIC HEALTH

-Nothing new on H1N1 this week

BRITISH MEDICAL JOURNAL

1) The Spanish influenza pandemic seen through the *BMJ's* eyes: observations and unanswered questions (*Tom Jefferson, Eliana Ferroni, December 16, 2009*);
http://www.bmj.com/cgi/content/extract/339/dec16_3/b5313

Abstract:

We exploited the opportunity to consult the newly digitised *BMJ* archives to carry out a review of what was published at the time. We tried to look at the pandemic through the eyes of contemporary *BMJ* contributors and readers and give them their voice back. We chose the Spanish influenza pandemic because we believed some of the observations and issues raised at the time may still be relevant to the events of today, although some have been forgotten.

CANADIAN MEDICAL ASSOCIATION JOURNAL CMAJ (*added this week*)

1) Physicians' legal duty of care and legal right to refuse to work during a pandemic (*Cara E. Davies, Randi Zlotnik Shaul, December 14, 2009*);
http://www.cmaj.ca/cgi/rapidpdf/cmaj.091628v1?ijkey=d8b98db294b3cdb18637dd02bc321fc2b307390d&keytype=tf_ipsecsha

Abstract:

Physicians in Canada owe a legal duty of care to their existing patients and, in certain circumstances, to those who are not their patients. Some physicians have a legal right to refuse to work if they can satisfy the four criteria defined by labour boards in Canada. Ethical, professional and legal collaboration is needed to address the tensions between physicians' legal rights and duties and their ethical responsibilities.

CLINICAL INFECTIOUS DISEASES

1) Influenza Circulation and the Burden of Invasive Pneumococcal Pneumonia during a Non-pandemic Period in the United States (*Nicholas D. Walter, Thomas H. Taylor, Jr, David K. Shay, William W. Thompson, Lynnette Brammer, Scott F. Dowell, Matthew R. Moore ; for the Active Bacterial Core Surveillance Team, December 16, 2009*);
<http://www.journals.uchicago.edu/doi/pdf/10.1086/649208>

Abstract:

We analyzed the association between influenza circulation and invasive pneumococcal pneumonia rates in United States surveillance data from the period 1995–2006 and estimated that 11%–14% of pneumococcal pneumonia during periods of influenza circulation and 5%–6% year-round may have been influenza-associated.

EMERGING INFECTIOUS DISEASES

1) Serologic cross-reactivity with pandemic (H1N1) 2009 virus in pigs, Europe (*Constantinos S. Kyriakis, et al., January 2010*); <http://www.cdc.gov/eid/content/16/1/pdfs/09-1190.pdf>

Abstract:

We tested serum samples from pigs infected or vaccinated with European swine influenza viruses (SIVs) in hemagglutination-inhibition assays against pandemic (H1N1) 2009 virus and related North American SIVs. We found more serologic cross-reaction than expected. Data suggest pigs in Europe may have partial immunity to pandemic (H1N1) 2009 virus.

2) Hospitalizations for pandemic (H1N1) 2009 among Maori and Pacific Islanders, New Zealand (*Ayesha Verrall, et al., January 2010*); <http://www.cdc.gov/eid/content/16/1/pdfs/09-0994.pdf>

Abstract:

Community transmission of influenza A pandemic (H1N1) 2009 was followed by high rates of hospital admissions in the Wellington region of New Zealand, particularly among Maori and Pacific Islanders. These findings may help health authorities anticipate the effects of pandemic (H1N1) 2009 in other communities.

3) Pandemic (H1N1) 2009 surveillance and prevalence of seasonal influenza, Singapore (*Yee-Sin Leo, et al., January 2010*); <http://www.cdc.gov/eid/content/16/1/pdfs/09-1164.pdf>

Abstract:

On April 25, 2009, Singapore implemented strict containment measures for pandemic (H1N1) 2009 with enhanced surveillance and hospital isolation. In the first month, seasonal influenza, predominantly virus subtype H3N2, was diagnosed for 32% of patients with acute febrile respiratory illness. Our findings underscore the high prevalence of seasonal influenza in Singapore.

EUROSURVEILLANCE

1) Quantifying the risk of pandemic influenza in pregnancy and Indigenous people in Australia in 2009 (*H Kelly, G N Mercer, A C Cheng, December 17, 2009*); <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19441>

Abstract:

An increased relative risk of infection with the 2009 pandemic H1N1 influenza virus associated with pregnancy and Indigenous status has been a common finding in many countries. Using publicly available data from May to October 2009 in Australia, we estimated the relative risk of hospitalisation, admission to intensive care unit and death as 5.2, 6.5 and 1.4 respectively for pregnant women, and as 6.6, 6.2 and 5.2, respectively for Indigenous Australians. Pregnancy and Indigenous status were associated with severe influenza. More complete analyses of risks in these groups are required to understand and prevent influenza morbidity and mortality.

JAMA

-Nothing new on H1N1 this week.

JOURNAL OF INFECTIOUS DISEASES

1) Enhanced Memory Responses to Seasonal H1N1 Influenza Vaccination of the Skin with the Use of Vaccine-Coated Microneedles (*Yeu-Chun Kim et al., December 17, 2009*) <http://www.journals.uchicago.edu/doi/pdf/10.1086/649228>

Abstract:

To develop a novel skin delivery method that is simple and allows for easy self-administration, we prepared microneedle patches with stabilized influenza vaccine and investigated their protective

immune responses. The findings suggest that vaccination of the skin using a microneedle patch can improve protective efficacy and induce long-term sustained immunogenicity and may also provide a simple method of administration to improve influenza vaccination coverage.

LANCET

1) [Comment] Infection and death from influenza A H1N1 virus in Mexico (*V Alberto Laguna-Torres, Jorge Gomez Benavides, December 19, 2009*);
<http://www.thelancet.com/journals/lancet/article/PIIS0140673609619164/fulltext?rss=yes>

Abstract:

A characteristic of the H1N1 pandemic is how fast knowledge evolved, with medical groups confirming or declaring as controversial what had been stated weeks after the first outbreaks. This rapid evolution allowed other groups to establish better capabilities to face the pandemic.

2) Infection and death from influenza A H1N1 virus in Mexico: a retrospective analysis (*Santiago Echevarría-Zuno et al., December 19, 2009*)
<http://www.thelancet.com/journals/lancet/article/PIIS014067360961638X/abstract?rss=yes>

Abstract:

In April, 2009, the first cases of influenza A H1N1 were registered in Mexico and associated with an unexpected number of deaths. We report the timing and spread of H1N1 in cases, and explore protective and risk factors for infection, severe disease, and death. By July 31, 63 479 cases of influenza-like illness were reported; 6945 (11%) cases of H1N1 were confirmed, 6407 (92%) were outpatients, 475 (7%) were admitted and survived, and 63 (<1%) died. Those aged 10—39 years were most affected (3922 [56%]). Mortality rates showed a J-shaped curve, with greatest risk in those aged 70 years and older (10·3%). Risk of infection was lowered in those who had been vaccinated for seasonal influenza (OR 0·65 [95% CI 0·55—0·77]). Delayed admission (1·19 [1·11—1·28] per day) and presence of chronic diseases (6·1 [2·37—15·99]) were associated with increased risk of dying. Risk communication and hospital preparedness are key factors to reduce mortality from H1N1 infection. Protective effects of seasonal influenza vaccination for the virus need to be investigated.

3) Importance of background rates of disease in assessment of vaccine safety during mass immunisation with pandemic H1N1 influenza vaccines (*Steven Black et al., December 18, 2009*);
<http://www.thelancet.com/journals/lancet/article/PIIS0140673609618778/abstract?rss=yes>

Abstract:

Awareness of the background rates of possible adverse events will be a crucial part of assessment of possible vaccine safety concerns and will help to separate legitimate safety concerns from events that are temporally associated with but not caused by vaccination. We identified background rates of selected medical events for several countries. Rates of disease events varied by age, sex, method of ascertainment, and geography. Highly visible health conditions, such as Guillain-Barré syndrome, spontaneous abortion, or even death, will occur in coincident temporal association with novel influenza vaccination. On the basis of the reviewed data, if a cohort of 10 million individuals was vaccinated in the UK, 21·5 cases of Guillain-Barré syndrome and 5·75 cases of sudden death would be expected to occur within 6 weeks of vaccination as coincident background cases. In female vaccinees in the USA, 86·3 cases of optic neuritis per 10 million population would be expected within 6 weeks of vaccination. 397 per 1 million vaccinated pregnant women would be predicted to have a spontaneous abortion within 1 day of vaccination.

4) Immune response after a single vaccination against 2009 influenza A H1N1 in USA : a preliminary report of two randomised controlled phase 2 trials (*Eric Plennevaux et al., December 16, 2009*); [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)62026-2/fulltext#article_upsell](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62026-2/fulltext#article_upsell)

Abstract:

Data are needed from large clinical trials of paediatric, adult, and elderly people to find the appropriate antigen dose and vaccination schedule for the 2009 pandemic influenza A H1N1. We therefore report preliminary safety and immunogenicity results after one injection of a licensed monovalent pandemic H1N1 vaccine in the USA. One dose of vaccine was highly immunogenic in adults, suggesting that it afforded sufficient protection against this pandemic influenza A H1N1 virus. Two doses of vaccine will probably be needed in children younger than 9 years. Safety and reactogenicity of the vaccine were acceptable and similar to those of seasonal vaccine.

5) Safety and immunogenicity of a 2009 pandemic influenza A H1N1 vaccine when administered alone or simultaneously with the seasonal influenza vaccine for the 2009—10 influenza season: a multicentre, randomised controlled trial (*Zoltan Vajo et al., December 16, 2009*); [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)62039-0/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62039-0/fulltext)

Abstract:

With the ongoing 2009 pandemic of influenza A H1N1, development of pandemic influenza vaccines has generated much interest. We investigated the safety and immunogenicity of a whole-virion, inactivated, adjuvanted pandemic H1N1 vaccine in adult and elderly volunteers, given without or simultaneously with the 2009—10 seasonal trivalent influenza vaccine. The present pandemic vaccine is safe and immunogenic in healthy adult and elderly patients, and needs low doses and only one injection to trigger immune responses to comply with licensing criteria. It can be safely co-administered with the 2009—10 seasonal influenza vaccine.

6) Safety and immunogenicity of 2009 pandemic influenza A H1N1 vaccines in China : a multicentre, double-blind, randomised placebo-controlled trial (*Xiao-Feng Liang et al., December 16, 2009*); [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)62003-1/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62003-1/fulltext)

Abstract:

The current influenza pandemic calls for a safe and effective vaccine. We assessed the safety and immunogenicity of eight formulations of 2009 pandemic influenza A H1N1 vaccine produced by ten Chinese manufacturers. One dose of non-adjuvant split-virion vaccine containing 7.5 µg haemagglutinin could be promoted as the formulation of choice against 2009 pandemic influenza A H1N1 for people aged 12 years or older. In children (aged <12 years), two 7.5 µg doses might be needed.

7) Large trials confirm immunogenicity of H1N1 vaccines (*Heath Kelly, Ian Barr, December 16, 2009*); [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)62132-2/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62132-2/fulltext)

Abstract:

Since the recognition of a novel influenza A H1N1 virus, in March, 2009, the virus has spread throughout the world to cause the first influenza pandemic of this century, resulting in a cumulative incidence of death of 5—14 per million in populous southern hemisphere countries. In view of the high likelihood that pandemic H1N1 will circulate as a dominant strain for several years, a vaccine will be the most effective long-term mitigation measure.

8) Defining the safety profile of pandemic influenza vaccines (*Dina Pfeifer, Claudio Alfonso, David Wood, December 16, 2009*); [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)62133-4/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)62133-4/fulltext)

Abstract:

Vaccines have side-effects. When making decisions about regulatory approval and public health use of vaccines, authorities need to be convinced that the benefits of reduced disease outweigh actual and potential risks of vaccination. The side-effect profiles of influenza vaccines are well known due to more than 50 years of large-scale use. However, influenza vaccines uniquely undergo changes in their strain composition virtually every year.

MMWR

1) Deaths related to 2009 pandemic Influenza A (H1N1) among American Indian / Alaska natives – 12 states, 2009 (*L. Castrodale et al., December 11, 2009*)
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5848a1.htm?s_cid=mm5848a1_x

Abstract:

In all age groups, the AI/AN death rate was higher than the rate for all other racial/ethnic populations combined.

NATURE

Nothing new on H1N1 this week.

NEW ENGLAND JOURNAL OF MEDICINE

1) Pandemic Influenza Vaccine Policy — Considering the Early Evidence (*Kathleen M. Neuzil, December 16, 2009*)
<http://content.nejm.org/cgi/content/short/361/25/e59?rss=1&query=current>

Abstract:

This editorial discusses the preliminary reports by Greenberg et al. and Clark et al. published on September 10, 2009. The final reports appear in this issue of the Journal.

2) Response to a Monovalent 2009 Influenza A (H1N1) Vaccine (*Michael E. Greenberg, et al., December 17, 2009*); <http://content.nejm.org/cgi/content/short/361/25/2405?rss=1&query=current>

Abstract:

A randomized, observer-blind, parallel-group trial evaluating two doses of an inactivated, split-virus 2009 H1N1 vaccine in healthy adults between the ages of 18 and 64 years is ongoing at a single site in Australia. A single 15-µg dose of 2009 H1N1 vaccine was immunogenic in adults, with mild-to-moderate vaccine-associated reactions. (ClinicalTrials.gov number, NCT00938639 [ClinicalTrials.gov] .)

3) A Novel Influenza A (H1N1) Vaccine in Various Age Groups (*Feng-Cai Zhu, et al., December 9, 2009*) <http://content.nejm.org/cgi/content/short/361/25/2414?rss=1&query=current>

Abstract:

A split-virus, inactivated candidate vaccine against the 2009 H1N1 virus was manufactured, and we evaluated its safety and immunogenicity in a randomized clinical trial. These data suggest that a single dose of 15 µg of hemagglutinin antigen without alum adjuvant induces a typically

protective immune response in the majority of subjects between 12 and 60 years of age. Lesser immune responses were seen after a single dose of vaccine in younger and older subjects. (ClinicalTrials.gov number, NCT00975572 [\[ClinicalTrials.gov\]](http://clinicaltrials.gov) .)

4) Trial of 2009 Influenza A (H1N1) Monovalent MF59-Adjuvanted Vaccine (*Tristan W. Clark, et al., December 9, 2009*);

<http://content.nejm.org/cgi/content/short/361/25/2424?rss=1&query=current>

Abstract:

Monovalent 2009 influenza A (H1N1) MF59-adjuvanted vaccine generates antibody responses likely to be associated with protection after a single dose is administered. (ClinicalTrials.gov number, NCT00943358 [\[ClinicalTrials.gov\]](http://clinicaltrials.gov) .)

5) Letter: Rapid-Test Sensitivity for Novel Swine-Origin Influenza A (H1N1) Virus in Humans (*December 17, 2009*);

<http://content.nejm.org/cgi/content/short/361/25/2493?rss=1&query=current>

Abstract:

We found that the antigen tests had poor sensitivity to the virus when used in a subgroup of 21 patients in the Australian intensive care cohort with severe 2009 influenza A (H1N1) virus infection and acute lung injury that required mechanical ventilation.

6) Letter: Diagnostic Testing for 2009 Pandemic Influenza A (H1N1) Virus Infection in Hospitalized Patients (*December 17, 2009*);

<http://content.nejm.org/cgi/content/short/361/25/e114?rss=1&query=current>

Abstract:

Establishing a diagnosis of 2009 pandemic influenza A (H1N1) virus infection in hospitalized patients can be challenging, especially in patients presenting late in their clinical course. Although real-time reverse-transcriptase polymerase chain reaction (RT-PCR) is the most sensitive testing method to detect 2009 H1N1 virus in respiratory specimens, results are not accessible right away.

PLoS

1) Optimizing allocation for a delayed influenza vaccination campaign (*Jan Medlock, Lauren Ancel Meyers, December 13, 2009*); <http://knol.google.com/k/optimizing-allocation-for-a-delayed-influenza-vaccination-campaign?collectionId=28gm4w0q65e4w.1&position=1#>

Abstract:

During unexpected infectious disease outbreaks, public health agencies must make effective use of limited resources. Vaccine distribution may be delayed and staggered through time, as underscored by the 2009 H1N1 influenza pandemic. Using a mathematical model parametrized with data from the 2009 H1N1 pandemic, we found that optimal allocations of vaccine among people in different age groups and people with high-risk conditions depends on the schedule of vaccine availability relative to the progress of the epidemic. For the projected schedule of H1N1 vaccine availability, the optimal strategy to reduce influenza-related deaths is to initial target high-risk people, followed by school-aged children (5–17) and then young adults (18–44). The optimal strategy to minimize hospitalizations, however, is to target ages 5–44 throughout the vaccination campaign, with only a tiny amount of vaccine used on high-risk people. We find that optimizing at each vaccine release time independently does not give the overall optimal strategy. In this manuscript, we derive policy recommendations for 2009 H1N1 vaccine allocation using a

mathematical model. In addition, our optimization procedures, which consider staggered releases over the entire epidemic altogether, are applicable to other outbreaks where not all supplies are available initially.

PLoS Medicine

1) Influenza in Africa (*Maria Yazdanbakhsh, Peter G. Kremsner*)

<http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000182>

Abstract:

Authors argue that there needs to be better awareness, surveillance, and clinical management of common febrile diseases in Africa, especially influenza.

PLoS ONE

1) Systems-level comparison of host-responses elicited by avian H5N1 and seasonal H1N1 influenza viruses in primary human macrophages (*Suki M. Y. Lee et al.*);

<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0008072>

Abstract:

The key target cells for the virus in the lung are the alveolar epithelium and alveolar macrophages, and we have shown that, compared to seasonal human influenza viruses, equivalent infecting doses of H5N1 viruses markedly up-regulate pro-inflammatory cytokines in both primary cell types in vitro. Whether this H5N1-induced dysregulation of host responses is driven by qualitative (i.e. activation of unique host pathways in response to H5N1) or quantitative differences between seasonal influenza viruses is unclear. Here we used microarrays to analyze and compare the gene expression profiles in primary human macrophages at 1, 3, and 6 h after infection with H5N1 virus or low-pathogenic seasonal influenza A (H1N1) virus. We found that host responses to both viruses are qualitatively similar with the activation of nearly identical biological processes and pathways. However, in comparison to seasonal H1N1 virus, H5N1 infection elicits a quantitatively stronger host inflammatory response including type I interferon (IFN) and tumor necrosis factor (TNF)- α genes. A network-based analysis suggests that the synergy between IFN- β and TNF- α results in an enhanced and sustained IFN and pro-inflammatory cytokine response at the early stage of viral infection that may contribute to the viral pathogenesis and this is of relevance to the design of novel therapeutic strategies for H5N1 induced respiratory disease.

PLoS CURRENTS

1) Is a Mass Immunization Program for Pandemic (H1N1) 2009 Good Value for Money? Early Evidence from the Canadian Experience (*Beata Sander, Chris Bauch, David Fisman, December 17, 2009*); <http://knol.google.com/k/beate-sander/is-a-mass-immunization-program-for/39qzqilkz43g8/1?collectionId=28qm4w0q65e4w.1&position=1#>

Abstract:

This work contributes informed estimates to the current debate about the pandemic (H1N1) 2009 mass immunization program's economic merits. We performed a cost-utility analysis of the (H1N1) 2009 mass immunization program in Ontario, Canada's most populous province. The analysis is based on a simulation model of a pandemic (H1N1) 2009 outbreak, surveillance data, and administrative data. We consider no immunization versus mass immunization reaching 30% of the population. Immunization program costs are expected to be \$118 million in Ontario. Our analysis indicates this program will reduce influenza cases by 50%, preventing 35 deaths, and

cutting treatment costs in half. A pandemic (H1N1) 2009 immunization program is likely to be highly cost-effective.

2) Studies needed to address public health challenges of the 2009 H1N1 influenza pandemic: insights from modeling needs (*Maria van Kerkhove, Neil Ferguson, Steven Riley, December 17, 2009*); <http://knol.google.com/k/maria-van-kerkhove/studies-needed-to-address-public-health/agr0htar1u6r/18?collectionId=28qm4w0q65e4w.1&position=2#>

Abstract:

The 2009 influenza pandemic (H1N1pdm) has completed its first wave in many northern and southern hemisphere populations and many northern hemisphere populations are reporting substantial activity indicating the start of a second wave this autumn. As the global epidemiology of this novel strain unfolds, substantial policy challenges will continue to present themselves for the next 12 to 18 months. Here, we anticipate six public health challenges and identify data that are required for public health decision making. In particular, we suggest studies that will generate data not otherwise available from routine surveillance. Representative serological surveys stand out as a critical source of data with which to reduce uncertainty around policy choices for both pharmaceutical and non-pharmaceutical interventions after the initial wave has passed. Also, monitoring the time course of incidence of severe H1N1pdm cases will give a clear picture of variability in underlying transmissibility of the virus during population wide changes in behavior such as school vacations and other non-pharmaceutical interventions. In addition, we address low resource settings where routine surveillance for influenza has not been established and suggest alternative ways to collect data for the 2009 (and beyond) influenza H1N1 pandemic.

SCIENCE

1) VIRUS OF THE YEAR: The Novel H1N1 Influenza (*Martin Enserink and Jon Cohen, December 18, 2009*); <http://www.sciencemag.org/cgi/content/summary/326/5960/1607?rss=1>

Abstract:

For years, scientists have been warning about the potential for an influenza pandemic on the order of the 1918 Spanish flu. They imagined the culprit would surface in Asia—and, since 2003, have worried that the avian influenza strain H5N1 might be it. Health officials worldwide drafted one preparedness plan after another. But the pandemic that erupted last spring looks nothing like the one in the plans. Not only did it begin in North America, but the swine virus behind it is a novel form of an H1N1 strain already circulating in humans. And although the new H1N1 is unusually dangerous for the young and for pregnant women, in most otherwise healthy people it causes a disease no more severe than seasonal flu. Scientists have repeatedly warned that this relatively mild virus could mutate or swap genes with cousins and become deadlier. But for now, it looks as if this H1N1 will go down in history more for causing confusion than catastrophe.

VACCINE

1) Systematic review of interventions to increase influenza vaccination rates of those 60 years and older (*Roger E. Thomas, Margaret L. Russell and Diane L. Lorenzetti, N.B. article in press – uncorrected proof*); [http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4XXNSNS-3&_user=7149360&_coverDate=12%2F14%2F2009&_rdoc=1&_fmt=high&_orig=browse&_srch=doc-info\(%23toc%235188%239999%23999999999%2399999%23FLA%23display%23Articles\)&_cdi=5188&_sort=d&_docanchor=&_ct=141&_acct=C00071090&_version=1&_urlVersion=0&_userid=7149360&md5=66af01337986623aa7b07d314d04e93f](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TD4-4XXNSNS-3&_user=7149360&_coverDate=12%2F14%2F2009&_rdoc=1&_fmt=high&_orig=browse&_srch=doc-info(%23toc%235188%239999%23999999999%2399999%23FLA%23display%23Articles)&_cdi=5188&_sort=d&_docanchor=&_ct=141&_acct=C00071090&_version=1&_urlVersion=0&_userid=7149360&md5=66af01337986623aa7b07d314d04e93f)

Abstract:

A systematic literature review identified 44 RCTs testing interventions to increase influenza vaccination rates among seniors ≥ 60 . Case-control and cohort studies were excluded after review because of problems identifying secular trends and unknown confounders. Because of heterogeneity and unique interventions tested by a single or a few RCTs few studies could be pooled in meta-analysis. Using the CDC classification of interventions: (1) Increasing community demand: there is evidence of low quality that reminders increase influenza vaccination rates; (2) Increasing access: there is evidence of moderate quality that home visits to those ≥ 60 promoting influenza vaccination increase rates, and (3) Provider- and system-based interventions: there is evidence of moderate quality that facilitators working to improve preventive interventions in practices increase rates.

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