



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Current Influenza Activity Levels:

- **Michigan:** Sporadic activity
- **National:** During December 18-24, 2011, influenza activity remained low in the U.S.

Updates of Interest

- **National:** Australian researchers report on increased transmission of oseltamivir-resistant 2009 H1N1 during the past flu season

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****Notice to Readers****

Twelve human cases of a novel influenza A (H3N2) virus have recently been reported by CDC. There are no known cases in Michigan to date, but recent investigations in those states with cases have suggested some instances of limited human-to-human transmission. CDC has asked all states to conduct surveillance for suspect cases of this novel virus by increasing influenza testing. Therefore, the Michigan Department of Community Health is requesting all healthcare providers, hospitals and laboratories to assist in this effort. Influenza testing for all patients with an influenza-like illness is highly recommended, and all positive influenza specimens should be forwarded to the MDCH Bureau of Laboratories for additional confirmation. Please call the MDCH Division of Communicable Disease at 517-335-8165 with questions or to report suspect cases. Additional guidance is available at www.michigan.gov/flu.

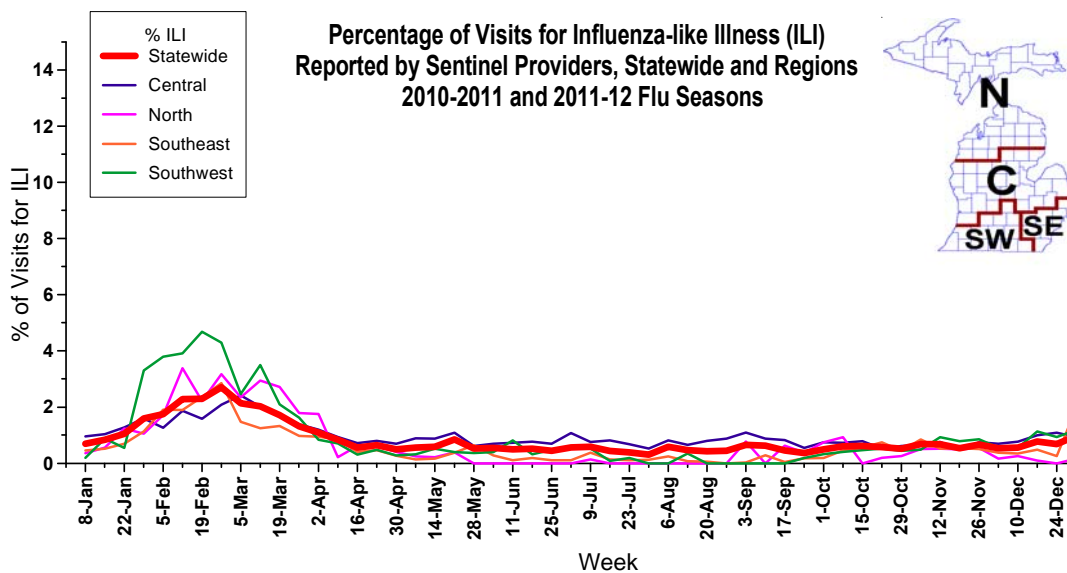
Influenza Surveillance Reports

Michigan Disease Surveillance System: MDSS data for the week ending December 31st indicated that individual influenza cases remained at levels similar to the previous week. Aggregate reports decreased significantly, most likely due to decreased reporting during the holidays. Both individual and aggregate reports are lower than levels seen during the same time last year.

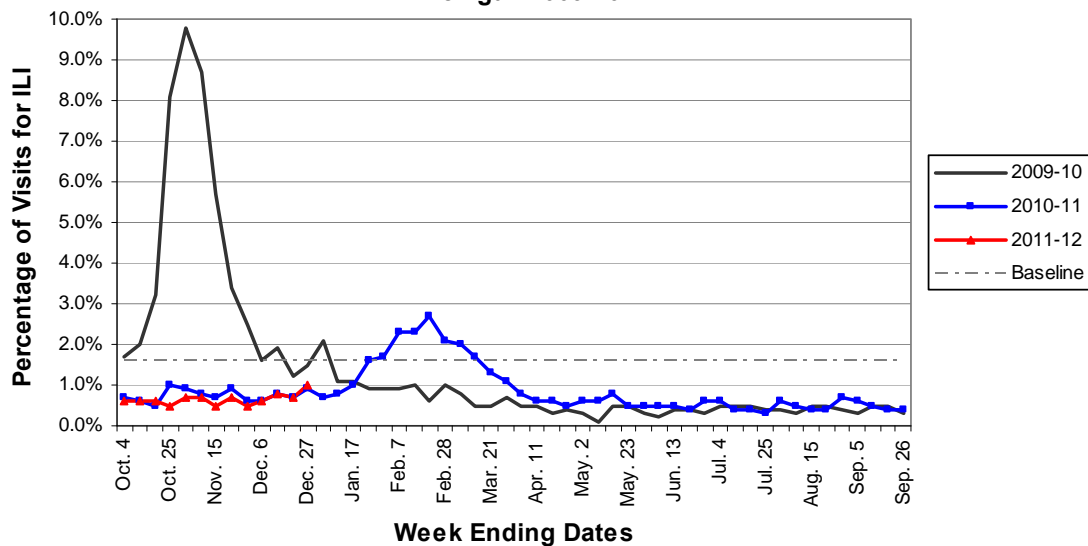
Emergency Department Surveillance: Compared to levels from the prior week, emergency department visits from both constitutional and respiratory complaints increased. Constitutional complaints are similar to levels reported during the same time last year, while respiratory complaints are slightly higher. In the past week, there were ten constitutional alerts in the SE(4), SW(1), C(2) and N(3) Influenza Surveillance Regions and ten respiratory alerts in the SE(2), SW(3), C(4) and N(1) Regions and one statewide alert.

Sentinel Provider Surveillance (as of January 5): During the week ending December 31, 2011, the proportion of visits due to influenza-like illness (ILI) slightly increased to 1.0% overall; this is below the regional baseline of 1.6%. A total of 45 patient visits due to ILI were reported out of 4,633 office visits. Twenty-six sentinel sites provided data for this report. Activity increased in three surveillance regions: Southeast (2.0%), North (0.2%) and Southwest (1.2 %); and decreased in the remaining surveillance region: Central (0.9%). Please note these rates may change as additional reports are received.

As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.



Percentage of Visits for Influenza-like Illness (ILI) Reported by the US Outpatient Influenza-like Illness Surveillance Network (ILINet): Michigan 2009-2012



Hospital Surveillance (as of December 31): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. No influenza hospitalizations were reported during the week ending December 31, 2011. For the 2011-12 season, there has been one adult lab-confirmed influenza hospitalization in the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Eight hospitals (SE, SW, C, N) reported for the week ending December 31, 2011. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2011-12 Season
0-4 years	0	1
5-17 years	0	0
18-49 years	0	3
50-64 years	0	0
≥65 years	0	0
Total	0	4

Laboratory Surveillance (as of December 31): During December 25-31, six influenza A/H3 positive results (5SE, 1C) were reported by the MDCH Bureau of Laboratories. For the 2011-12 influenza season (starting October 2, 2011), MDCH has identified 10 influenza results:

- Influenza A/H3: 9 (7SE, 2C)
- Parainfluenza: 2 (1SE, 1C)
- Influenza B: 1 (SE)
- Adenovirus: 1 (SE)

Thirteen sentinel labs (SE, SW, C, N) reported for the week ending December 31, 2011. Four labs (SE, C) reported sporadic influenza A positives. No influenza B positives were reported. Six labs (SE, SW, C) reported low or increasing levels of RSV activity. Testing volumes are low to moderate but increasing.

Michigan Influenza Antigenic Characterization (as of January 5): For the 2011-12 season, one Michigan influenza B specimen has been characterized as B/Brisbane/60/2008-like at MDCH BOL; this strain matches the influenza B component for the 2011-12 Northern Hemisphere influenza vaccine.

Michigan Influenza Antiviral Resistance Data (as of January 5): No Michigan influenza specimens have been tested for antiviral resistance at this time for the 2011-12 season.

CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza, which are available at <http://www.cdc.gov/flu/professionals/antivirals/index.htm>.

Influenza-associated Pediatric Mortality (as of January 5): No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2011-12 season.

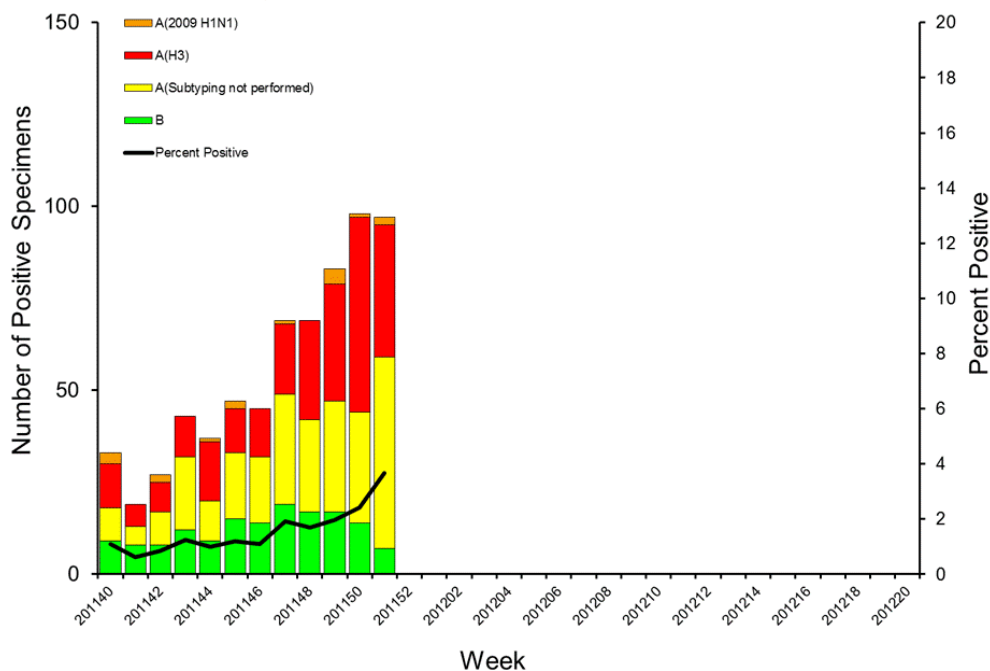
CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH protocol is at www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of January 5): No new outbreaks were reported to MDCH during the past week. One respiratory outbreak (C) has been reported during the 2011-12 season.

National (CDC [edited], as of December 30): During week 51 (December 18-24, 2011), influenza activity remained low in the United States. Of the 2,652 specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division, 97 (3.7%) were positive for influenza. The proportion of deaths attributed to P&I was below the epidemic threshold. No influenza-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.5%, which is below the national baseline of 2.4%. All 10 regions reported ILI below region-specific baseline levels. One state experienced moderate ILI activity, New York City and one state experienced low ILI activity, 47 states experienced minimal ILI activity, and the District of Columbia and one state had insufficient data. The geographic spread of influenza in one state was reported as regional; two states reported local activity; Guam and 37 states reported sporadic activity; the District of Columbia, the U.S. Virgin Islands and 10 states reported no influenza activity, and Puerto Rico did not report.

The entire weekly report is available online at <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2011-12

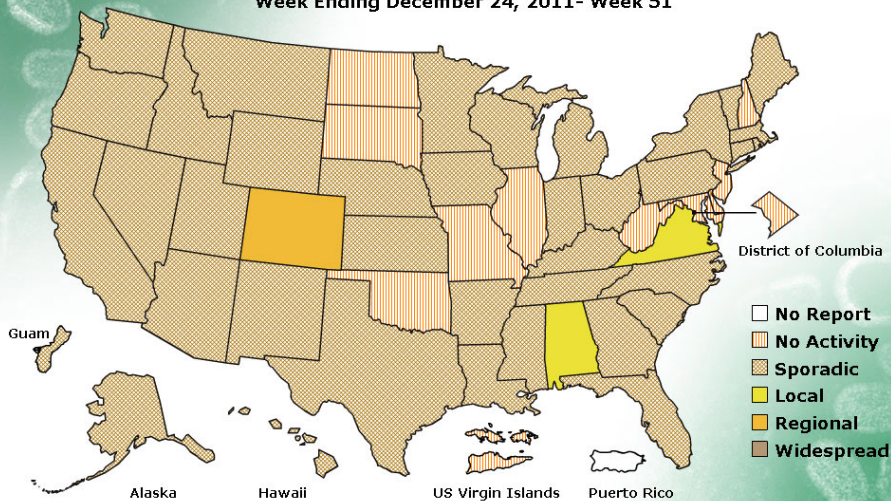


FLUVIEW



A Weekly Influenza Surveillance Report Prepared by the Influenza Division
Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

Week Ending December 24, 2011- Week 51



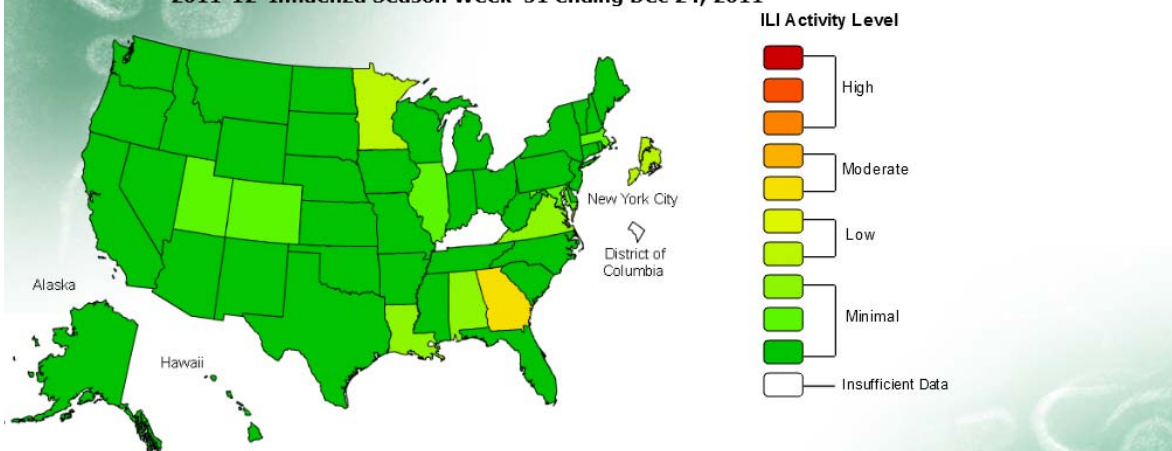
*This map indicates geographic spread and does not measure the severity of influenza activity.

FLUVIEW



A Weekly Influenza Surveillance Report Prepared by the Influenza Division
Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet

2011-12 Influenza Season Week 51 ending Dec 24, 2011



This map uses the proportion of outpatient visits to healthcare providers for influenza-like illness to measure the ILI activity level within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels. Data collected in ILINet may disproportionately represent certain populations within a state, and therefore, may not accurately depict the full picture of influenza activity for the whole state. Data displayed on this map are based on data collected in ILINet, whereas the State and Territorial flu activity map are based on reports from state and territorial epidemiologist.

National (MMWR excerpt, January 5): Severe Influenza Among Children and Young Adults with Neurologic and Neurodevelopmental Conditions — Ohio, 2011. MMWR 60(51);1729-1733

Children with neurologic and neurodevelopmental conditions are at increased risk for severe outcomes from influenza, including death. In April 2011, the Ohio Department of Health and CDC investigated an influenza outbreak that began in February 2011 in a residential facility for 130 children and young adults with neurologic and neurodevelopmental conditions. This report summarizes the characteristics and clinical courses of 13 severely ill residents with suspected or confirmed influenza; 10 were hospitalized, and seven died. Diagnosis is challenging in this population, and clinicians should consider influenza in

patients with neurologic and neurodevelopmental conditions who have respiratory illness or a decline in baseline medical status when influenza is circulating in the community. Prompt testing, early and aggressive antiviral treatment, and antiviral chemoprophylaxis are important for these patients. When influenza is suspected, antiviral treatment should be given as soon as possible after symptom onset, ideally within 48 hours. Treatment should not wait for laboratory confirmation of influenza. During outbreaks, antiviral chemoprophylaxis should be provided to all residents of institutional facilities (e.g., nursing homes and long-term-care facilities), regardless of vaccination status. Residential facilities for patients with neurologic and neurodevelopmental conditions are encouraged to vaccinate all eligible residents and staff members against influenza.

The full article is available online at

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6051a1.htm?s_cid=mm6051a1_e.

International (WHO [edited], December 16): Influenza activity in the temperate regions of the northern hemisphere remains at low levels, with sporadic activity reported in Canada, the United States of America, and some European countries. Countries in the tropical zone mostly reported low influenza activity except Costa Rica, primarily influenza A(H3N2), and Cameroon, which is experiencing transmission of A(H3N2) following on recent peaks of A(H1N2)pdm09 and type B. Influenza activity in the temperate countries of the southern hemisphere is at inter-seasonal levels.

The entire WHO report is available online at

www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html.

MDCH reported **SPORADIC ACTIVITY** to CDC for the week ending December 31, 2011.

For additional flu vaccination and education information, the MDCH *FluBytes* newsletter is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Post-pandemic – Influenza disease activity has returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. It is important to maintain surveillance and update pandemic preparedness/response plans accordingly.

International, Antivirals (CIDRAP, December 29): Australian researchers today reported on increased transmission of oseltamivir (Tamiflu)-resistant 2009 H1N1 in a New South Wales community during the past Southern Hemisphere's flu season. They detailed their findings in a letter in the *New England Journal of Medicine*, after an initial report of 25 viruses appeared in August on ProMED Mail, the online reporting system of the International Society for Infectious Diseases. In the latest report, 29 (16%) viruses containing the H275Y substitution were found during an analysis of 182 patients who were treated for 2009 H1N1 infections in the Hunter New England region between May and August. All were resistant to adamantanes as well as oseltamivir but sensitive to zanamivir (Relenza). Genetic analysis of the strains found they were similar to the vaccine strain and closely related, suggesting transmission of a single variant, the group reported. Only 1 of the 29 patients had been treated with oseltamivir. Most of the patients lived within a 30-mile radius of Newcastle, and some were household contacts or shared a short car ride. The authors urged clinicians in the Northern Hemisphere to be on guard for similar clusters. A recent report from the US Centers for Disease Control and Prevention (CDC) found that low-level community transmission of the oseltamivir-resistant 2009 H1N1 strain took place during the 2010-11 flu season. Though the report included a small number of cases, the authors found a higher prevalence in people who weren't treated with the drug, a change that bears watching.

The letter is available online at <http://www.nejm.org/doi/full/10.1056/NEJMc1111078>.

International, Swine (Influenza and Other Respiratory Diseases abstract, December 30): Trevenec *et al.* (2011) Transmission of pandemic influenza H1N1 (2009) in Vietnamese swine in 2009–2010. Influenza and Other Respiratory Viruses DOI: 10.1111/j.1750-2659.2011.00324.x.

Background: The pandemic of 2009 was caused by an H1N1 (H1N1pdm) virus of swine origin. This pandemic virus has repeatedly infected swine through reverse zoonosis, although the extent of such infection in swine remains unclear.

Objective: This study targets small and commercial pig producers in North Vietnam, in order to estimate the extent of H1N1pdm infection in swine and to identify the risk factors of infection.

Methods: Virologic and serologic surveillance of swine was carried out in 2009–2010 in pig farms (38 swabs and 1732 sera) and at a pig slaughterhouse (710 swabs and 459 sera) in North Vietnam. The sera were screened using an influenza type A-reactive ELISA assay, and positive sera were tested using hemagglutination inhibition tests for antibody to a panel of H1-subtype viruses representing pandemic (H1N1) 2009 (H1N1pdm), triple reassortant (TRIG), classical swine (CS), and Eurasian avian-like (EA) swine lineages. Farm-level risk factors were identified using a zero-inflated negative binomial model.

Results: We found a maximal seroprevalence of H1N1pdm of 55-6% [95% CI: 38-1–72-1] in the slaughterhouse at the end of December 2009, 2 weeks after the peak of reported human fatalities with H1N1pdm. Farm-level seroprevalence was 29% [95% CI: 23-2–35-7]. In seropositive farms, within-herd seroprevalence ranged from 10 to 100%. We identified an increased risk of infection for farms that specialized in fattening and a decreased risk of infection in farms hiring external swine workers.

Conclusions: Our findings suggest extensive reverse-zoonotic transmission from humans to pigs with subsequent onward transmission within pig herds.

The abstract is available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1750-2659.2011.00324.x/abstract>.

International, Poultry (VietnamNet, January 4): The southern province of Hau Giang recently detected the first outbreak of bird flu in a household raising 450 chickens in Long My district.

When ten out of their chickens died, the household informed local veterinarians to help prevent a new outbreak spreading. The provincial department of animal health has culled the dead chickens and disinfected the affected area.

Truong Ngoc Trung, head of the Provincial Department of Animal Health, said that after receiving the samples that tested positive for the H5N1 virus, the department culled all the infected chickens and quarantined the infected areas.

The department warned poultry households in the province to be vigilant and immediately report any indications of the disease to the veterinary agency to avoid a possible epidemic and associated economic losses.

Mr Trung said this is the season when chickens and ducks are easily infected with bird flu therefore, breeders should take special care of their poultry and take preventive measures according to veterinary warnings.

The provincial animal health department has vaccinated more than 3 out of 3.5 million ducks and chickens in the province against bird flu. It has provided localities with an additional 2 million vaccines in the early months of the year.

Michigan Wild Bird Surveillance (USDA, as of January 5): For the 2011 season (April 1, 2011-March 31, 2012), highly pathogenic avian influenza H5N1 has not been recovered from 7 Michigan samples or 408 samples tested nationwide. For more information, visit <http://wildlifedisease.nbj.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

International Poultry and Wild Bird Surveillance (OIE): Reports of avian influenza activity, including summary graphs of avian influenza H5N1 outbreaks in poultry, can be found at the following website: http://www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm.

For questions or to be added to the distribution list, please contact Susan Peters at peterss1@michigan.gov

Contributors

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MDCH Bureau of Laboratories – A. Muvombwe, PhD; V. Vavricka, MS

Table. H5N1 Influenza in Humans – As of December 21, 2011. http://www.who.int/influenza/human_animal_interface/EN_GIP_20111221_CumulativeNumberH5N1casesN.pdf. Downloaded 12/22/2011. Cumulative lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003-2004		2005		2006		2007		2008		2009		2010		2011		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	0	0	0	0	8	5	0	0	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	3	0
Cambodia	0	0	4	4	2	2	1	1	1	0	1	0	1	1	8	8	18	16
China	1	1	8	5	13	8	5	3	4	4	7	4	2	1	0	0	40	26
Djibouti	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	18	10	25	9	8	4	39	4	29	13	37	14	156	54
Indonesia	0	0	20	13	55	45	42	37	24	20	21	19	9	7	11	9	182	150
Iraq	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	3	2
Lao PDR	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	17	12	5	2	3	3	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	12	4	0	0	0	0	0	0	0	0	0	0	12	4
Vietnam	32	23	61	19	0	0	8	5	6	5	5	5	7	2	0	0	119	59
Total	50	36	98	43	115	79	88	59	44	33	73	32	48	24	60	32	574	337