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epidemiology bulletin

{Clinician Recognition and Reporting of Immediately Notifiable Diseases}

Physicians, laboratorians, infection control practitioners and other health care providers play an important role in public health efforts to control the spread of disease. The Communicable Disease reporting rules (OAC 310: Chapter 515) lists diseases that must be reported to the Oklahoma State Department of Health (OSDH). Public health response depends on the prompt reporting of diseases for timely follow-up, protection of exposed individuals to control spread, and identification of outbreaks.

Certain diseases are placed on the immediately notifiable list due the urgency of investigation. Several diseases listed in the Oklahoma disease reporting rules must be reported immediately upon suspicion, diagnosis, or testing to OSDH (refer to list at right). Immediately notifiable conditions include communicable diseases where investigation is essential to rapidly protect exposed contacts from developing disease through post exposure prophylaxis or vaccination such as meningococcal disease, hepatitis A and measles; and diseases that may indicate an act of bioterrorism such as smallpox, plague, and anthrax. In addition to the fifteen diseases listed, outbreaks of an apparent infectious disease and bioterrorism-suspected diseases are immediately notifiable. An outbreak is defined as a cluster of cases from different households of potentially infectious disease of known or unknown etiology. The cases would have a similar clinical syndrome if laboratory testing is pending or inconclusive.

A complete list of all reportable communicable diseases in Oklahoma can be accessed on the OSDH Acute Disease Service (ADS) Website at <<www.health.state.ok.us/program/cdd/infec.html>>

*prepared by Christie McDonald, MPH, Epidemiologist, ADS

Any health practitioner or laboratorian must report the following diseases immediately upon suspicion, diagnosis, or testing:

1 Anthrax (*Bacillus anthracis*)
2 Bioterrorism-suspected disease
3 Botulism (*Clostridium botulinum*)
4 Diphtheria (*Corynebacterium diphtheriae*)
5 *Haemophilus influenzae* invasive disease
6 Hepatitis A (Anti-HAV-IgM+)
7 Hepatitis B during pregnancy (HBsAg+)
8 Measles (Rubeola)
9 Meningococcal invasive disease (*Neisseria meningitidis*)
10 Outbreaks of apparent infectious disease
11 Plague (*Yersinia pestis*)
12 Poliomyelitis
13 Rabies
14 Smallpox
15 Tularemia (*Francisella tularensis*)
16 Typhoid fever (*Salmonella* Typhi)
17 Viral hemorrhagic fever

Oklahoma State Department of Health
ph 405.271.4060 or 800.234.5963

Secure, Web-based Public Health Investigation & Disease Detection of Oklahoma (PHIDDO) system

The OSDH investigates rash illnesses of public health importance including suspected cases of measles, rubella, and outbreaks of varicella. Rash illness investigations may also include potential bioterrorism-related diseases, such as smallpox, or adverse events experienced by persons who receive the smallpox vaccine or close contacts of a smallpox vaccinee. The smallpox vaccine contains live vaccinia virus, which is a pox-type virus that can produce cross-protective immunity to variola virus, the cause of smallpox. Following smallpox vaccination, vaccinia virus can be spread to other parts of the body or to other people by touching a vaccination site before it has healed or by touching bandages or clothing that have been contaminated with live virus from the vaccination site (inadvertent inoculation). The OSDH ADS investigates rash illnesses of public health concern to confirm the diagnosis and protect exposed contacts from developing disease through post exposure prophylaxis or vaccination. This report describes the case summary of a suspected case of vaccinia in Oklahoma and the investigation conducted by the OSDH.

On August 7, 2007, the OSDH ADS was notified by the Comanche County Health Department of a 2-year-old female child who presented to the emergency department (ED) of a southwest Oklahoma hospital for evaluation of an unusual rash illness. Symptom history indicated the child developed a maculopapular rash on August 3rd on the face, arms and legs, with subsequent spread to the trunk within 24 hours. The child had previously been taken to a different local ED on August 5th where the initial diagnosis was "generalized rash possibly due to insect bites". On August 7th, the child's pediatrician conducted an evaluation and made a referral to a dermatologist. Later that day, the mother became concerned due to the girl's increasing irritability and rising temperature. The rash was described as vesicular initially, progressing to scab formation within 3 days. Lesions were in various stages of vesicles, papules and scabs during the August 7th evaluation. Additional symptoms reported were fever (highest measured temperature of 101° F), cough, inappetence, and fatigue.

Exposure history revealed the child had direct contact to an active-duty service member who received a smallpox vaccine on July 27, 2007. According to the history provided by the mother, the soldier was a neighbor who had daily contact with the child. On August 2nd, the child was held by the recent vaccinee and was placed on the individual's bed for a two-hours nap. The vaccinated contact reported wearing a bandage during interactions with the child to contain drainage; however, the mother reported the bandage was temporarily removed during the August 2nd interaction in order to change the bandage. Investigation of other potential exposures or causes for the rash illness were insignificant. The child was current on all age-appropriate immunizations; she had no history of recent travel or contact with persons from other states or countries; no known insect bites (tick and mosquito); and she had no reported previous contact to persons with a rash illness.

Scabs and swabs of vesicular fluid were collected from the child and transported to the OSDH Public Health Laboratory (PHL) for non-variola orthopoxvirus, orthopoxvirus and varicella zoster virus testing by polymerase chain reaction (PCR) testing according to standard Laboratory Response Network protocols. Viral culture was also attempted. PCR test results on August 8th were all negative. The child's symptoms began to improve on August 10th. Viral culture was later reported as no growth.

Although an etiology was not confirmed for this case, consultations with dermatologists suggested Gianotti-Crosti syndrome (GCS) as a possible cause. GCS is a relatively common dermatosis seen worldwide, primarily affecting children between 2 and 6 years of age. It is a self-limited exanthem associated with numerous viral infections. It may also appear following immunization. The rash is characterized by pink-to-flesh-colored papules or papulovesicles that occur on the extremities, the buttocks, and the face. GCS is believed to represent a delayed hypersensitivity response to transient viremia or bacteremia.

Although inadvertent inoculation of vaccinia virus was ruled out in this case, this investigation emphasizes the importance of health care providers maintaining a high degree of suspicion for rash illnesses of public health importance, particularly in communities with military installations. Suspected cases should be reported immediately to the OSDH Epi-on-Call for investigation and coordination of rapid testing by the OSDH PHL.

*prepared by Laurence Burnsed, MPH, Epidemiologist, ADS

For rash illnesses of public health importance; including potential bioterrorism diseases:

1) Contact OSDH Epidemiologist (Epi)-on-Call: **405.271.4060** or **800.234.5963** OR submit a report electronically via the PHIDDO system. The State or local Health Department is the first point of contact to report rash illnesses, including potential BT diseases. The OSDH will facilitate any consultation with the CDC as needed. **2**) Collect specimens and transport to OSDH PHL according to shipping protocols.

{Spring 2007 Novel Influenza Reporting and Testing Survey Answers}

In the Spring 2007 issue of the Epidemiology Bulletin, the OSDH ADS printed a survey to evaluate the baseline knowledge of health care providers with regards to novel influenza reporting and testing. Below are answers to the questions, along with explanations for the rationale.

Q Are you aware that clinicians and laboratorians are required to report specific diseases/conditions to OSDH per the Oklahoma Administrative Code (OAC 310:515)?

A Yes - See the insert in 2007 summer edition of the Epidemiology Bulletin for a list of notifiable diseases and summary of the recent changes effective June 2007.

Q To whom should you report a suspected case of novel influenza?

A An individual case of novel influenza should be reported under the category of "Unusual Syndrome or Uncommon Disease – URGENT" through the OSDH Web-based disease reporting system, PHIDDO or by calling the Epi-on-Call at 405.271.4060.

Q How soon should you report a suspected case of novel influenza?

A Suspected novel influenza cases must be reported immediately upon suspicion to the OSDH.

Q If a patient with respiratory illness reports recent travel to a region with documented novel influenza or probable exposure to a confirmed or suspected case of novel influenza, what would be the appropriate precautions you should take when examining the patient?

A Respiratory (droplet) precautions, which include placing the patient into an exam room as soon as possible. If a separate room is not available, separate the patient from others in the waiting room by 3 to 6 ft. and place a surgical or procedure mask on the patient. Educate the patient about respiratory hygiene/cough etiquette and provide adequate tissues, trash container and hand hygiene materials. Health care providers should wear a properly fit-tested and fit-checked N-95 respirator if a novel or pandemic influenza is suspected. If an N-95 respirator is not available, a surgical or procedure mask is the minimum level of protection. A negative airflow room (airborne precautions) is not indicated. Use of standard precautions including gloves and gown should be used if indicated.

(Reference: Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings during an Influenza Pandemic, October 2006) <<www.pandemicflu.gov/plan/healthcare/maskguidancehc.html>>

Q When a patient with suspected novel influenza is checked in to be evaluated, what precautions should you and your staff conduct in your clinic?

A Place surgical mask on patient; Isolate patient to a clinic room (or as mentioned above, alternatives include spatial separation or placing the patient outdoors if feasible); Respiratory precautions for health care workers including N-95 mask, gloves and gown.

(Note: The October 2006 guideline recommends N-95 masks, not surgical. "If supplies of N-95 (or higher) respirators are not available, surgical masks can provide benefits against large droplet exposure, and should be worn for all health care activities for patients with confirmed or suspected pandemic influenza.")

Q Clinicians suspecting novel influenza should collect specimens for testing (within 10 days of symptom onset) from a patient who has the following: **1**) an illness that requires hospitalization or is fatal; **2**) a documented temperature of ≥ 38° C (≥ 100.4° F); **3**) radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which a diagnosis has not been established; *and which of the following exposures:*

A All of the above – travel to a country with influenza H5N1 documented in poultry, wild birds, and/or humans, close contact (approach within 1 meter [approx. 3 ft.]) of an ill patient who was confirmed or suspected to have H5N1 or worked with live influenza virus in a laboratory.

(Note: The above reference states "for practical purposes, this distance may range from three to six feet.")

Q What type of specimens should be collected from a suspected case of novel influenza?

A All of these specimens would be appropriate:

Nasopharyngeal swab within 3 days of symptom onset; Throat swab within 3 days of symptom onset; Tracheal aspirate or BAL if pneumonia present; Rectal swab if patient has diarrhea; CSF if patient has meningitis (to rule out other diagnosis); Lung tissue if patient has died.

Q For suspected cases of novel influenza, the PHL can perform a rapid PCR test and viral isolation/culture. What type of swab should be used to collect specimens?

continued on page 4

A Cotton swab: a sterile cotton swab is appropriate for viral isolation/culture. Dacron swab: a sterile dacron swab is specific to PCR.

Q For suspected cases of novel influenza, the PHL can perform a rapid PCR test and viral isolation/culture. What type of media should be used for transport?

A Viral transport media – appropriate for both viral isolation/culture and PCR.

Q If you do not have access to testing materials, from where can you order testing supplies for PCR and viral isolation for novel influenza?

A The OSDH Public Health Laboratory, and the OSDH Acute Disease Service, Epi-on-Call – Please contact the Epi-on-Call at 405.271.4060 who will assess the situation and give recommendations. They will also coordinate with the local county Health Department, public health laboratory and local physician for testing and testing supplies.

{Traveler's Health: Typhoid Fever}

While unusual in the U.S., typhoid fever is a common disease in underdeveloped countries causing an estimated 22 million cases and 200,000 related deaths each year around the world.[1] On average, 400 cases are reported each year in the U.S. with approximately three-fourths of all cases occurring among people who reported international travel during the preceding month.[1] Persons visiting friends and relatives in south Asia appear to be at particular risk, even during short visits.

Since 2003, Oklahoma reported six cases (2003 = 1, 2004 = 1, 2005 = 1, 2007 = 3) of typhoid fever and no deaths. Five cases reported travel outside the U.S. prior to illness onset; three had travel to south Asia (India and Bangladesh), and two to Mexico. All reported participating in a high-risk activity such as drinking or bathing in untreated water or consuming shellfish or raw fruits. The case with no travel did have close contacts with recent travel to south Asia, but were unable to be confirmed. Each case and their families were educated to prevent future infections and protect the public's health.

Typhoid fever is caused by the bacterium *Salmonella* Typhi, transmitted via the fecal-oral route through contaminated water or food. The hallmark symptom of typhoid fever is a persistent, high fever sometimes accompanied by headache, malaise, stomach pain, rash or loss of appetite. Mild and atypical infections can occur. Infected persons are contagious for usually a week after symptom onset, but about 10% of untreated persons may shed the bacteria for up to 3 months; 2-5% become chronic carriers.

Prevention is based on adhesion to safe food handling practices and vaccination against typhoid fever. Drinking water should be bottled or boiled, and avoid ice or ice-products that may have been made with contaminated water. Foods should be thoroughly cooked; avoid raw fruit or vegetables. Raw fruit and vegetables that can be peeled should be peeled yourself, and avoid consuming food or drinks from street vendors.

While routine vaccination for typhoid fever is not recommended in the U.S., it is recommended for travelers to areas where typhoid is common. Two vaccines are available to prevent typhoid, an inactivated vaccine given as a shot or the live, weakened vaccine taken orally. These vaccines should be given at least 2 weeks prior to travel. Like many vaccines, the typhoid vaccine is not 100% effective and persons should still practice safe food handling. International travel information about typhoid fever and other diseases by country is available on the Centers for Disease Control and Prevention's Traveler's Health Website at <<www.cdc.gov/travel>>.

*prepared by Joli Stone, MPH, Epidemiologist, CDD

[1] CDC. Coordinating Center for Infectious Diseases/Division of Bacterial and Mycotic Disease. Typhoid Fever. October 24, 2005.

Identification and Management of Patients Who Meet the Criteria for Novel Influenza; Oklahoma State Department of Health

Patient meets clinical AND epidemiological criteria for novel influenza

clinical criteria: influenza-like illness with temperature > 38° C (100.4° F) PLUS either sore throat or cough

epidemiologic criteria: exposure history consistent with travel or occupational exposure to novel influenza; likely incubation period is 1-4 days, maximum of 10 days

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Institute appropriate infection prevention and control measures

- place a surgical or procedure mask on the patient
- educate the patient regarding Respiratory Hygiene and Cough Etiquette
- apply N-95 respirators on health care workers (use surgical or procedure masks at minimum)
- place patient in a private room; alternately designate an area to cohort patients with influenza (Hospital admission should be limited to those with severe complications who cannot be cared for outside the hospital setting. If patients return home, educate family and caregivers regarding infection prevention and control measures.)
- Institute Droplet Precautions and maintain for a minimum of 5 days after onset.

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Immediately notify the OSDH

- by telephone at 405.271.4060 or 800.234.5963 or
- ectronically via the secure Web-based Public Health Investigation and Disease Detection of Oklahoma (PHIDDO) system .

→ assist public health official in identification of contacts

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Collect specimens for diagnostic testing (per consultation with the Epi-on-Call)

- **respiratory specimens:** nasopharyngeal swab; nasal swab, wash or aspirate; throat swab; and/or tracheal aspirate (if intubated); use viral transport media, store at 4° C (40° F) until and during transport
- **serum specimens:** obtain acute within 7 days of illness onset, convalescent 2-3 weeks after acute specimen and at least 3 weeks after symptom onset; store sprecimens at 4° C (40° F) until and during transport, or freeze at minus 20-80° C.
- notify the OSDH that specimens will be sent; RT-PCR to confirm novel influenza is only available at the OSDH Public Laboratory

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Rule out differential diagnoses

- using tests with high positive predictive value, rule out possible alternative diagnoses (example: *Legionella* urine antigen, bacterial cultures, etc)

→ initiate antiviral treatment within 48 hours even if laboratory confirmation is pending

{The OSDH's Role in Response to Suspected Cases of Novel Influenza}

Identification of the first case of novel influenza in Oklahoma will be dependent on recognition of a suspected case by an astute clinician and rapid response by the OSDH in laboratory confirmation and investigation. The primary goal of rapid detection is to quickly identify contacts and control spread of novel influenza. The OSDH algorithm for identification and management of patients with suspected novel influenza located on page five illustrates the criteria and initial steps for clinicians in responding to a suspected case.

Identifying suspected cases will rely on both clinical and epidemiologic criteria. Epidemiologic criteria include travel or occupation-associated exposure to novel influenza. Travel history exposures include visiting or living in an area affected by highly pathogenic avian influenza A outbreaks in poultry or where a human case of novel influenza has been confirmed, as well as direct contact with poultry or close contact with a human case of novel influenza. Occupation-associated risks include laboratory exposure to novel influenza strains, workers who handle poultry with avian influenza viruses, and health care workers with direct contact to a suspected or confirmed novel influenza case.

When a patient meets the criteria for a suspected case of novel influenza, clinicians should notify the OSDH. The Acute Disease Service Epi-on-Call will work with the reporting clinician in gathering demographic, clinical and exposure information as well as obtain clinical specimens for confirmation at the OSDH PHL. Once a case is identified, isolation of ill persons and quarantine of exposed contacts will be implemented to contain and slow the spread of infection. The collaborative efforts of all private and public entities in a community or region are essential to a successful response. Additional information on influenza and Oklahoma's pandemic influenza management plan is located on the OSDH Website at <<www.health.ok.gov/program/cdd/flu/index.html>>.

*prepared by Becky Coffman, RN, MPH, Epidemiologist, ADS

{Oklahoma Influenza and Respiratory Virus Surveillance System 2007-2008}

Oklahoma began routine seasonal influenza and respiratory virus surveillance during the first week of October. Surveillance objectives are to track influenza and other key respiratory virus activity to monitor and describe the intensity and geographic distribution of disease, measure the impact of viral respiratory illnesses on different age groups, and to identify and publicize the circulating types and subtypes of influenza. To effectively conduct respiratory virus surveillance, the OSDH partners with health care providers and hospital laboratories across the state.

Participating sentinel clinicians are located in 35 health care practices distributed in 27 counties. They are also a part of the U.S. Sentinel Influenza Surveillance Network, which includes 2,100 health care providers across the country. These providers regularly report the proportion and age distribution of patients with influenza-like illness (ILI) that present to their respective clinics. This information is reported weekly via an online secure Web-based site. Other data collected includes the number of patients hospitalized due to ILI and those screening positive for influenza by rapid antigen/enzyme testing.

Ten geographically distributed hospital laboratories voluntarily report results of respiratory virus testing (virus culture, DFA, and/or rapid tests) on a weekly basis throughout the year. In addition to influenza, the sentinel laboratory system is also helpful in monitoring activity of respiratory syncytial virus, parainfluenza, and adenoviruses. To identify and characterize circulating influenza and respiratory viruses further, sentinel providers submit specimens to the OSDH PHL for viral culture and typing. When outbreaks of respiratory disease occur in schools, nursing homes or other institutional settings, they should be reported to the local county health department. In the event of an outbreak, public health nurses will assist with respiratory specimen collection and epidemiologic investigation.

For their commitment in participating in the 2007-08 influenza surveillance system, OSDH would like to recognize and thank our sentinel clinicians and laboratories:

*prepared by Renee Powell, MPH, Epidemiologist, ADS

continued on page 7

Oklahoma Sentinel Providers by Region 2007 - 2008*

region	clinician/physician site	laboratory site
Northwest	Michael Aaron, MD	Cimarron Memorial Hospital Woodward Regional Hospital
	Tamara Hartsell, ARNP, PC	
	William Simon, DO	
	Prime Care Family Practice	
	Enid Family Medicine	
	Memorial Hospital of Texas County	
Northeast	Northeast Oklahoma Family Practice & Obstetrics	Integris Miami Regional Medical Center
	Caney Valley Medical Center	
	Miami Physicians Clinic	
	Jane Phillips Medical Center	
	Integris Blackwell Regional Hospital	
Southwest	Noble Ballard, MD	Southwestern Medical Center
	OU Lawton Residency	
	Tawfik Ramadan, MD	
	Marlow Physicians Clinic	
	Cornerstone Family Health Care	
East Central	John Rice, DO	Muskogee Regional Medical Center
	Ed Farrow, MD	
	Okmulgee Indian Health Center	
Southeast	University Medical Group	Warren Clinic McAlester McCurtain County Memorial Hospital
	Talihina Medical Clinic	
	Kidz Choice Pediatrics	
Central	El Reno Indian Health Clinic	Unity Health Center North
	Citizen Potawatomie Nation Nishnabe Medical Center	
	Clinton Strong, MD	
Tulsa County	Harvard Family Physicians, PC	Saint Francis Health System
	OU College of Medicine Tulsa Family Practice Residency	
	Family Medical Care of Tulsa	
Oklahoma County	Oklahoma Community Health Services, Inc.	OU Children's Medical Center
	Max Cates, MD	
	Saint Anthony Family Practice Residency	
	RT Medical	
	Westbrook Family Physicians	

*Please note that some facilities include more than one reporting provider.

Summary of Selected Notifiable Disease Reports in Oklahoma

diseases/conditions	fall quarter[1]	year to date[2]	5 year average[3]
AIDS	41	151	123.2
Campylobacteriosis	203	397	372.2
Chlamydial infections	2779	9160	8406.8
Cryptosporidiosis	142	158	24.6
E.coli O157:H7	1	14	24.4
Ehrlichiosis	3	25	45.8
Giardiasis	46	109	114
Gonorrhea	1132	3289	3391.4
H. influenzae (all types)	10	58	46.2
H. influenzae, type B (kids < 5)	0	0	0
Hepatitis A	5	11	18.0
Hepatitis B (acute)	44	118	63.0
Hepatitis C (acute)	11	31	10.6
HIV infections	45	141	125.2
Meningococcal invasive	2	16	13.4
Rabies, animal	13	69	95.4
Rocky Mountain spotted fever	1	48	145.0
Salmonellosis	287	480	399.4
Shigellosis	45	97	145.0
Streptococcus invasive group A	14	58	555.6
Streptococcus pneumoniae, invasive	8	40	71.0
Syphilis (primary & secondary)	17	47	39.0
Syphilis (early latent)	29	77	76.2
Tuberculosis	45	124	113

diseases/conditions	year to date[2]	5 year average[3]
Brucellosis	0	0.2
Hemolytic Uremic Syndrome (HUS)	0	2.8
Legionellosis	2	10.2
Listeriosis	1	3.6
Lyme disease	0	0.6
Malaria	0	8.4
PAM	0	0.4
Psittacosis	0	0.0
Tularemia	2	10.8
Typhoid fever	2	0.4
Vibriosis	0	1.4
Yersiniosis (Yersinia enterocolitica)	1	1.6

number of animal rabies cases by animal type	year to date[2]	percent
Bat	4	6
Cat	2	3
Cow	5	7
Dog	4	6
Goat	2	3
Horse	0	0
Skunk	52	75
Total	**69**	**100**

[1] 07.01.07 through 09.31.07
[2] 01.01.07 through 09.31.07
[3] Five year average of year to date data for 2002 through 2006.

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Creating a State of Health

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