Mississippi State Department of Health

Mississippi Morbidity Report

Volume 27, Number 11 November 2011

Influenza Surveillance and Testing

The Mississippi State Department of Health (MSDH) participates in a number of influenza surveillance activities each season that are a part of the broader U.S. influenza surveillance system. Two of the primary components for the 2011-2012 season are outpatient influenza-like illness surveillance and virologic surveillance. A brief description of these activities follows, as well as a description of the process for collection and submission of influenza samples to the Mississippi Public Health Laboratory (PHL). Weekly U.S. surveillance summaries are available in the Centers for Disease and Control (CDC) FluView,[1] and Mississippi weekly updates from MSDH.[2] A brief overview of the 2010-2011 influenza season is included in the October 2011 Mississippi Morbidity Report.[3]

Outpatient Illness Surveillance

Mississippi is part of the U.S. Outpatient Influenza-like Illness Surveillance system, an active syndromic surveillance program used to monitor influenza activity. Each year outpatient clinics, hospital emergency departments and student health centers throughout the state are enrolled in the system to serve as sentinel providers. Each week the sentinel providers report the number of non-trauma visits consistent with an influenza-like illness (ILI), defined as fever >100°F and cough and/or sore throat. From this information MSDH determines the weekly ILI rate used to estimate the magnitude and geographic spread of influenza in the state. For the week ending November 12, 2011 (the most current week for which data is available), Mississippi is reporting “no activity”. In most seasons, peak activity occurs February through March, but can occur earlier or later. For the 2011-2012 influenza season 43 sentinel providers are enrolled, representing 34 counties and all 9 Public Health Districts.

Virologic Surveillance

Mississippi also participates in U.S. Virologic Surveillance System. Sentinel ILI providers are encouraged to submit respiratory samples for influenza PCR testing to the PHL throughout the season. The PHL is able to determine type of influenza (A vs. B) and the subtype for influenza A positive samples. This virologic surveillance enables MSDH to determine what type and/or subtype of influenza viruses is circulating and causing illness in Mississippi. Throughout the season positive samples are submitted to the CDC for antigenic characterization and antiviral resistance analysis. Antigenic characterization is utilized to determine the strains of influenza causing illness and if they are a match to the strains selected for the vaccine. The identification of influenza strains causing illness can assist in decisions about the make up of the following season’s vaccine. Antiviral resistance testing can guide treatment choices. Antigenic characterization and genetic testing at CDC is also used to detect novel influenza strains which may have the potential to cause pandemics.

Influenza Diagnosis and Testing

Rapid influenza diagnostic tests (RIDTs) have limited sensitivity to detect influenza virus infection and negative test results should be interpreted with caution. Due to the **limited sensitivities and predictive values of RIDTs, negative results of RIDTs do not exclude influenza virus infection in patients with signs and symptoms suggestive of influenza.** Therefore, **antiviral treatment should not be withheld from patients with suspected influenza, due to a negative test result.**

[1] http://www.cdc.gov/flu/weekly/

[2] http://msdh.ms.gov/msdhsite/_static/14,0,199,230.html

[3] http://msdh.ms.gov/msdhsite/_static/resources/4521.pdf

Submission of Specimens for Influenza Testing

The MPHL Laboratory Services Guide, Influenza Specimen Collection Procedure, (http://msdh.ms.gov/msdhsite/_static/resources/860.pdf) provides detailed steps on how to properly collect and transport influenza specimens.

NOTE: The MSDH only accepts influenza specimens submitted by providers who are a part of the Mississippi influenza-like illness surveillance system or submitted from any hospitalized patient with influenza-like illness. Providers may contact the Epidemiology Program during regular business hours at (601) 576-7725, or 1-800-556-0003 outside of Jackson area, with questions or special requests. **These tests are performed for surveillance purposes only and should not be used for diagnostic purposes due to the amount of time it takes to perform the laboratory tests and inform the clinician of the results, possibly delaying treatment.**

Nasopharyngeal Swab Collection

1. Prior to collection of the specimen, don the appropriate personal protective equipment.
2. Use only sterile Dacron® or synthetic-tipped swabs with wire shafts. The following link demonstrates how a nasopharyngeal swab should be collected: http://content.nejm.org/cgi/content/full/NEJMe0903992/DC1
3. Place the patient's head in an extended position.
4. Gently place the swab in the nostril.
5. Pass the swab through the nose until it contacts the nasopharyngeal walls.
6. Rotate the swab gently in place for 5 seconds to absorb secretions.
7. Withdraw the swab and insert into a tube containing at least 3 ml of viral transport media. Break off or bend the end of the applicator shaft to close the tube tightly. Make sure that the tube is tightly sealed.
8. Label the tube with the patient's name, specimen source, and date/time of collection.
9. Place specimen in a biohazard bag and store at 2-8°C until shipment. *Do not submit multiple samples on the same patient. Swabs used for influenza rapid diagnostic tests CANNOT be reused for MPHL testing.

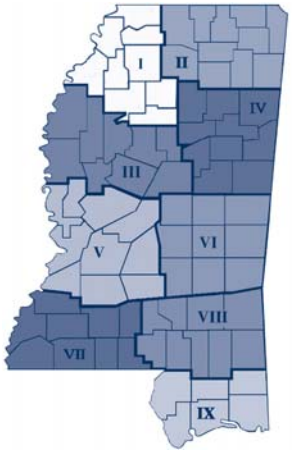
Transport

1. Ship specimen with an ice pack in a RIGID outer container (Styrofoam box or cooler). DO NOT SHIP SPECIMENS IN AN ENVELOPE.
2. Each specimen must be accompanied by a completed MSDH influenza test requisition Form 930.
3. Place a completed form in the OUTER pouch of the plastic biohazard bag containing an individual specimen. Do not place any paperwork in the inner pouch with the tube.
4. On the day of collection, transport the specimen to the local health department for courier pick up. The MSDH courier will transport specimen to the MPHL.

During 2009, in a population with high rates of influenza infections, the negative predictive value of RIDTs was only 32%.[4] Put another way, in this population, **patients with symptoms of influenza who tested negative for influenza by RIDT had a 68% chance of having influenza infection** as measured by RT-PCR or viral culture.

It is not necessary or even desirable for every person with flu-like illness to be tested for influenza. RIDTs have too large a false negativity rate to be clinically useful when influenza is known to be circulating in the community, and RT-PCR or virus culture take days to weeks for results to come back to the care provider. Therefore, treatment decisions are best made based on the clinical signs and symptoms of the patient.

[4] CDC. Performance of Rapid Influenza Diagnostic Tests During Two School Outbreaks of 2009 Pandemic Influenza A (H1N1) Virus Infection — Connecticut, 2009. MMWR 2009; 58:1029-1032. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5837a1.htm



Mississippi
Provisional Reportable Disease Statistics
October 2011

		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	Oct 2011	Oct 2010	YTD 2011	YTD 2010
Sexually Transmitted Diseases	**Primary & Secondary Syphilis**	1	1	2	0	16	1	0	1	2	**24**	23	157	183
	Total Early Syphilis	1	1	6	0	37	2	2	2	3	**54**	61	438	493
	Gonorrhea	52	39	66	46	160	34	30	44	66	**537**	452	5,125	5,052
	Chlamydia	237	191	240	151	478	153	106	144	212	**1,912**	1,474	18,638	17,811
	HIV Disease	4	6	3	1	9	1	1	4	3	**32**	46	510	431
Myco-bacterial Diseases	**Pulmonary Tuberculosis (TB)**	0	1	1	0	1	0	0	0	0	**3**	6	58	78
	Extrapulmonary TB	0	0	0	0	1	0	0	0	0	**1**	0	11	8
	Mycobacteria Other Than TB	2	2	1	2	19	0	1	2	5	**34**	33	286	338
Vaccine Preventable Diseases	**Diphtheria**	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Pertussis	0	1	0	0	4	2	0	0	0	**7**	12	37	71
	Tetanus	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Poliomyelitis	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Measles	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Mumps	0	0	0	0	0	0	0	0	0	**0**	0	3	0
	Hepatitis B (acute)	0	0	0	0	0	0	0	0	1	**1**	4	42	31
	Invasive *H. influenzae* b disease	0	0	0	0	0	0	0	0	0	**0**	0	3	0
	Invasive Meningococcal disease	0	0	0	0	0	0	0	0	0	**0**	2	4	5
Enteric Diseases	**Hepatitis A (acute)**	0	0	0	0	0	0	0	0	0	**0**	0	7	2
	Salmonellosis	13	22	8	17	37	5	14	10	15	**141**	170	1184	1088
	Shigellosis	1	2	0	0	18	0	0	1	2	**24**	4	161	44
	Campylobacteriosis	1	1	0	0	0	1	1	0	0	**4**	7	65	112
	E. coli O157:H7/HUS	0	0	0	0	0	0	0	0	0	**0**	1	9	11
Zoonotic Diseases	**Animal Rabies (bats)**	0	0	0	0	0	0	0	0	0	**0**	0	2	0
	Lyme disease	0	0	0	0	0	0	0	0	0	**0**	0	3	0
	Rocky Mountain spotted fever	0	0	0	0	0	0	0	0	0	**0**	4	12	23
	West Nile virus	0	0	0	0	0	0	0	0	0	**0**	1	51	8

*Totals include reports from Department of Corrections and those not reported from a specific District.

Antiviral Agents for Influenza

The following is adapted from two CDC publications.[5,6]

Four licensed prescription influenza antiviral agents are available in the United States: amantadine, rimantadine, zanamivir, and oseltamivir. Zanamivir and oseltamivir are antiviral medications in a class of medications known as neuraminidase inhibitors. These two medications are active against both influenza A and B viruses. They differ in pharmacokinetics, safety profiles, routes of administration, approved age groups, and recommended dosages.

Amantadine and rimantadine are antiviral drugs in a class of medications known as adamantanes. These medications are active against influenza A viruses but not influenza B viruses. In recent years, **widespread adamantane** resistance has made this class of medications less useful clinically. Therefore, **amantadine and rimantadine are not recommended** for antiviral treatment or chemoprophylaxis of currently circulating influenza A virus strains.

From October 1, 2010 through June 3, 2011, all influenza B viruses tested were sensitive to both oseltamivir and zanamivir. Among the influenza A viruses tested less than 1% were resistant to oseltamivir, and none were resistant to zanamivir. High levels of resistance to the adamantanes (amantadine and rimantadine) persist among 2009 influenza A viruses currently circulating globally.

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[5] CDC. Antiviral Agents for the Treatment and Chemoprophylaxis of Influenza Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2011; 60(RR01); 1-24 http://www.cdc.gov/mmwr/pdf/rr/rr6001.pdf

[6] CDC. Update: Influenza Activity — United States, 2010–11 Season, and Composition of the 2011–12 Influenza Vaccine. MMWR 2011; 60(21);705-712 http://www.cdc.gov/mmwr/pdf/wk/mm6021.pdf