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epidemiology bulletin

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{ Influenza Season 2003 - 04 }

The 2003-04 influenza season began earlier than expected in Oklahoma, with the report of the first culture-confirmed case on October 18, 2003. The activity peaked during the weeks ending November 22 through December 13. Thirty-six percent of specimens tested for influenza tested positive at sentinel laboratories and 16% of all patient visits to sentinel physicians were due to influenza-like illness (ILI) (Figure 1). ILI was defined as fever (> 100° F) and cough, and/or sore throat in the absence of a known cause other than influenza. Sentinel surveillance indicated the influenza season ended the week ending February 7, 2004.

Testing of referred isolates and respiratory specimens at the Oklahoma State Department of Health (OSDH) Laboratory confirmed the circulating influenza strain as Type A (H3N2). Isolates submitted to the Centers for Disease Control and Prevention (CDC) for additional antigenic characterization further identified the influenza strains as Type A (H3N2) Fujian-like and Type A (H3N2) Panama-like. Eighty-nine percent of specimens tested at CDC were the drifted variant A (H3N2) Fujian-like strain. There were no influenza type B viruses confirmed in Oklahoma. Only seven percent of cases nationally were accounted for.

Internationally, attention continues to be focused on the widespread outbreak of highly pathogenic avian influenza Type A (H5N1) in poultry that was reported from several Asian countries (Korea, Cambodia, China, Indonesia, Japan, Laos, Thailand, and Vietnam). First reported in mid December 2003, the outbreak was associated with severe human illness and death in Vietnam and Thailand. The outbreak appears to be recurring as human cases were reported as recently as September 9, 2004.

* prepared by **John Bos**, MPH, Epidemiologist, CDD, OSDH

National and International data for this report were provided by the Centers for Disease Control and Prevention and the World Health Organization. Additional information on influenza and avian influenza is available on the following Web sites:

* **www.cdc.gov/flu/**
* **www.who.int/csr/disease/avian_influenza/en/**

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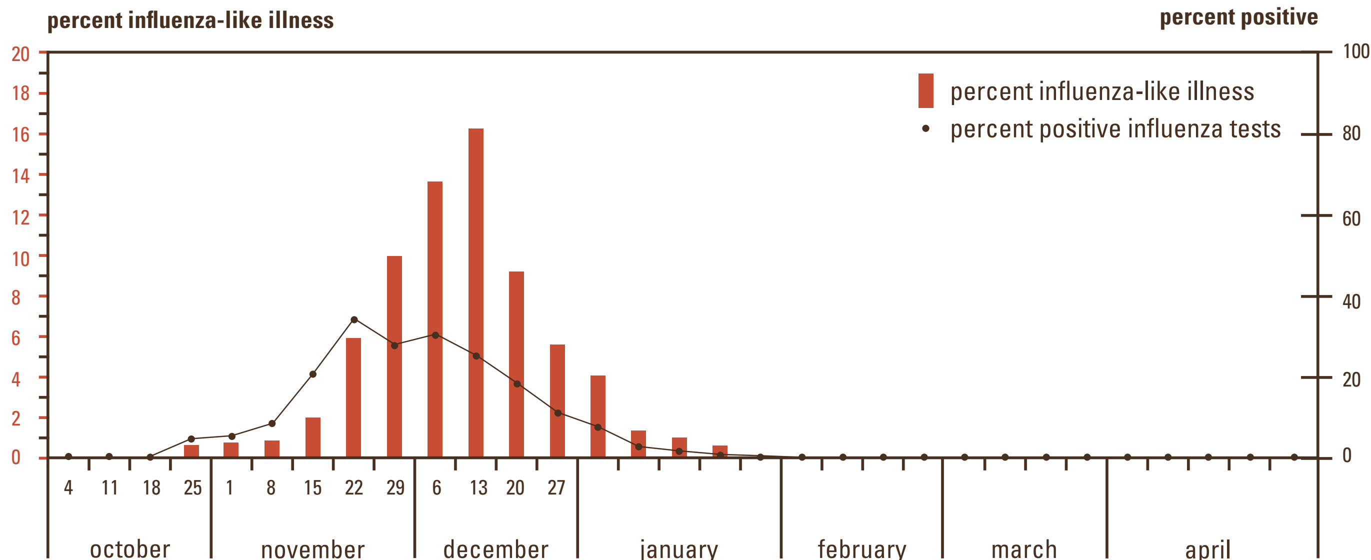
Figure One: Weekly Percent of **Influenza-like** Illness Based on Total Sentinel Physician Patient† Visits and Percent of Positive Influenza Tests from Sentinel Laboratories†† by Specimen Collection Date, Oklahoma 10.03 - 5.01.04



† 18 sentinel physicians from 14 counties geographically distributed in Oklahoma
†† five sentinel laboratories geographically distributed in Oklahoma

{ Oklahoma **Influenza** Surveillance Program 2004 - 05 }

Influenza surveillance in Oklahoma will be conducted from **October 2004** through the end of **April 2005.** Each year we conduct influenza surveillance to meet the following objectives:

1. rapidly detect early influenza activity in the state
2. monitor intensity and geographic distribution of the disease
3. measure the impact of influenza on different age groups
4. determine the type and subtypes of influenza virus causing disease in Oklahoma

The Oklahoma Influenza Surveillance Program consists of partnerships with various local and national entities, including the U.S. Sentinel Physicians Surveillance Network, Laboratory Diagnostic Reporting System, Influenza Outbreak Reporting System, and the Oklahoma Physicians Research Network (OKPRN) OKAlert System. All of the information provided from these sources is integrated to assess the influenza activity in Oklahoma.

* program components

U.S. Sentinel Physicians Surveillance Network

On a weekly basis, 17 physicians from 13 Oklahoma counties voluntarily report the number and age distribution of patients seen with influenza-like illness (ILI). **ILI** is defined as fever (> 100°F) and cough, and/or sore throat in the absence of a known cause other than influenza. The information provided by Oklahoma sentinel providers is added to the influenza surveillance database at the Centers for Disease Control and Prevention where it is combined with the 1,900 participating providers in the U.S. Sentinel Physicians Surveillance Network. In addition to providing weekly ILI data, sentinel physicians obtain specimens from a portion of their patients to be sent to the Oklahoma State Department of Health (OSDH) Public Health Laboratory (PHL) for viral culture.

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{ Oklahoma Tick-borne Disease Surveillance Update }

2003 marked another active year for tick-borne disease surveillance as 183 cases of Rocky Mountain spotted fever (RMSF), ehrlichiosis and tularemia were identified through investigations of positive laboratory reports by the Oklahoma State Department of Health. Incidence rates of RMSF, ehrlichiosis, and tularemia have been higher in Oklahoma when compared to national data over the last several years. Reasons for this higher incidence rate may be due to increased physician awareness and diagnostic testing along with higher levels of tick-borne illness activity in Oklahoma compared to other geographic areas of the United States.

Rocky Mountain Spotted Fever

One hundred thirty-eight cases of RMSF were reported in 2003, an incidence rate of **3.99 per 100,000** population in Oklahoma. Cases identified in Oklahoma accounted for **12.6%** of the **1,091 RMSF** cases reported in the United States in 2003; the rate of RMSF in Oklahoma was **10.2** times higher than the national rate of 0.39 per 100,000 US population. In 2003, cases were reported from March through November; **58%** of cases were reported during the months of May (**18%**), June (**29%**), and July (**11%**). The majority of the cases were reported from eastern and central counties of the state. RMSF affected persons of all ages with cases ranging from 2 years to 89 years of age; the median age of cases was 42 years. Fifty-one cases (**37%**) were hospitalized and one death (**0.7%**) was reported. Seventy-four (**54%**) cases reported a tick attached to their skin during the two weeks prior to symptom onset.

Ehrlichiosis

Thirty-six cases of ehrlichiosis were reported in 2003, an incidence rate of **1.04 per 100,000** population in Oklahoma. Cases identified in Oklahoma accounted for **5.3%** of the **683** cases reported in the United States in 2003; the rate of ehrlichiosis in Oklahoma was **4.3 times higher** than the national rate of 0.24 per 100,000 US population. Cases were reported from March through November; **66%** of cases were reported during the months of June (**29%**), July (**14%**), and August (**23%**). The age distribution of ehrlichiosis cases ranged from 2 to 89 years of age and the median age of cases was 42 years. Only **33%** of cases reported a rash. Twenty-four cases (**67%**) were hospitalized and two deaths (**5%**) were reported. Seventeen (**47%**) cases reported a tick attached to their skin during the 2 weeks prior to symptom onset.

Tularemia

Nine cases of tularemia were reported in 2003, an incidence rate of **0.26 per 100,000** population in Oklahoma. Cases identified in Oklahoma accounted for **6.9%** of the **129** cases reported in the United States in 2003; the rate of tularemia in Oklahoma was **6.5 times higher** than the national rate of **0.04 per 100,000** US population. Cases were reported from February through September with no seasonal peak observed during this time frame. Similarly, tularemia affected all age groups with cases ranging in age from 3 to 79 years; the median age of cases was 30 years. The most common symptoms reported among cases were fever (**77.8%**), abdominal pain (**66.7%**), vomiting (**66.7%**), and presence of a sore or ulcer (**55.6%**). Forty four percent of cases reported muscle aches and painful adenopathy. Three cases (**33%**) were hospitalized and one death (**11%**) was reported. Three cases (**33%**) reported a tick bite and two cases (**22%**) reported exposure to a diseased or dead rabbit.

continued on page 4

Tick-borne Surveillance Update continued

2004 Outlook

Investigations of positive laboratory reports through August 31, 2004, have identified **70 RMSF** cases, **19 ehrlichiosis** cases, and **9 tularemia** cases. The number of cases identified to date is similar to the number of cases reported through August 2003. Based on current surveillance findings and the presence of ongoing investigations of positive laboratory reports, it is likely the number of cases will be comparable to last year's tick-borne illness activity.

Symptoms of RMSF include fever, headache, muscle aches, rash, and sometimes vomiting and/or diarrhea. Symptoms of ehrlichiosis are similar except the development of a rash is less frequent. In its early stages, RMSF may resemble other infectious and noninfectious conditions and may be difficult to diagnose. In 2003, only **23 percent** (32 of 138) of RMSF cases reported a rash, fever, and a history of tick exposure; physicians should consider RMSF in patients even when one of these features are lacking, particularly during the months of March through September.

Diagnosis of RMSF or ehrlichiosis is confirmed by noting a four-fold rise in antibody titers to specific antigens in acute and convalescent sera drawn at least four weeks apart.

Tularemia characteristically presents as an acute febrile illness. Various clinical manifestations can occur depending on the route of infection, including an ulcer at the site of cutaneous or mucous membrane inoculation, pharyngitis, ocular lesions, regional lymphadenopathy, and pneumonia. A diagnosis of tularemia can be laboratory-confirmed by culture of *F. tularensis* from clinical specimens or by a four-fold titer change of serum antibodies against *F. tularensis*. The acquisition of tularemia in a laboratory setting has been documented and emphasizes the need for adequate precautions when processing human specimens[1]. Appropriate laboratory precautions include gloves, laboratory coats, face protection for manipulations out-side a biosafety cabinet, use of a biosafety cabinet for procedures that may create aerosols, and decontamination of laboratory surfaces. Laboratory personnel should be informed of the possibility of tularemia as a differential diagnosis when samples are submitted for diagnostic tests.

* prepared by **Laurence Burnsed**, MPH, Assistant Director, CDD, OSDH

[1] Tularemia --- Oklahoma, 2000. MMWR 2001;50 (33); 704-6

Table: Number and Rate* per 100,000 Population of Reported **Rocky Mountain Spotted Fever**, **Ehrlichiosis,** and **Tularemia** Cases, U.S. and Oklahoma 2000 - 03

	Rocky Mountain Spotted Fever		Ehrlichiosis		Tularemia	
	number (rate per 100,000)					
YEAR	U.S.	Oklahoma	U.S.	Oklahoma	U.S.	Oklahoma
2003	1019 (0.39)	138 (3.99)	683 (0.24)	36 (1.04)	129 (0.04)	9 (0.26)
2002	1104 (0.39)	100 (2.89)	727 (0.26)	13 (0.38)	90 (0.03)	10 (0.29)
2001	695 (0.25)	68 (1.97)	403 (0.14)	24 (0.70)	129 (0.04)	7 (0.02)
2000	495 (0.18)	37 (1.07)	551 (0.19)	12 (0.35)	142 (0.05)	11 (0.32)

Incidence rates calculated using U.S. and Oklahoma population numbers from the U.S. Census Bureau, Census 2000 summary file 1 @ http://www.census.gov/

Oklahoma Influenza Surveillance Program Components continued

Laboratory Diagnostic Reporting System

The Laboratory Diagnostic Reporting System consists of five laboratories from across Oklahoma. Each facility voluntarily reports the results of testing done on respiratory viruses including influenza on a weekly basis. Influenza testing consists of viral culture from two labs and rapid antigen testing from three labs. Culture positive influenza isolates are submitted to the PHL for sub-typing.

Influenza Outbreak Reporting System

When outbreaks of ILI occur in schools, nursing homes or other institutional settings, they should be reported to the Communicable Disease Nurse at the local county health department. Once outbreaks are reported, specimens may be collected and submitted to the PHL for viral identification.

OKPRN OKAlert System

The OKPRN OKAlert system consists of 35 physicians from 15 counties, which report ILI data through a hand-held Personal Data Assistant (PDA) on a daily basis. Data submitted includes the number of patients presenting with ILI, and the total number of patients requiring hospitalization due to an ILI. The data is transmitted when the device is docked. This innovative system allows for the collection of real-time data on incidence of ILI and hospitalizations due to ILI in Oklahoma.

*prepared by **Renee J. Powell**, MPH, Epidemiologist, CDD, OSDH

{ "PHIDDO makes **real time reporting** possible." }

{ Public Health Investigation and Detection of Disease in Oklahoma (phiddo) }

The Communicable Disease Division (CDD) and the Information Technology Service of the Oklahoma State Department of Health (OSDH) have developed a secure Web site to electronically submit reportable diseases and conditions. The **Public Health Investigation and Disease Detection in Oklahoma** (PHIDDO) Web site is up and running. Reporting via PHIDDO replaces the need to send in the blue Reportable Disease Card (ODH Form 295) and the yellow Laboratory Reportable Pathogen Card (ODH Form 295-A). PHIDDO makes real time reporting possible. Submission of an immediately notifiable disease triggers the system to page and sends a text message to the Epidemiologist-On-Call to promptly follow up on the report. PHIDDO makes reporting easier by incorporating auto-filled fields and drop down menus. PHIDDO also provides a single method of reporting for all reportable diseases, eliminating the need to send different disease forms to different divisions or service areas of the OSDH.

In addition to the secure Web site, two major clinical laboratories are now securely transmitting multiple reports electronically [called electronic laboratory reporting (**ELR**)] to the OSDH. This eliminates the need for a laboratory technician to report manually by using the PHIDDO secure Web site or completing the Laboratory Reportable Pathogen Card.

The PHIDDO system went online in May 2003. Through the October 2004, the system has received over 15000 reports from the 118 users and the two laboratories using ELR. PHIDDO users report that the system is easy to use.

In July 2004, the second version of PHIDDO was released. CDD epidemiologists hosted two training sessions at the end of June in Oklahoma City and Tulsa. Attendees received an overview of the new PHIDDO secure Web site and hands-on training in a computer lab. Future training sessions will be held across the state this winter. The enhanced system has made it possible to more thoroughly report clinical and laboratory data as well as exposures from any diseases in a standardized manner.

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{ Summary of Selected Notifiable Disease Reports in Oklahoma }

diseases/conditions	cases fall quarter[1]	year to date[2]	5 year avg.[3]
AIDS	25	118	166
Campylobacter	222	443	290
Chlamydia Infections	2813	8252	7696
Cryptosporidiosis	3	17	15
E.coli 0157:H7	5	15	22
Giardiasis	53	119	75
Gonorrhea	1251	3512	3385
H.flu (all types)	8	46	38
H. flu type b (kids<5)	0	0	0
Hep A	2	18	160
Hep B	6	48	97
Hep C	0	3	10
HIV infections	30	99	155
Meningococcal Inf	1	8	22
Pertussis	11	33	65
Rabies, animal	21	93	89
RMSF	8	71	53
Salmonella	172	333	383
Shigella	111	376	368
S. pneumoniae, invasive	65	416	216
S. invasive group A	13	54	34
Syphilis (early)	18	71	188
Tuberculosis	43	120	119
Tularemia	8	14	7

1. 7.01.04 through **1.30.04**

2. 1.01.04 through **9.30.04**

3. aggregate data for first three quarters of years **1999** through **2003**

diseases of low frequency	year to date[2]	5 year
Brucellosis	0	0.0
Congenital syphilis	2	3.0
Ehrlichiosis	0	9.0
HUS	2	1.6
Legionellosis	9	3.0
Listeriosis	1	3.2
Lyme disease	0	1.4
Malaria	7	3.0
PAM	0	0.0
Psittacosis	0	0.0
Typhoid fever	1	0.0
Vibriosis	0	0.2
Yersinia	2	1.4

no. of animal rabies cases by animal type	year to date[2]	percent
skunk	68	73.12%
dog	6	6.45%
bovine	6	6.45%
cat	6	6.45%
horse	3	3.23%
bat	1	1.08%
fox	1	1.08%
goat	1	1.08%
sheep	1	1.08%
total	93	100%

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