



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department
of Community Health



Rick Snyder, Governor
James K. Haveman, Director

Editor *pro tem*: Bethany Reimink, MPH ReiminkB@michigan.gov
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Updates of Interest

- **National:** A total of 14 cases of human infection with H3N2 variant virus (H3N2v) have been reported this summer
- **International:** WHO is reporting 91 cases of MERS-CoV including 46 deaths

Table of Contents

Influenza Surveillance Reports	
Michigan.....	1-3
National.....	3
International.....	3
Novel Influenza and Other News	
WHO Pandemic Phase.....	4
MERS-CoV.....	4-5
Avian Influenza H5N1 in Humans.....	5

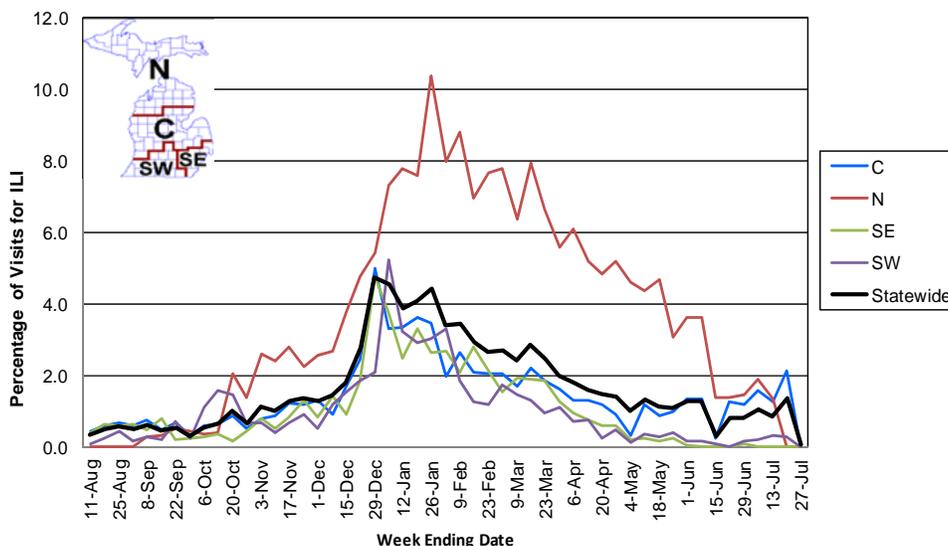
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of August 1): MDSS influenza data for the week ending July 27, 2013 indicated that compared to levels from the previous week, aggregate reports increased and individual reports decreased. Aggregate reports are lower than levels seen during the same time period last year, while individual reports are slightly higher.

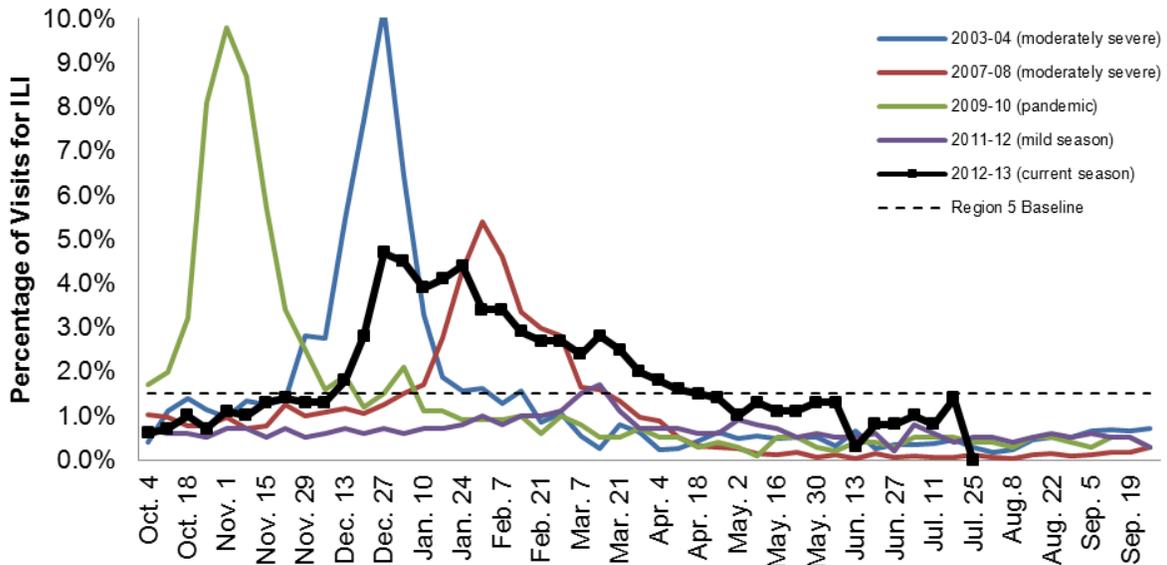
Emergency Department Surveillance (as of August 1): Emergency department visits due to constitutional complaints are lower compared to the previous week and lower when compared to levels reported during the same time period last year. Emergency department visits from respiratory complaints are similar when compared to levels from the week prior and are slightly lower than levels reported during the same time period last year. In the past week, there were 2 constitutional alerts in the Central Influenza Surveillance Regions and 5 respiratory alerts in the N (1), C (1), SW (1), and SE (2) Regions.

Sentinel Provider Surveillance (as of August 1): During the week ending July 27, 2013, the proportion of visits due to influenza-like illness (ILI) decreased to 0.0% overall; this is below the regional baseline (1.5%). A total of 1 patient visit due to ILI was reported out of 2,159 office visits. Data were provided by 10 sentinel sites from the following regions: Central (6) and Southeast (4). There were no reports from North or Southwest regions. ILI activity decreased in one region: C (0.1%). ILI activity remained the same in one region: SE (0.0%). Please Note: these rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers, Statewide and Regions
2011-2012 and 2012-13 Flu Seasons



**Percentage of Visits for Influenza-like Illness (ILI) Reported by
the US Outpatient Influenza-like Illness Surveillance Network
(ILINet): Michigan, Select Seasons**



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 Stefanie DeVita at 517-335-3385 or DeVitaS1@michigan.gov for more information.

Hospital Surveillance (as of May 18): The CDC Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness through active surveillance and chart review of lab-confirmed cases, starting on October 1, 2012, in the Clinton, Eaton, Genesee, and Ingham counties. Reporting for the season has concluded. There were 258 influenza hospitalizations (168 adult, 90 pediatric) within the catchment area. The incidence rate for adults was 24.7 hospitalizations per 100,000 population and for children was 43.0 hospitalizations per 100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. Reporting for the 2012-13 influenza season has concluded. 437 hospitalizations (278SE, 21SW, 64C, 74N) were reported by 12 hospitals during the 2012-13 season.

Laboratory Surveillance (as of July 27): During July 14-July 27, no positive influenza results were reported by MDCH. For the 2012-13 season (starting Sept. 30, 2012), MDCH has identified 681 influenza results:

- Influenza A(H3): 500 (124SE, 169SW, 169C, 38N)
- Influenza A(H1N1)pdm09: 36 (20SE, 4SW, 9C, 3N)
- Influenza B: 153 (30SE, 31SW, 74C, 18N)
- Parainfluenza: 8 (3SW, 1C, 4N)
- RSV: 1 (1N)
- hMPV: 2 (2SW)

6 sentinel labs (SE(1), SW(2), C(3), N(0)) reported for the week ending July 27, 2013. No labs reported influenza A or B activity. No labs reported Parainfluenza activity. One lab (SW) reported sporadic Adenovirus activity. No labs reported RSV or hMPV activity. All sites remain at very low testing volumes.

Michigan Influenza Antigenic Characterization (as of August 1): For the 2012-13 season, 113 Michigan influenza B specimens have been characterized at MDCH BOL. 94 specimens are B/Wisconsin/01/2010-like, matching the B component of the 2012-13 influenza vaccine. 19 influenza B specimens were characterized as B/Brisbane/60/2008-like, which is not included in the 2012-13 vaccine.

Michigan Influenza Antiviral Resistance Data (as of August 1): For the 2012-13 season, 32 influenza A/H3 specimens and 25 influenza A(H1N1)pdm09 specimens have been tested at the MDCH BOL for antiviral resistance. None of the influenza isolates tested have been resistant.

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 August 1): 7 pediatric influenza-associated influenza mortalities (3 A/H3, 4B) have been reported for the 2012-13 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 August 1): 112 respiratory outbreaks (22SE, 30SW, 41C, 19N) have been reported to MDCH during the 2012-13 season; testing results are listed below.

- Influenza A/H3: 16 (7SW, 9C)
- Influenza A: 55 (10SE, 13SW, 20C, 12N)
- Influenza B: 8 (1SE, 3SW, 2C, 2N)
- Influenza A and B: 2 (1SE, 1SW)
- Influenza A/H3 and B: 1 (1C)
- Influenza positive: 4 (1SE, 1SW, 2C)
- Influenza and RSV positive: 1 (1C)
- Influenza B and RSV positive: 1 (1SE)
- hMPV: 1 (1SW)
- Negative/no testing: 23 (8SE, 4SW, 6C, 5N)

National (CDC): Past weekly reports and updated data during the summer months are available online at: <http://www.cdc.gov/flu/weekly/fluactivitysurv.htm>.

Two new human infections with influenza A (H3N2) variant (H3N2v) virus were reported to CDC during week 29 (Indiana [1] and Ohio [1]). A total of 14 H3N2v cases have been reported this summer. No hospitalizations or deaths have occurred. At this time no ongoing human-to-human transmission has been identified and all 14 cases have reported close contact with swine in the week prior to illness onset. Public health and agriculture officials are investigating the extent of disease among humans and swine, and additional cases may be identified as the investigation continues.

Because of reporting schedules, state totals posted by CDC may not always be consistent with those reported by state health departments. If there is a discrepancy between state and CDC case counts, data from the state health department should be used as the most accurate number.

Early identification and investigation of human infections with novel influenza A viruses is critical in order to evaluate the extent of the outbreak and possible human-to-human transmission. Additional information on influenza in swine, variant influenza infection in humans, and strategies to interact safely with livestock can be found at <http://www.cdc.gov/flu/swineflu/h3n2v-cases.htm>.

International (WHO [edited], July 19): Influenza activity in the northern hemisphere temperate zones remained at inter-seasonal levels. The United States of America reported 12 cases of human infection with influenza A(H3N2)v. More details can be found at <http://www.cdc.gov/flu/swineflu/h3n2v-cases.htm>. In most regions of tropical Asia influenza activity decreased, except for India and Viet Nam where influenza A activity remained relatively high. In Central America and the Caribbean, influenza activity in Cuba and the Dominican Republic remained high, but with decreasing trends, and began to increase in Costa Rica, El Salvador and Nicaragua. Influenza activity in the southern hemisphere increased considerably in South America and in Southern Africa but remained low in Oceania. In temperate South America, respiratory syncytial virus remained the main detected respiratory virus, but the proportion of influenza positive viruses continued to increase. In tropical South America, influenza A(H1N1)pmd09 became the main detected respiratory virus in most countries, except in Ecuador where respiratory syncytial virus (RSV) remained the main detected virus. As of 19 July, a total of 133 cases of influenza A(H7N9) virus infection have been reported.

The entire WHO report is available online at www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html

Weekly reporting to the CDC has ended for the 2012-2013 influenza season.

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, Human (WHO, July 29): WHO has been informed of an additional laboratory-confirmed case of Middle East respiratory syndrome coronavirus (MERS-CoV) infection in Saudi Arabia. The patient is an 83-year-old man from Assir region who became ill on 17 July 2013 and is currently hospitalized.

Additionally, a previously laboratory-confirmed case, also from Assir region, has died. Globally, from September 2012 to date, WHO has been informed of a total of 91 laboratory-confirmed cases of infection with MERS-CoV, including 46 deaths.

Based on the current situation and available information, WHO encourages all Member States to continue their surveillance for severe acute respiratory infections (SARI) and to carefully review any unusual patterns.

Health care providers are advised to maintain vigilance. Recent travelers returning from the Middle East who develop SARI should be tested for MERS-CoV as advised in the current surveillance recommendations.

Specimens from patients' lower respiratory tracts should be obtained for diagnosis where possible. Clinicians are reminded that MERS-CoV infection should be considered even with atypical signs and symptoms, such as diarrhea, in patients who are immunocompromised.

Health care facilities are reminded of the importance of systematic implementation of infection prevention and control (IPC). Health care facilities that provide care for patients suspected or confirmed with MERS-CoV infection should take appropriate measures to decrease the risk of transmission of the virus to other patients, health care workers and visitors.

All Member States are reminded to promptly assess and notify WHO of any new case of infection with MERS-CoV, along with information about potential exposures that may have resulted in infection and a description of the clinical course. Investigation into the source of exposure should promptly be initiated to identify the mode of exposure, so that further transmission of the virus can be prevented.

WHO does not advise special screening at points of entry with regard to this event nor does it currently recommend the application of any travel or trade restrictions.

WHO has convened an Emergency Committee under the International Health Regulations (IHR) to advise the Director-General on the status of the current situation. The Emergency Committee, which comprises international experts from all WHO Regions, unanimously advised that, with the information now available, and using a risk-assessment approach, the conditions for a Public Health Emergency of International Concern (PHEIC) have not at present been met.

This and past updates are available online at <http://www.who.int/csr/don/en/>

International, Human (The Lancet [abstract], July 26): Epidemiological, demographic, and clinical characteristics of 47 cases of Middle East respiratory syndrome coronavirus disease from Saudi Arabia: a descriptive study

Background: Middle East respiratory syndrome (MERS) is a new human disease caused by a novel coronavirus (CoV). Clinical data on MERS-CoV infections are scarce. We report epidemiological, demographic, clinical, and laboratory characteristics of 47 cases of MERS-CoV infections, identify knowledge gaps, and define research priorities.

Methods: We abstracted and analysed epidemiological, demographic, clinical, and laboratory data from confirmed cases of sporadic, household, community, and health-care-associated MERS-CoV infections reported from Saudi Arabia between Sept 1, 2012, and June 15, 2013. Cases were confirmed as having MERS-CoV by real-time RT-PCR.

Findings: 47 individuals (46 adults, one child) with laboratory-confirmed MERS-CoV disease were identified; 36 (77%) were male (male:female ratio 3:3:1). 28 patients died, a 60% case-fatality rate. The case-fatality rate rose with increasing age. Only two of the 47 cases were previously healthy; most

patients (45 [96%]) had underlying comorbid medical disorders, including diabetes (32 [68%]), hypertension (16 [34%]), chronic cardiac disease (13 [28%]), and chronic renal disease (23 [49%]). Common symptoms at presentation were fever (46 [98%]), fever with chills or rigors (41 [87%]), cough (39 [83%]), shortness of breath (34 [72%]), and myalgia (15 [32%]). Gastrointestinal symptoms were also frequent, including diarrhoea (12 [26%]), vomiting (ten [21%]), and abdominal pain (eight [17%]). All patients had abnormal findings on chest radiography, ranging from subtle to extensive unilateral and bilateral abnormalities. Laboratory analyses showed raised concentrations of lactate dehydrogenase (23 [49%]) and aspartate aminotransferase (seven [15%]) and thrombocytopenia (17 [36%]) and lymphopenia (16 [34%]).

Interpretation: Disease caused by MERS-CoV presents with a wide range of clinical manifestations and is associated with substantial mortality in admitted patients who have medical comorbidities. Major gaps in our knowledge of the epidemiology, community prevalence, and clinical spectrum of infection and disease need urgent definition.

The abstract is available online here [http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(13\)70204-4/abstract](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(13)70204-4/abstract)

International, Human (Emerging Infectious Diseases [letter], October 2013, published ahead of print): Close Relative of Human Middle East Respiratory Syndrome Coronavirus in Bat, South Africa
The severe acute respiratory syndrome (SARS) outbreak of 2002–03 and the subsequent implication of bats as reservoir hosts of the causative agent, a coronavirus (CoV), prompted numerous studies of bats and the viruses they harbor. A novel clade 2c betacoronavirus, termed Middle East respiratory syndrome (MERS)–CoV, was recently identified as the causative agent of a severe respiratory disease that is mainly affecting humans on the Arabian Peninsula. Extending on previous work, we described European *Pipistrellus* bat–derived CoVs that are closely related to MERS-CoV. We now report the identification of a South Africa bat derived CoV that has an even closer phylogenetic relationship with MERS-CoV.

The entire letter is available online here http://wwwnc.cdc.gov/eid/article/19/10/13-0946_article.htm

For questions or to be added to the distribution list, please contact Bethany Reimink at ReiminkB@michigan.gov

Contributors

**MDCH Bureau of Epidemiology – S. Bidol, MPH; S. DeVita, RN, MPH; R. Sharangpani, MD, MPH; F. Mamou, MPH
MDCH Bureau of Laboratories – B. Robeson, MT; V. Vavricka, MS**

Table. H5N1 Influenza in Humans – As of July 5, 2013. http://www.who.int/influenza/human_animal_interface/EN_GIP_20130705_CumulativeNumberH5N1cases_2.pdf. Downloaded 07/19/2013. Cumulative lab-confirmed cases reported to WHO. Total cases include deaths.

Country	2003-2009		2010		2011		2012		2013		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	1	0	0	0	2	0	3	0	1	1	7	1
Cambodia	9	7	1	1	8	8	3	3	13	9	34	28
China	38	25	2	1	1	1	2	1	2	2	45	30
Djibouti	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	90	27	29	13	39	15	11	5	4	3	173	63
Indonesia	162	134	9	7	12	10	9	9	1	1	193	161
Iraq	3	2	0	0	0	0	0	0	0	0	3	2
Lao PDR	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	1	1	0	0	0	0	0	0	0	0	1	1
Pakistan	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	25	17	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	12	4
Vietnam	112	57	7	2	0	0	4	2	2	1	125	62
Total	468	282	48	24	62	34	32	20	23	17	633	377