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SURVEY OF PATHOGENS IN POULTRY LITTER IN THE UNITED STATES

MAC TERZICH[1]
Jones-Hamilton Co., PLT Division, 1 Plaza East, Suite 505, Salisbury, MD 21801
Phone: (410) 548-9422
FAX: (410) 548-2840
E-mail: drmac@dmv.com

MELODY J. POPE
Department of Agriculture, Stephen F. Austin State University, SFA Station Box 13000, Nacogdoches, TX 75962

TIM E. CHERRY
Department of Agriculture, Stephen F. Austin State University, SFA Station Box 13000, Nacogdoches, TX 75962

JESSIE HOLLINGER
Delmarva Diagnostic Laboratory, 308 Mill Street, Salisbury, MD 21801

Primary Audience: Researchers, Veterinarians, Production Managers, Quality Assurance Personnel

SUMMARY

Poultry litter is one of many components resulting from the production of broilers. Understanding poultry litter microbiological composition is very beneficial when attempting to improve the broiler's environmental conditions and searching for the best uses for this valuable industry by-product. The objective of this study was to collect samples of poultry litter throughout the United States and determine the presence of bacteria in the litter. Tests were conducted for total bacteria, Gram negative bacteria, Gram positive bacteria, *Staphylococcus*, *Escherichia coli*, and coliforms. Poultry litter samples were taken from 12 different regions throughout the United States and were analyzed in one central laboratory. Statistical analysis of the data revealed a significant difference ($P < .05$) among regions for each category of bacteria sampled, excluding *E. coli*. The relationship between litter bacterial load and litter pH was also examined. No significant differences were present, but in general, higher litter pH and higher bacterial load are correlated.

Key words: Pathogens, poultry, poultry litter

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DESCRIPTION OF PROBLEM

Poultry litter is a combination of poultry waste, various bedding types, and other materials that accumulate during the broiler production process. It is useful as an alternative feed source for cattle and also as a fertilizer product. The microbiological composition of poultry litter is important for a number of reasons, including the spread of bacteria onto land and into the environment and the health and performance of broilers grown on used

[1] To whom correspondence should be addressed

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TABLE 2. Arrangement of regions within each bacteria category based on average CFU/g[A]

TOTAL BACTERIA	TOTAL GRAM NEGATIVE	TOTAL GRAM POSITIVE[B]	TOTAL STAPHYLOCOCCUS	TOTAL E. COLI	TOTAL COLIFORMS
CFU/g					
Delmarva[a]	Delmarva[a]	Arkansas[a]	Arkansas[a]	Texas[a]	Georgia[a]
Louisiana[a]	Pennsylvania[b]	Louisiana[ab]	Oklahoma[a]	Pennsylvania[a]	Louisiana[ab]
Oklahoma[a]	Texas[c]	Texas[ab]	Louisiana[ab]	Louisiana[a]	Mississippi[b]
Texas[a]	Arkansas[cd]	Oklahoma[ab]	Texas[bc]	Arkansas[a]	California[b]
California[ab]	Louisiana[cd]	California[ab]	California[cd]	Georgia[a]	Arkansas[b]
Arkansas[ab]	Kentucky[cd]	Alabama[bc]	Mississippi[cd]	Delmarva[a]	Delmarva[b]
Mississippi[abc]	California[cd]	Mississippi[bc]	Kentucky[d]	Mississippi[a]	Carolinas[b]
Alabama[bc]	Mississippi[cd]	Delmarva[c]	Alabama[d]	Kentucky[a]	Oklahoma[b]
Kentucky[bc]	Oklahoma[d]	Georgia[c]	Carolinas[d]	California[a]	Kentucky[b]
Carolinas[c]	Carolinas[d]	Pennsylvania[c]	Georgia[d]	Alabama[a]	Alabama[b]
Georgia[c]	Alabama[d]	–	Delmarva[d]	Oklahoma[a]	Texas[b]
Pennsylvania[c]	Georgia[d]	–	Pennsylvania[d]	Carolinas[a]	Pennsylvania[b]
P<.0001	P<.0001	P<.001	P<.0001	P<.05	P<.01

[A]Regions are arranged in descending order according to CFU/g.

[B]There are no Gram positive values for Kentucky or the Carolinas.

[a–d]Represents partitioning by Duncan's multiple range test. Each column or bacteria category should not be compared with other columns based on the Duncan's test. Level of significance is indicated in the bottom row of each column.

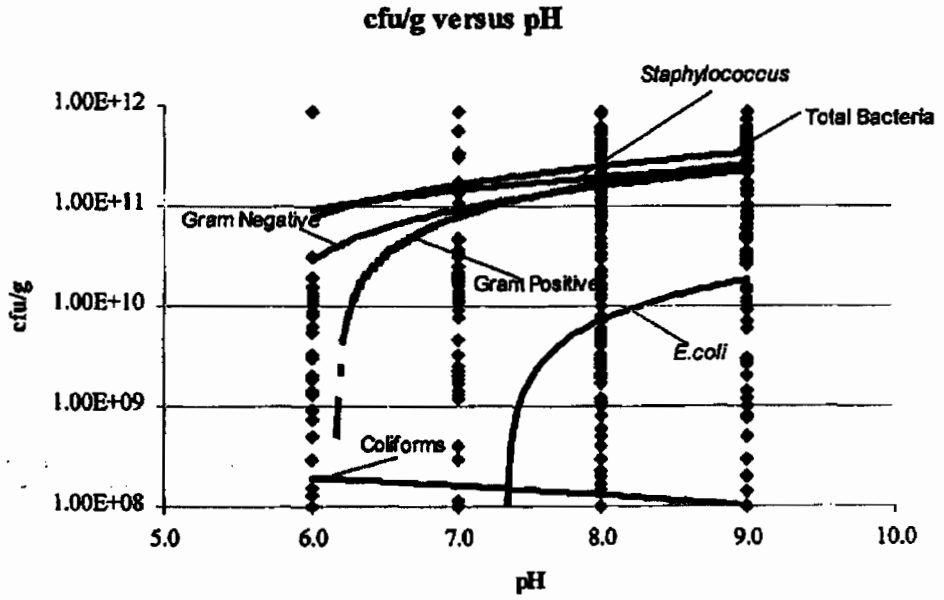

FIGURE 1. CFU/g of each bacteria category vs. pH (All bacterial levels at each pH are plotted with trend lines inserted to show the relationship between category and pH.)

Results and Discussion

The results of this trial indicate the types of bacteria found in poultry litter in the United States and the levels at which these bacteria exist. All 12 regions were combined to produce the average microbial level of each category of bacteria evaluated in the trial; these are displayed in Table 1. Lab analysis reported some values as too few to count (TFTC) and others as too numerous to count (TNTC). These values were dealt with as follows: TFTC values were assumed to be zero, and TNTC values were recorded as 10% greater than the highest counted value of 8.00×10^{11}, so that all TNTC values were equally 8.80×10^{11}. Total bacteria counts ranged from a minimum of 1.72×10^{7} to a maximum of 8.80×10^{11}. The Delmarva region (Delaware, MD, and the Virginias) was found to have the highest levels of total bacteria in litter, while Pennsylvania had the lowest levels of total bacteria. After averaging each bacteria category in all regions, *Staphylococcus* was identified most often in fresh broiler litter; this finding is consistent with a previous microbiological survey of Georgia poultry litter [1]. Conversely, coliforms were the least abundant. Additionally, the average litter pH throughout the nation was 8.0, and average percentage moisture was 25.1. pH of individual samples ranged from 6.0 in the Carolinas and Kentucky to 9.0 in California, Delmarva, Georgia, Louisiana, Mississippi, Oklahoma, Pennsylvania, and Texas. Percentage moisture ranged from 13.2 in Louisiana to 34.7 in Arkansas.

Microbial counts of each bacteria category were then compared among regions as shown in Table 2. For each category, regions are arranged in descending order according to average CFU/g. Statistical differences for each category are noted as well as results of Duncan's multiple range test. Differences among regions for each category were highly significant for all those sampled except E. coli.

The effects of pH on bacterial levels were further analyzed. Statistical significance ($P<.05$) was not observed, but trend lines are present and are displayed in Figure 1. Based upon the trend lines fitted into the scatter graph, each category, excluding coliforms, tended to increase with increasing pH. Although the lowest pH levels recorded in this trial were 6.0, other studies have found a reduction in litter bacterial load when litter pH levels decrease below 4.0 [2, 3]. A correlation analysis of the data resulted in total bacteria being the category most highly correlated to pH with Pearson's Correlation coefficient equaling 0.22 where $P<.01$. Similar statistical tests involving litter moisture were also performed, but no relationships or statistical differences were observed.

TABLE 1. Average microbial level of each bacteria category for all regions

REGION	TOTAL BACTERIA	TOTAL GRAM NEGATIVE	TOTAL GRAM POSITIVE	TOTAL STAPHYLO-COCCUS	TOTAL E. COLI	TOTAL COLIFORMS	pH	MOISTURE
	CFU/g							%
Alabama	1.28×10^{11}	1.81×10^{9}	1.16×10^{11}	7.93×10^{10}	4.16×10^{6}	5.02×10^{6}	8.0	22.7
Arkansas	3.30×10^{11}	1.38×10^{11}	3.23×10^{11}	5.51×10^{11}	3.11×10^{6}	1.12×10^{8}	7.8	30.8
California	3.39×10^{11}	6.88×10^{10}	2.25×10^{11}	1.42×10^{11}	1.68×10^{7}	1.19×10^{8}	8.3	20.0
Carolinas	2.43×10^{10}	2.72×10^{9}	no data	1.73×10^{10}	1.22×10^{5}	9.20×10^{7}	6.7	26.2
Delmarva	4.65×10^{11}	7.97×10^{11}	2.16×10^{10}	2.89×10^{9}	5.05×10^{7}	1.03×10^{8}	8.5	26.5
Georgia	2.36×10^{10}	8.44×10^{8}	1.66×10^{10}	1.72×10^{10}	5.10×10^{7}	5.90×10^{6}	8.5	26.6
Kentucky	9.94×10^{10}	8.80×10^{10}	no data	8.81×10^{10}	3.30×10^{7}	1.07×10^{7}	6.6	26.6
Louisiana	4.56×10^{11}	9.03×10^{10}	2.97×10^{11}	4.71×10^{11}	5.40×10^{6}	2.80×10^{8}	8.2	24.5
Mississippi	2.44×10^{11}	5.84×10^{10}	1.10×10^{11}	1.40×10^{11}	4.00×10^{7}	2.10×10^{8}	8.4	24.8
Oklahoma	4.54×10^{11}	7.68×10^{9}	2.29×10^{11}	5.37×10^{11}	1.69×10^{5}	3.02×10^{7}	8.2	21.3
Pennsylvania	9.32×10^{9}	4.91×10^{11}	2.52×10^{9}	2.83×10^{9}	1.99×10^{9}	no data	8.1	26.3
Texas	4.31×10^{11}	2.21×10^{11}	2.91×10^{11}	3.15×10^{11}	8.80×10^{10}	2.67×10^{6}	9.0	26.4
Average	2.54×10^{11}	1.60×10^{11}	1.66×10^{11}	1.98×10^{11}	7.51×10^{9}	1.31×10^{8}	8.0	25.1

litter. Poultry litter is a beneficial and economical by-product of the poultry industry, but it is necessary to further investigate its microbiological makeup to ensure its safety and search for its best uses. The objective of the present study was to collect samples of poultry litter throughout the United States and determine the population of total bacteria, Gram negative bacteria, Gram positive bacteria, *Staphylococcus, E. coli*, and coliforms present.

Materials and Methods

Litter collected for this study was taken from broiler houses throughout the United States. Twelve different regions, which included approximately 10 farms per region, were sampled. All houses used in this trial had a minimum of three flocks and a maximum of five flocks grown on the litter. Additionally, no litter amendment was present in any of the houses sampled. The litter collection procedure involved scraping the heel of the hand, while wearing sterile latex gloves, along the surface of the litter, gathering only the top few centimeters of the litter. Poultry litter samples were taken from five different locations within each house; sampling sites were consistent among houses. Samples were combined into one 100-g sample per house. Bacterial samples were packaged in sterile, sealed plastic bags and shipped using next-day delivery to minimize the effects of NH_4 accumulation. Bacterial analysis was performed by Delmarva Diagnostic Laboratory in Salisbury, MD. Collected litter was analyzed for total bacteria, Gram negative bacteria, Gram positive bacteria, *Staphylococcus*, *E. coli*, and coliforms. Percentage litter moisture and pH tests were also conducted and results recorded.

MICROBIAL ANALYSIS

For microbiological analysis, 20 g of each litter sample was put into a sterile 500 mL beaker and 200 mL of buffered peptone water was added. The above ingredients were mixed well, and the large particles were allowed to settle to the bottom of the beaker for ease of pipetting. Next, 180 μL of the peptone water was added into seven sterile dilution tubes per specimen. Then 20 μL of sample was added to the first dilution tube to create a 1:10 dilution. Ten μL from the first dilution tube was added to the appropriately labeled plate (total bacteria - tryptic soy agar plate; Gram negative - eosin methylene blue agar plate; Gram positive - phenyl ethyl alcohol agar plate; *Staphylococcus* - Mannitol salt agar plate; Difco, Inc., Detroit, MI) and then 20 μL of the sample from the first dilution tube was added to the following dilution tube. For *E. coli* and coliforms, from the first dilution tube 20 μL of sample was added to the following dilution tube. Next, 1000 μL was added to the labeled 3M *E. coli*/coliform plate using a clean pipette. The appropriate method for each bacteria category was continued until there were seven plates from the seven dilution tubes. Pipettes were changed between dilution tubes. All were allowed to incubate at 37°C for 24 hr. After 24 hr the number of colonies were counted. For total bacteria, Gram negative, Gram positive, and *Staphylococcus*, the number of colonies was multiplied by 100 to obtain the number of CFU/mL. Then the colonies/mL were multiplied by the dilution factor. Finally, that number (CFU/mL × dilution factor) was multiplied by the initial number of 200 mL, and this total was divided by the initial 20 g of sample. The completion of the equation yielded the number of CFU/g. For *E. coli*, the blue colonies of only the largest dilution were counted, and only those blue colonies with a gas bubble attached were counted as *E. coli*. Coliforms were determined by counting the pink colonies of the largest dilution. The number of colonies counted for each *E. coli* and coliforms were multiplied by the dilution factor, which is determined by the card dilution that was counted. Once again, that number (CFU/mL × dilution factor) was multiplied by the initial number of 200 mL, and this total was divided by the initial 20 g of sample. The completion of the equation yielded the number of CFU/g.

STATISTICAL PROCEDURE

Values are presented as actual counted CFU or as averages of the actual values. Data within the experiment were analyzed by the General Linear Model, and significant differences were partitioned by Duncan's multiple range test. Differences were considered to be significant based on the 0.05 level of probability. Regression analysis and Pearson's Correlation Coefficient were also used to compare the relationship between pH and each bacterial group.

Conclusions and Applications

1. This national survey of fresh poultry litter has provided some important information about the microbiological composition of litter from various locations.
2. Statistical differences exist between geographical regions for litter bacterial counts.
3. Counts of total bacteria, Gram-negative bacteria, Gram-positive bacteria, *Staphylococcus*, and *E. coli* tend to increase with pH.
4. The average litter pH in 12 geographical regions of the United States is 8.0.
5. The results of this trial will be beneficial in attempting to provide better environmental conditions during the broiler production process and determining the best uses of poultry litter, which is a valuable industry by-product.

References and Notes

1. Martin, S.A. and M.A. McCann, 1998. Microbiological survey of Georgia poultry litter. J. Appl. Poultry Res. 7:90–98.

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Public Health Fact Sheet

Cryptosporidiosis

Public Health Fact Sheet

What is cryptosporidiosis?
Cryptosporidiosis is a diarrheal illness caused by a protozoan (a single-celled parasite) belonging to any one of a number of *Cryptosporidium* species. Of the diseases that are spread through drinking or recreational water, cryptosporidiosis is one of the most common. The parasite is found in every region of the United States and throughout the world.

What are the symptoms of cryptosporidiosis?
The major symptom of cryptosporidiosis is diarrhea, which may be profuse and watery, often with stomach cramps and loss of appetite. Fever, fatigue, nausea, and vomiting are less common. Symptoms usually last about two weeks and may go in cycles in which a person may seem to get better for a few days, then feel worse, before the illness ends. Some people infected with *Cryptosporidium* have no symptoms of illness, but serve as a source of infection for others.

Are some people at risk for severe disease?
Although *Cryptosporidium* can infect all people, some groups are more likely to develop more serious illness. Young children and pregnant women may be susceptible to dehydration resulting from diarrhea. Persons with weakened immune systems are also at risk for serious illness. Examples of persons with weakened immune systems include those with HIV/AIDS, cancer, and transplant patients who are taking immunosuppressive drugs.

How is cryptosporidiosis spread?
Cryptosporidiosis lives in the intestinal tract of humans and animals and is passed in the feces. People can get *Cryptosporidium* by eating food, drinking water, or placing objects in their mouth that have been contaminated with feces from an infected person or animal. The most important animal source of *Cryptosporidium* in the United States is cattle. *Cryptosporidium* may spread among family members, sexual contacts, playmates, young children in child care settings, pets, and pet owners. *Cryptosporidium* may be found in soil, food, water, or on surfaces that have been contaminated with the feces from an infected human or animal. The organism can also be spread through recreational water such as swimming pools, hot tubs, fountains, lakes, rivers, springs or streams that have been contaminated with sewage or feces.

How soon after infection do symptoms occur?
The incubation period of cryptosporidiosis is not known precisely; one to 12 days is the likely range, with an average of about seven days.

How long can an infected person spread the parasite?
Cryptosporidium is excreted in the feces of a sick person at the onset of symptoms and can continue to be shed in the feces for several weeks after illness resolves. Outside the body, the parasite can remain infective for two to six months in a moist environment.

Should people sick with cryptosporidiosis stay home from work, school, or day care?
If a person is employed as a food handler, works in a day care center, or has direct contact with ill persons or the elderly, they must not work while they have diarrhea until 24 hours after diarrhea has stopped. Children with diarrhea should not attend a day care center until 24 hours after diarrhea has stopped.

What is the treatment for cryptosporidiosis?
No medications are currently recommended, but it is very important to drink plenty of fluids to prevent dehydration. Persons who are in poor health or who have a weakened immune system should consult their healthcare provider.

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What can be done to prevent a cryptosporidiosis infection?

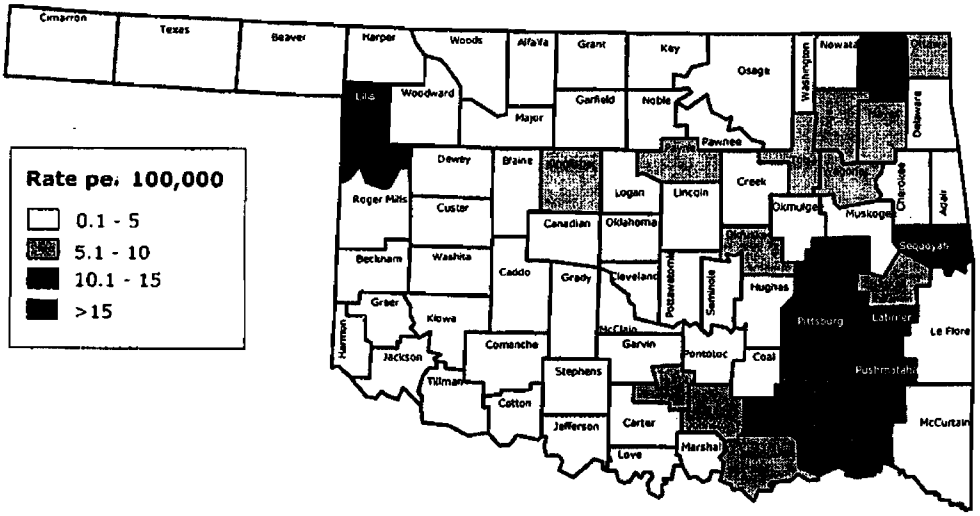
1. Wash hands thoroughly with soap and water after using the toilet and before preparing or eating food.
2. Wash hands after changing a diaper, especially if a person works with diaper-aged children.
3. Protect others by not swimming in recreational water sources if experiencing diarrhea. Persons with cryptosporidiosis should wait two weeks after diarrhea stops to resume swimming.
4. Avoid swallowing recreational water and drinking untreated water from shallow wells, lakes, rivers, ponds, and streams.
5. Avoid using ice or drinking untreated water when traveling in countries where the water supply might be unsafe.
6. Avoid food that might be contaminated by washing/peeling all raw fruits and vegetables before eating, wash all food that will be eaten raw with water that is from a safe source, and avoid eating uncooked foods when traveling in countries where the water supply might be unsafe.
7. Avoid fecal exposure during sex.
8. Cryptosporidium is extremely hardy, and resists water chlorination. In a situation where safe drinking water is not available, boiling for 20 minutes is the surest way to purify water.

Communicable Disease Division
Oklahoma State Department of Health

For further information call or visit us on the World Wide Web
Communicable Disease Division
Oklahoma State Department of Health
Phone (405) 271-4060
http://www.health.ok.gov/program/cdd/

2005 Annual Summary of Infectious Diseases

Rate of Reported Ehrlichiosis Cases by County of Residence, Oklahoma, 2005



Oklahoma State Department of Health

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2005 Annual Summary
List of Contributors

Disease & Prevention Service

Kristy Bradley, D.V.M., M.P.H.	Deputy State Epidemiologist & State Public Health Veterinarian
Brett Cauthen, M.D., M.P.H.	State Epidemiologist

Acute Disease Service

Lauri Smithee, M.S., M.E.S.	Chief

Communicable Disease Division

Laurence Burnsed, M.P.H.	Interim Director
Anthony Lee, M.P.H.	Epidemiologist
John Bos, M.P.H.	Epidemiologist
Kim Rayno, M.P.H.	Surveillance Officer
Becky Coffman, RN, M.P.H.	Epidemiologist
Renee Powell, M.P.H.	Epidemiologist
Carmen Clarke, M.P.H.	Epidemiologist
Jolianne Stone, M.P.H.	Epidemiologist
Sara Russell, M.S.N., M.P.H., RN	Epidemic Intelligence Service Officer
Kim Mitchell, B.S.	HAN Coordinator
Julie Wood, M.P.H	Communications Officer

Tuberculosis Division

Theresa Crisp, M.P.H.	Director
Jon Tillinghast, M.D., M.P.H.	Tuberculosis Control Officer
Catherine Diffin, RN	Tuberculosis Nurse Consultant

HIV / STD Service

Mark Turner, M.P.H.	Manager, HIV/STD Surveillance & Analysis
Sam Nimo, M.P.H.	Epidemiologist
Jan Fox, M.P.H., RN	Viral Hepatitis & STD Care Services Manager
Christie McDonald, M.P.H.	Incidence Surveillance Coordinator
Terrainia Harris, M.P.H.	HIV Incidence Data Manager and Laboratory Liaison

Public Health Laboratory

John Mathewson, M.S., PhD	Chief

Oklahoma State Department of Health
Creating a State of Health

August 7, 2006

Dear Colleague:

We are pleased to send you a copy of the Oklahoma Disease Reporting Summary for 2005. The information contained in this summary consolidates surveillance and reports of disease in Oklahoma for 2005. Specifically it contains: 1) information on infectious disease reports at the state and county level, 2) disease specific data by category, and 3) additional information on special surveillance projects and outbreak reports in Oklahoma.

This annual summary was developed for use by health care professionals in Oklahoma. It is my hope that the data in this summary will be helpful to you in your practice. It is part of our continuing efforts to return useful information to you from the data you have reported to us. Use of this summary should give you a better idea of the incidence of reportable infectious diseases in your community, how your county compared to the state, and how Oklahoma compares to the nation.

Sincerely,

James M. Crutcher, M.D., M.P.H.
Commissioner of Health and
State Health Officer

Commissioner of Health
and State Health Officer
James M Crutcher, MD, MPH
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Ron L Graves, DDS

1000 NE 10th Street
Oklahoma City, OK 73117-1299
www.health.ok.gov

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Abbreviations

ACIP	Advisory Committee on Immunization Practices
AIDS	Acquired Immunodeficiency Syndrome
CDC	Centers for Disease Control and Prevention
CDD	Communicable Disease Division
CDN	Communicable Disease Nurse
FDA	Food and Drug Administration
HIV	Human Immunodeficiency Virus
HPV	Human papillomavirus
MSM	Men who have sex with men
OCCHD	Oklahoma City-County Health Department
OSDH	Oklahoma State Department of Health
PCR	Polymerase Chain Reaction
PEP	Post Exposure Prophylaxis
PFGE	Pulsed Field Gel Electrophoresis
PHL	Public Health Laboratory
STD	Sexually Transmitted Diseases
U.S.	United States

TITLE 310. OKLAHOMA STATE DEPARTMENT OF HEALTH
CHAPTER 515. COMMUNICABLE DISEASE AND INJURY REPORTING
EFFECTIVE 7/11/03

310:515-1-1. Purpose

The rules in this Chapter implement the Communicable Diseases Reporting Regulations, 63 O.S. 1981, § 1-503.

310:515-1-2. Diseases to be reported

The diseases listed in this Chapter must be reported, along with patient identifiers, demographics, and contact information, to the Oklahoma State Department of Health upon discovery as dictated in sections OAC 310:515-1-3 and OAC 310:515-1-4. Ancillary laboratory test results, signs, and symptoms must be reported upon request.

310:515-1-3. Diseases to be reported immediately

The following diseases must be reported by any health practitioner or laboratory personnel to the Oklahoma State Department of Health by telephone (405-271-4060 or 800-234-5963) or fax (405-271-6680 or 800-898-6734) immediately upon suspicion, diagnosis, or testing. It is acceptable to report by telephone at anytime, including after hours, weekends, and holidays. It is also acceptable to report by fax during regular office hours (8am through 5pm, Monday through Friday, excluding holidays).

(1) Anthrax (*Bacillus anthracis*).
(2) Bioterrorism – suspected disease.
(3) Botulism (*Clostridium botulinum*).
(4) Brucellosis (*Brucella* spp.).
(5) Diphtheria (*Corynebacterium diphtheriae*).
(6) *Haemophilus influenzae* invasive disease.
(7) Hepatitis A (Anti-HAV-IgM +).
(8) Measles (Rubeola).
(9) Meningococcal invasive disease (*Neisseria meningitidis*).
(10) Outbreaks of apparent infectious disease. An outbreak of an apparent infectiousdisease is a cluster of cases from different households of potentially infectious disease of known or unknown etiology. The cases would have a similar clinical syndrome but laboratory testing would be pending or inconclusive. Examples of such outbreaks include but are not limited to a cluster of cases of gastrointestinal illness, respiratory illness, or rash illness of unknown etiology.
(11) Plague (*Yersinia pestis*).
(12) Poliomyelitis.
(13) Rabies.
(14) Smallpox.
(15) Tularemia (*Francisella tularensis*).
(16) Typhoid fever (*Salmonella typhi*).

(17) Viral hemorrhagic fever.

310:515-1-4. Additional diseases, conditions, and injuries to be reported

The following diseases, conditions and injuries must be reported by physicians, laboratories, and hospitals (by infection control ractitioners, medical records personnel, and other designees) to the Oklahoma State Department of Health as dictated in the following subsections:

(1) Infectious diseases. Reports of infectious diseases and conditions listed in this subsection must be telephoned, faxed, or mailed to the Oklahoma State Department of Health (OSDH) within one (1) business day of diagnosis or positive test as specified in the OSDH Disease Reporting Manual.

(A) Acid Fast Bacillus (AFB) positive smear.
(B) AIDS (Acquired Immunodeficiency Syndrome).
(C) Arboviral infections.
(D) Campylobacteriosis (*Campylobacter* spp.).
(E) Congenital rubella syndrome.
(F) Cryptosporidiosis (*Cryptosporidium parvum*).
(G) Cyclosporiasis (*Cyclospora cayetanensis*).
(H) Dengue Fever.
(I) *E. coli O157,E. coli O157:H7,* or a shiga-like toxin producing *E.coli* (EHEC infections).
(J) Ehrlichiosis (*Ehrlichia* spp.).
(K) Encephalitis.
(L) Giardiasis (*Giardia lamblia*).
(M) Hantavirus pulmonary syndrome.
(N) Hemolytic Uremic syndrome, postdiarrheal.
(O) Hepatitis B (acute or chronic, HBsAg+ and/or anti-HBc-IgM+).
(P) Hepatitis C (confirmed by RIBA or PCR only).
(Q) Hepatitis, acute unspecified.
(R) Human Immunodeficiency Virus (HIV) infection.
(S) Legionellosis (*Legionella pneumophila*).
(T) Leprosy (Hansen's Disease).
(U) Leptospirosis (*Leptospira interrogans).*
(V) Listeriosis (*Listeria monocytogenes*).
(W) Lyme disease (*Borrelia* spp.).
(X) Malaria (*Plasmodium* spp.).
(Y) Mumps.
(Z) Pertussis (*Bordetella pertussis*).
(AA) Psittacosis (*Chlamydia psittaci*).
(BB) Rocky Mountain Spotted Fever (*Rickettsia rickettsii*).
(CC) Rubella.
(DD) Salmonellosis (*Salmonella* spp.).
(EE) Shigellosis (*Shigella* spp.).
(FF) *Streptococcus*, group A invasive disease.
(GG) *Streptococcus pneumoniae*, invasive disease.
(HH) Syphilis (*Treponema pallidum*).

(II) Tetanus (*Clostridium tetani*).
(JJ) Trichinosis (*Trichinella spiralis*).
(KK) Tuberculosis (*Mycobacterium tuberculosis*).
(LL) Unusual disease or syndrome. An unusual disease or syndrome is a case of a rare, possibly infectious disease of known or unknown etiology. Laboratory testing may be pending or inconclusive. Examples of such unusual syndromes or atypical disease presentations include but are not limited to: unexplained adult respiratory distress syndrome, hemorrhagic fever, vesicular rash illness, or an illness associated with an unusual pattern of illness or death among animals.
(MM) *Vibrio* spp. infections including cholera.
(NN) Yellow Fever.

(2) **Infectious diseases.** Reports of infectious diseases and conditions listed in this subsection must be mailed to the Oklahoma State Department of Health (OSDH) within one (1) month of diagnosis or positive test as specified in the OSDH Disease Reporting Manual.
(A) CD4 Cell Count < 500 (by laboratories only).
(B) Chlamydia infections (*Chlamydia trachomatis*).
(C) Cruetzfeldt-Jakob disease.
(D) Gonorrhea (*Neisseria gonorrheae*).
(E) Pelvic Inflammatory Disease (PID).

(3) **Occupational or Environmental diseases.**
(A) Blood Lead Levels. Laboratories must report results greater than 10 ug/dL within one (1) week and results less than 10 ug/dL within one (1) month. Health care providers must report results 20 ug/dL or greater within twentyfour (24) hours and results 10-19 ug/dL within one (1) week.

(4) **Injuries (hospitalized and fatal cases only).**
(A) Burns.
(B) Drownings and Near Drownings.
(C) Traumatic Brain Injuries.
(D) Traumatic Spinal Cord Injuries.

310:515-1-6. Additional diseases may be designated
The Commissioner of Health may designate any disease or condition as reportable for a designated period of time for the purpose of special investigation.

310:515-1-7. Control of Communicable Diseases Manual
The Oklahoma State Department of Health has adopted the publication "Control of Communicable Diseases Manual", published by the American Public Health Association, Seventeenth Edition, as a guideline for communicable diseases.

310:515-1-8. Organisms/specimens to be sent to the Public Health Laboratory

(a) Isolates or appropriate specimens of the following organisms shall be sent to the Oklahoma State Department of Health Public Health Laboratory for typing.

(1) *Bacillus anthracis.*
(2) *Brucella* spp.
(3) *Campylobacter* spp.
(4) *E.coli O157, O157:H7*, or a shiga-like toxin producing *E. coli* (EHEC).
(5) *Francisella tularensis.*
(6) *Haemophilus influenzae* (sterile site).
(7) *Listeria monocytogenes* (sterile site).
(8) *Mycobacterium tuberculosis.*
(9) *Neisseria meningitidis* (sterile site).
(10) *Plasmodium* spp.
(11) *Salmonella* spp.
(12) *Shigella* spp.
(13) *Vibrio* spp.
(14) *Yersinia* spp.

(b) Following consultation with an Oklahoma State Department of Health epidemiologist, clinical specimens from suspected cases of Botulism must be sent to the Oklahoma State Department of Health Public Health Laboratory for testing.

Oklahoma State Department of Health
Contact Information

Communicable Disease Division
1000 NE 10th St.
Mail Drop 0305
Oklahoma City, OK 73117-1299
Phone Number: (405) 271-4060 — Epidemiologist on call 24 hours per day
Fax Number*: (405) 271-6680
Fax Number*: (800) 898-6734

HIV / STD Service
1000 NE 10th St.
Mail Drop 0308
Oklahoma City, OK 73117-1299
Phone Number: (405) 271-4636
Fax Number*: (405) 271-5149

Public Health Laboratory
1000 NE 10th St.
Oklahoma City, OK 73117-1299
Phone Number: (405) 271-5070
Fax Number*: (405) 271-4850

Tuberculosis Division
1000 NE 10th St.
Oklahoma City, OK 73117-1299
Phone Number: (800) 898-6734
Fax Number*: (405) 271-6680

Mailing Isolates and Samples for Testing
Public Health Laboratory
P.O. Box 24106
OKC, OK 73124-0106

For instructions on sending isolates or clinical specimens to the OSDH PHL, contact PHL personnel between 8:00 a.m. - 4:30 p.m., Monday through Friday.

*** All FAX machines are located in locked offices and are monitored to ensure the confidentiality of disease report.**

Number of Reported Cases of Communicable Diseases, Oklahoma, 1991 – 2005

Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Anthrax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Botulism (Infant)	1	1	0	0	0	0	0	0	1	0	1	0	0	0	1
Botulism (Foodborne)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Brucellosis	2	1	0	0	1	1	0	0	0	1	0	1	0	0	1
Campylobacteriosis	205	267	199	187	289	281	247	241	320	361	308	362	417	591	544
Chlamydia	5714	5220	4886	3784	5050	7371	7566	9378	8737	9346	10622	10732	10983	10371	12957
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Congenital rubella syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Creutzfeldt-Jakob disease	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
Cryptosporidiosis	8	0	1	1	12	10	12	7	14	30	16	16	24	22	46
Dengue Fever	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
E. coli O157:H7 or other EHEC	0	5	8	* 13	16	14	13	26	41	19	36	25	30	29	38
Ehrlichiosis	3	8	0	0	0	0	0	2	1	12	24	13	36	49	96
GAS Invasive	0	0	0	0	0	8	3	1	12	28	49	56	99	73	132
Giardiasis	211	188	262	252	206	159	152	148	152	96	0	85	145	166	197
Gonorrhea	6546	6432	4855	4935	5652	4897	4840	4225	4291	5236	4818	4624	4543	4543	5031
H. influenzae, Inv. Disease (Total)	41	20	45	44	33	31	33	35	47	46	48	53	52	67	74
H. influenzae, Inv. Disease, <5yrs. Type B	33	3	1	4	3	0	1	1	0	0	0	0	0	0	0
Hantavirus	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0
Hepatitis A	273	217	206	395	1497	2516	1441	667	534	271	116	52	29	19	6
Hepatitis B	198	174	193	129	176	60	63	169	185	179	115	111	73	80	59
Hepatitis C	0	0	0	0	1	8	10	23	13	13	6	21	6	7	14
Hemolytic Uremic Syndrome	0	0	0	0	0	0	0	0	1	2	4	3	4	2	5
Legionellosis	24	8	0	0	8	16	3	18	7	5	7	5	10	24	10
Leptospirosis	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Listeriosis	6	8	12	11	11	5	9	19	12	8	2	9	3	4	4
Lyme Disease	* 23	25	20	111	57	34	45	12	8	1	0	0	0	3	0
Malaria	9	5	5	9	1	3	9	4	2	10	5	12	4	10	12
Measles (Rubeola)	0	12	0	0	0	0	1	0	0	0	0	0	0	0	0
Meningococcal Inf. (*N. meningitidis*)	16	17	0	0	49	46	45	44	40	34	32	25	25	10	18
Mumps	15	20	11	13	1	4	3	4	5	3	0	3	2	1	2
Pertussis	48	53	60	19	47	20	60	36	40	60	43	135	106	120	127

Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Plague	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Primary Amebic Meningoencephalitis	4	6	7	0	0	0	0	2	0	0	1	0	0	0	2
Psittacosis											0	0	0	0	0
Rabies (Animal)	173	219	65	40	32	38	113	107	94	58	60	126	204	113	79
Rocky Mountain Spotted Fever	95	109	46	36	48	45	30	39	29	37	69	99	138	190	206
Rubella	2	0	1	4	0	0	0	0	1	0	0	0	0	0	0
Salmonellosis	481	368	320	444	471	520	392	501	468	405	503	524	494	425	448
Shigellosis	192	252	472	200	266	305	293	712	560	131	148	717	1078	724	937
S. pneumo Invasive	100	90	126	164	131	101	80	73	110	118	324	452	443	460	699
S. pneumo Invasive, <5yrs.	28	11	20	54	22	6	10	13	21	16	32	47	76	52	46
Syphilis (Total Early)	596	709	636	399	489	398	275	264	347	245	185	183	141	88	73
Tetanus	0	1	1	1	0	1	2	1	0	0	1	0	0	0	0
Tuberculosis	206	216	209	261	237	201	211	198	208	154	194	190	163	178	144
Tularemia	12	10	16	4	7	4	5	5	7	11	7	10	9	19	20
Typhoid Fever	3	0	1	3	1	0	3	1	0	1	1	2	1	1	1
Vibrio parahaemolyticus	0	0	0	0	0	1	0	8	0	0	0	0	0	0	1
Vibrio spp	0	0	0	0	1	0	0	0	1	1	0	1	0	0	3
Vibrio vulnificus	0	0	0	0	2	0	0	1	0	0	0	1	1	1	1
Yellow Fever	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* First year disease was reportable by law

Incidence Rate per 100,000 Oklahoma Population^ of Reported Communicable Diseases, Oklahoma, 1991 – 2005

Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Anthrax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Botulism (Infant)	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00
Botulism (Foodborne)	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brucellosis	0.06	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00
Campylobacteriosis	6.50	8.50	6.30	5.94	9.19	8.93	7.85	7.70	10.20	10.50	8.90	10.49	12.08	17.1	15.77
Chlamydia	181.65	165.95	155.33	120.30	160.54	234.33	240.53	298.13	277.75	270.85	307.83	311.01	318.29	300.6	375.5
Cholera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Congenital rubella syndrome	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Creutzfeldt-Jakob disease	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Cryptosporidiosis	0.30	0.00	0.03	0.03	0.38	0.32	0.38	0.22	0.45	0.87	0.46	0.46	0.70	0.64	1.33
Dengue Fever	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
E. coli O157:H7 or other EHEC	0.00	0.16	0.30	*0.40	0.51	0.45	0.41	0.83	1.30	0.55	1.04	0.72	0.87	0.80	1.1
Ehrlichiosis	0.10	0.25	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.35	0.00	0.00	0.00	0.00	2.72
GAS Invasive	0.00	0.00	0.00	0.00	0.00	0.25	0.10	0.00	0.40	0.81	1.42	1.62	2.87	2.10	3.80
Giardiasis	6.70	6.00	8.30	8.00	6.50	5.10	4.80	4.70	4.80	2.80	0.00	2.50	4.20	4.80	5.70
Gonorrhea	208.10	204.48	154.34	156.89	179.68	155.68	153.87	134.32	136.41	151.74	139.63	134.00	131.66	131.7	145.8
H. influenzae, Inv. Disease	1.30	0.64	1.43	1.40	1.05	0.99	1.05	1.11	1.49	1.33	1.39	1.54	1.51	1.94	2.1
H. influenzae, Inv. Disease, <5yrs. Type B	1.00	0.10	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hantavirus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hepatitis A	8.70	6.90	6.50	12.60	47.60	80.00	45.81	21.20	17.00	7.90	3.36	1.51	0.80	0.55	0.17
Hepatitis B	6.30	5.50	6.10	4.10	5.60	1.90	2.00	5.37	5.88	5.20	3.33	3.20	2.10	2.32	1.17
Hepatitis C	0.00	0.00	0.00	0.00	0.00	0.25	0.32	0.70	0.41	0.38	0.17	0.61	0.20	0.20	0.41
Hemolytic Uremic Syndrome	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10
Legionellosis	0.76	0.30	0.00	0.00	0.25	0.50	0.10	0.60	0.22	0.14	0.20	0.14	0.29	0.7	0.30
Leptospirosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00
Listeriosis	0.20	0.30	0.38	0.35	0.35	0.16	0.29	0.60	0.38	0.23	0.06	0.26	0.09	0.12	0.10
Lyme Disease	*0.70	0.80	0.60	3.50	1.80	1.10	1.43	0.40	0.25	0.03	0.00	0.00	0.00	0.09	0.00
Malaria	0.30	0.16	0.16	0.29	0.03	0.10	0.30	0.13	0.06	0.29	0.14	0.32	0.14	0.29	0.30
Measles (Rubeola)	0.00	0.38	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Meningococcal Inf. (*N. meningitidis*)	0.50	0.50	0.00	0.00	1.56	1.46	1.43	1.40	1.27	0.99	0.93	0.72	0.70	0.29	0.52
Mumps	0.50	0.60	0.30	0.40	0.03	0.12	0.09	0.12	0.14	0.09	0.00	0.09	0.06	0.03	0.10

Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Pertussis	1.50	1.70	1.90	0.60	1.50	0.60	1.90	1.10	1.30	1.70	1.25	3.91	3.07	3.48	3.68
Plague	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary Amebic Meningoencephalitis	0.10	0.20	0.20	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Psittacosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rabies Animal	5.50	7.00	2.10	1.30	1.00	1.20	3.60	3.40	3.00	1.70	1.70	3.70	5.90	3.30	2.30
Rocky Mountain Spotted Fever	3.00	3.50	1.50	1.10	1.50	1.43	1.00	1.20	0.92	1.10	2.00	2.87	4.00	5.51	5.97
Rubella	0.06	0.00	0.03	0.13	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Salmonellosis	15.29	11.70	10.20	14.10	14.97	16.53	12.46	15.93	14.90	11.74	14.58	15.19	14.32	12.3	12.98
Shigellosis	6.10	8.00	15.00	6.40	8.50	9.70	9.31	22.63	17.80	3.80	4.29	20.78	31.24	20.98	27.15
S. pneumo Invasive	3.18	2.86	4.01	5.21	4.16	3.21	2.54	2.32	3.50	3.42	9.40	13.10	12.80	13.30	15.70
S. pneumo Invasive, <5yrs.	0.90	0.30	0.60	1.70	0.70	0.20	0.30	0.40	0.70	0.50	0.90	1.40	2.20	1.50	1.30
Syphilis (Total Early)	18.95	22.54	20.22	12.68	15.55	12.65	8.74	8.39	11.03	7.10	5.36	5.30	4.09	2.60	3.50
Tetanus	0.00	0.03	0.03	0.03	0.00	0.03	0.06	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00
Tuberculosis	6.55	6.87	6.64	8.30	7.53	6.39	6.71	6.29	6.61	4.46	5.62	5.51	4.72	5.2	4.17
Tularemia	0.40	0.30	0.51	0.10	0.20	0.10	0.20	0.16	0.22	0.32	0.20	0.29	0.26	0.60	0.58
Typhoid Fever	0.10	0.00	0.03	0.10	0.03	0.00	0.10	0.03	0.00	0.03	0.03	0.06	0.03	0.03	0.00
Vibrio parahaemolyticus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vibrio spp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vibrio vulnificus	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
Yellow Fever	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* First year disease was reportable by law

^ Oklahoma population numbers are from the U.S. Census Bureau, 1990 and 2000 Census Data available at http://www.census.gov/

Reportable Diseases by County, Oklahoma, 2005

	Campylobacteriosis		Cryptosporidiosis		*E. coli* O157:H7 and other EHEC	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Adair	10	47.53	0	0.00	1	4.75
Alfalfa	3	49.14	0	0.00	0	0.00
Atoka	1	7.21	0	0.00	0	0.00
Beaver	2	34.15	0	0.00	0	0.00
Beckham	3	15.15	0	0.00	1	5.05
Blaine	4	33.40	0	0.00	1	8.35
Bryan	1	2.74	0	0.00	1	2.74
Caddo	4	13.27	0	0.00	0	0.00
Canadian	15	17.10	0	0.00	0	0.00
Carter	18	39.46	1	2.19	0	0.00
Cherokee	6	14.11	0	0.00	0	0.00
Choctaw	0	0.00	0	0.00	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	22	10.58	2	0.96	0	0.00
Coal	1	16.58	0	0.00	0	0.00
Comanche	19	16.52	0	0.00	3	2.61
Cotton	1	15.12	0	0.00	0	0.00
Craig	0	0.00	0	0.00	0	0.00
Creek	12	17.81	0	0.00	1	1.48
Custer	3	11.48	0	0.00	0	0.00
Delaware	2	5.39	0	0.00	0	0.00
Dewey	0	0.00	0	0.00	0	0.00
Ellis	0	0.00	0	0.00	0	0.00
Garfield	7	12.11	0	0.00	0	0.00
Garvin	4	14.70	0	0.00	0	0.00
Grady	3	6.59	0	0.00	0	0.00
Grant	0	0.00	0	0.00	0	0.00
Greer	0	0.00	0	0.00	0	0.00
Harmon	0	0.00	0	0.00	0	0.00
Harper	2	56.15	0	0.00	0	0.00
Haskell	0	0.00	0	0.00	0	0.00
Hughes	4	28.26	0	0.00	0	0.00
Jackson	8	28.13	0	0.00	0	0.00
Jefferson	3	44.00	1	14.67	0	0.00
Johnston	0	0.00	0	0.00	0	0.00
Kay	12	24.96	0	0.00	0	0.00
Kingfisher	2	14.36	0	0.00	0	0.00
Kiowa	3	29.33	0	0.00	0	0.00
Latimer	3	28.06	0	0.00	0	0.00
LeFlore	12	24.94	0	0.00	0	0.00

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Campylobacteriosis		Cryptosporidiosis		*E. coli* O157:H7 and other EHEC	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	10	31.17	0	0.00	0	0.00
Logan	4	11.79	0	0.00	0	0.00
Love	4	45.29	0	0.00	0	0.00
McClain	8	28.84	0	0.00	1	3.60
McCurtain	2	5.81	0	0.00	0	0.00
McIntosh	3	15.42	1	5.14	0	0.00
Major	0	0.00	0	0.00	0	0.00
Marshall	3	22.75	0	0.00	0	0.00
Mayes	10	26.06	0	0.00	0	0.00
Murray	5	39.61	0	0.00	0	0.00
Muskogee	20	28.80	7	10.08	2	2.88
Noble	1	8.76	0	0.00	0	0.00
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	1	8.46	0	0.00	0	0.00
Oklahoma	131	19.84	12	1.82	4	0.61
Okmulgee	5	12.60	0	0.00	0	0.00
Osage	2	4.50	0	0.00	0	0.00
Ottawa	3	9.04	1	3.01	1	3.01
Pawnee	8	48.16	0	0.00	0	0.00
Payne	6	8.80	1	1.47	1	1.47
Pittsburg	10	22.75	0	0.00	6	13.65
Pontotoc	10	28.46	0	0.00	1	2.85
Pottawatomie	13	19.84	0	0.00	0	0.00
Pushmataha	0	0.00	0	0.00	0	0.00
Roger Mills	1	29.10	0	0.00	0	0.00
Rogers	10	14.16	0	0.00	4	5.66
Seminole	4	16.07	0	0.00	0	0.00
Sequoyah	1	2.57	0	0.00	1	2.57
Stephens	8	18.53	15	34.74	2	4.63
Texas	2	9.95	0	0.00	0	0.00
Tillman	9	96.91	0	0.00	0	0.00
Tulsa	53	9.41	3	0.53	3	0.53
Wagoner	1	1.74	2	3.48	0	0.00
Washington	1	2.04	0	0.00	1	2.04
Washita	1	8.69	0	0.00	0	0.00
Woods	0	0.00	0	0.00	0	0.00
Woodward	4	21.64	0	0.00	0	0.00
State of Oklahoma	**544**	**15.77**	**46**	**1.33**	**35**	**1.01**

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Ehrlichiosis		Giardiasis		*Haemophilus influenzae*, invasive	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Adair	0	0.00	1	4.75	0	0.00
Alfalfa	0	0.00	0	0.00	0	0.00
Atoka	2	14.41	0	0.00	0	0.00
Beaver	0	0.00	0	0.00	0	0.00
Beckham	0	0.00	0	0.00	0	0.00
Blaine	0	0.00	0	0.00	0	0.00
Bryan	2	5.47	0	0.00	0	0.00
Caddo	0	0.00	4	13.27	1	3.32
Canadian	1	1.14	5	5.70	1	1.14
Carter	1	2.19	0	0.00	1	2.19
Cherokee	1	2.35	2	4.70	1	2.35
Choctaw	2	13.04	0	0.00	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	0	0.00	21	10.10	4	1.92
Coal	0	0.00	0	0.00	0	0.00
Comanche	2	1.74	5	4.35	3	2.61
Cotton	0	0.00	0	0.00	0	0.00
Craig	2	13.38	0	0.00	0	0.00
Creek	3	4.45	1	1.48	2	2.97
Custer	0	0.00	2	7.65	0	0.00
Delaware	0	0.00	0	0.00	0	0.00
Dewey	0	0.00	0	0.00	0	0.00
Ellis	1	24.54	0	0.00	0	0.00
Garfield	0	0.00	14	24.22	6	10.38
Garvin	0	0.00	1	3.68	0	0.00
Grady	0	0.00	3	6.59	3	6.59
Grant	0	0.00	0	0.00	0	0.00
Greer	0	0.00	1	16.50	0	0.00
Harmon	0	0.00	1	30.46	0	0.00
Harper	0	0.00	0	0.00	0	0.00
Haskell	1	8.48	0	0.00	0	0.00
Hughes	0	0.00	1	7.07	0	0.00
Jackson	0	0.00	1	3.52	0	0.00
Jefferson	0	0.00	1	14.67	0	0.00
Johnston	1	9.51	0	0.00	0	0.00
Kay	1	2.08	0	0.00	1	2.08
Kingfisher	1	7.18	0	0.00	0	0.00
Kiowa	0	0.00	1	9.78	1	9.78
Latimer	1	9.35	0	0.00	0	0.00
LeFlore	2	4.16	8	16.63	1	2.08

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Ehrlichiosis		Giardiasis		*Haemophilus influenzae*, invasive	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	0	0.00	1	3.12	1	3.12
Logan	1	2.95	2	5.90	0	0.00
Love	0	0.00	0	0.00	1	11.32
McClain	0	0.00	3	10.81	0	0.00
McCurtain	1	2.91	1	2.91	0	0.00
McIntosh	2	10.28	0	0.00	0	0.00
Major	0	0.00	2	26.51	0	0.00
Marshall	0	0.00	1	7.58	0	0.00
Mayes	2	5.21	1	2.61	1	2.61
Murray	1	7.92	0	0.00	0	0.00
Muskogee	2	2.88	12	17.28	2	2.88
Noble	0	0.00	0	0.00	0	0.00
Nowata	0	0.00	2	18.92	0	0.00
Okfuskee	1	8.46	0	0.00	0	0.00
Oklahoma	6	0.91	31	4.69	24	3.63
Okmulgee	1	2.52	0	0.00	1	2.52
Osage	1	2.25	0	0.00	0	0.00
Ottawa	2	6.03	7	21.09	1	3.01
Pawnee	0	0.00	3	18.06	1	6.02
Payne	4	5.87	1	1.47	0	0.00
Pittsburg	8	18.20	1	2.28	1	2.28
Pontotoc	0	0.00	2	5.69	0	0.00
Pottawatomie	1	1.53	1	1.53	0	0.00
Pushmataha	2	17.14	2	17.14	0	0.00
Roger Mills	0	0.00	0	0.00	0	0.00
Rogers	4	5.66	9	12.74	2	2.83
Seminole	1	4.02	2	8.03	0	0.00
Sequoyah	6	15.40	0	0.00	0	0.00
Stephens	0	0.00	3	6.95	1	2.32
Texas	0	0.00	0	0.00	0	0.00
Tillman	0	0.00	0	0.00	0	0.00
Tulsa	22	3.91	34	6.04	10	1.78
Wagoner	2	3.48	1	1.74	1	1.74
Washington	0	0.00	1	2.04	0	0.00
Washita	0	0.00	1	8.69	1	8.69
Woods	0	0.00	0	0.00	0	0.00
Woodward	0	0.00	0	0.00	1	5.41
State of Oklahoma	**94**	**2.72**	**197**	**5.71**	**74**	**2.14**

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Hepatitis A		Hepatitis B		Meningococcal invasive disease	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	0	0.00	0	0.00	0	0.00
Alfalfa	0	0.00	0	0.00	0	0.00
Atoka	0	0.00	1	7.21	0	0.00
Beaver	0	0.00	0	0.00	0	0.00
Beckham	0	0.00	0	0.00	0	0.00
Blaine	0	0.00	0	0.00	0	0.00
Bryan	0	0.00	0	0.00	0	0.00
Caddo	0	0.00	0	0.00	0	0.00
Canadian	0	0.00	0	0.00	0	0.00
Carter	0	0.00	0	0.00	0	0.00
Cherokee	0	0.00	0	0.00	0	0.00
Choctaw	0	0.00	0	0.00	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	0	0.00	2	0.96	0	0.00
Coal	0	0.00	1	16.58	0	0.00
Comanche	1	0.87	1	0.87	0	0.00
Cotton	0	0.00	0	0.00	0	0.00
Craig	0	0.00	1	6.69	0	0.00
Creek	1	1.48	0	0.00	1	1.48
Custer	0	0.00	1	3.83	0	0.00
Delaware	0	0.00	0	0.00	0	0.00
Dewey	0	0.00	0	0.00	0	0.00
Ellis	0	0.00	0	0.00	0	0.00
Garfield	0	0.00	2	3.46	0	0.00
Garvin	0	0.00	0	0.00	0	0.00
Grady	0	0.00	2	4.39	2	4.39
Grant	0	0.00	0	0.00	0	0.00
Greer	0	0.00	0	0.00	0	0.00
Harmon	0	0.00	0	0.00	0	0.00
Harper	0	0.00	0	0.00	0	0.00
Haskell	0	0.00	1	8.48	0	0.00
Hughes	0	0.00	0	0.00	0	0.00
Jackson	0	0.00	0	0.00	0	0.00
Jefferson	0	0.00	0	0.00	0	0.00
Johnston	0	0.00	0	0.00	0	0.00
Kay	0	0.00	0	0.00	1	2.08
Kingfisher	0	0.00	0	0.00	1	7.18
Kiowa	0	0.00	0	0.00	0	0.00
Latimer	0	0.00	0	0.00	0	0.00
LeFlore	0	0.00	2	4.16	0	0.00

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Hepatitis A		Hepatitis B		Meningococcal invasive disease	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	0	0.00	0	0.00	0	0.00
Logan	0	0.00	1	2.95	0	0.00
Love	0	0.00	0	0.00	0	0.00
McClain	0	0.00	0	0.00	0	0.00
McCurtain	0	0.00	0	0.00	0	0.00
McIntosh	0	0.00	0	0.00	0	0.00
Major	0	0.00	0	0.00	0	0.00
Marshall	0	0.00	0	0.00	0	0.00
Mayes	0	0.00	0	0.00	0	0.00
Murray	0	0.00	2	15.84	0	0.00
Muskogee	0	0.00	7	10.08	0	0.00
Noble	0	0.00	0	0.00	0	0.00
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	0	0.00	0	0.00	0	0.00
Oklahoma	2	0.30	7	1.06	4	0.61
Okmulgee	0	0.00	1	2.52	0	0.00
Osage	0	0.00	0	0.00	0	0.00
Ottawa	0	0.00	0	0.00	0	0.00
Pawnee	0	0.00	0	0.00	0	0.00
Payne	0	0.00	4	5.87	0	0.00
Pittsburg	0	0.00	5	11.38	1	2.28
Pontotoc	0	0.00	0	0.00	0	0.00
Pottawatomie	0	0.00	3	4.58	0	0.00
Pushmataha	0	0.00	0	0.00	0	0.00
Roger Mills	0	0.00	0	0.00	0	0.00
Rogers	0	0.00	1	1.42	1	1.42
Seminole	0	0.00	1	4.02	0	0.00
Sequoyah	0	0.00	2	5.13	0	0.00
Stephens	0	0.00	1	2.32	1	2.32
Texas	0	0.00	0	0.00	0	0.00
Tillman	0	0.00	0	0.00	0	0.00
Tulsa	1	0.18	12	2.13	4	0.71
Wagoner	1	1.74	3	5.22	0	0.00
Washington	0	0.00	0	0.00	0	0.00
Washita	0	0.00	0	0.00	0	0.00
Woods	0	0.00	0	0.00	0	0.00
Woodward	0	0.00	0	0.00	2	10.82
State of Oklahoma	**6**	**0.17**	**59**	**1.71**	**18**	**0.52**

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Pertussis		Rocky Mountain Spotted Fever		Salmonellosis	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	0	0.00	7	33.27	9	42.78
Alfalfa	3	49.14	0	0.00	2	32.76
Atoka	1	7.21	3	21.62	1	7.21
Beaver	0	0.00	0	0.00	0	0.00
Beckham	0	0.00	0	0.00	6	30.30
Blaine	0	0.00	1	8.35	1	8.35
Bryan	2	5.47	2	5.47	2	5.47
Caddo	3	9.95	0	0.00	3	9.95
Canadian	6	6.84	3	3.42	14	15.96
Carter	6	13.15	5	10.96	3	6.58
Cherokee	5	11.76	13	30.57	2	4.70
Choctaw	3	19.55	0	0.00	1	6.52
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	6	2.88	8	3.85	18	8.65
Coal	0	0.00	1	16.58	0	0.00
Comanche	0	0.00	1	0.87	9	7.83
Cotton	0	0.00	0	0.00	1	15.12
Craig	0	0.00	2	13.38	0	0.00
Creek	1	1.48	4	5.94	13	19.30
Custer	2	7.65	0	0.00	4	15.30
Delaware	2	5.39	2	5.39	3	8.09
Dewey	0	0.00	0	0.00	1	21.08
Ellis	0	0.00	0	0.00	0	0.00
Garfield	1	1.73	1	1.73	6	10.38
Garvin	0	0.00	3	11.03	7	25.73
Grady	1	2.20	1	2.20	10	21.97
Grant	0	0.00	0	0.00	1	19.44
Greer	0	0.00	0	0.00	0	0.00
Harmon	0	0.00	0	0.00	1	30.46
Harper	0	0.00	1	28.07	1	28.07
Haskell	0	0.00	2	16.96	0	0.00
Hughes	0	0.00	2	14.13	1	7.07
Jackson	1	3.52	1	3.52	3	10.55
Jefferson	0	0.00	0	0.00	2	29.33
Johnston	0	0.00	0	0.00	2	19.02
Kay	5	10.40	0	0.00	7	14.56
Kingfisher	0	0.00	1	7.18	1	7.18
Kiowa	0	0.00	1	9.78	0	0.00
Latimer	0	0.00	4	37.41	2	18.71
LeFlore	2	4.16	12	24.94	15	31.18

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Pertussis		Rocky Mountain Spotted Fever		Salmonellosis	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	2	6.23	1	3.12	4	12.47
Logan	1	2.95	7	20.63	5	14.74
Love	0	0.00	1	11.32	1	11.32
McClain	0	0.00	1	3.60	5	18.02
McCurtain	0	0.00	5	14.53	3	8.72
McIntosh	0	0.00	3	15.42	6	30.84
Major	0	0.00	1	13.25	0	0.00
Marshall	0	0.00	2	15.17	2	15.17
Mayes	0	0.00	7	18.24	3	7.82
Murray	1	7.92	1	7.92	1	7.92
Muskogee	2	2.88	4	5.76	9	12.96
Noble	0	0.00	1	8.76	0	0.00
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	0	0.00	0	0.00	4	33.86
Oklahoma	23	3.48	22	3.33	108	16.35
Okmulgee	3	7.56	3	7.56	4	10.08
Osage	1	2.25	1	2.25	1	2.25
Ottawa	2	6.03	0	0.00	1	3.01
Pawnee	1	6.02	0	0.00	0	0.00
Payne	3	4.40	2	2.93	13	19.06
Pittsburg	3	6.83	12	27.30	9	20.48
Pontotoc	0	0.00	3	8.54	6	17.07
Pottawatomie	3	4.58	9	13.74	11	16.79
Pushmataha	0	0.00	4	34.28	2	17.14
Roger Mills	0	0.00	4	116.41	0	0.00
Rogers	6	8.49	0	0.00	11	15.57
Seminole	0	0.00	3	12.05	4	16.07
Sequoyah	0	0.00	7	17.96	4	10.26
Stephens	1	2.32	5	11.58	7	16.21
Texas	0	0.00	0	0.00	3	14.92
Tillman	0	0.00	0	0.00	0	0.00
Tulsa	23	4.08	11	1.95	56	9.94
Wagoner	1	1.74	3	5.22	8	13.92
Washington	0	0.00	0	0.00	5	10.20
Washita	0	0.00	2	17.38	0	0.00
Woods	0	0.00	0	0.00	0	0.00
Woodward	1	5.41	0	0.00	0	0.00
State of Oklahoma	**127**	**3.68**	**206**	**5.97**	**448**	**12.98**

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Shigellosis		*Streptococcus*, Group A Invasive		*Streptococcus pneumoniae*, Inv.	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Adair	5	23.77	0	0.00	4	19.01
Alfalfa	0	0.00	0	0.00	0	0.00
Atoka	0	0.00	0	0.00	0	0.00
Beaver	0	0.00	0	0.00	0	0.00
Beckham	3	15.15	0	0.00	3	15.15
Blaine	1	8.35	0	0.00	1	8.35
Bryan	5	13.69	0	0.00	0	0.00
Caddo	4	13.27	1	3.32	3	9.95
Canadian	42	47.89	5	5.70	10	11.40
Carter	1	2.19	1	2.19	4	8.77
Cherokee	1	2.35	5	11.76	5	11.76
Choctaw	0	0.00	0	0.00	1	6.52
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	120	57.69	7	3.37	24	11.54
Coal	0	0.00	0	0.00	2	33.16
Comanche	21	18.26	6	5.22	23	20.00
Cotton	3	45.36	0	0.00	0	0.00
Craig	0	0.00	0	0.00	3	20.07
Creek	2	2.97	5	7.42	18	26.72
Custer	1	3.83	0	0.00	5	19.13
Delaware	0	0.00	1	2.70	6	16.18
Dewey	0	0.00	0	0.00	1	21.08
Ellis	0	0.00	0	0.00	0	0.00
Garfield	71	122.81	4	6.92	5	8.65
Garvin	2	7.35	0	0.00	2	7.35
Grady	22	48.33	2	4.39	1	2.20
Grant	0	0.00	1	19.44	0	0.00
Greer	0	0.00	0	0.00	1	16.50
Harmon	0	0.00	0	0.00	0	0.00
Harper	0	0.00	0	0.00	0	0.00
Haskell	0	0.00	1	8.48	1	8.48
Hughes	11	77.72	0	0.00	5	35.33
Jackson	1	3.52	0	0.00	2	7.03
Jefferson	1	14.67	0	0.00	0	0.00
Johnston	0	0.00	0	0.00	3	28.54
Kay	9	18.72	1	2.08	2	4.16
Kingfisher	2	14.36	1	7.18	1	7.18
Kiowa	9	88.00	0	0.00	1	9.78
Latimer	1	9.35	1	9.35	[illegible]	28.06
LeFlore	9	18.71	0	0.00	2	4.16

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Shigellosis		*Streptococcus*, Group A Invasive		*Streptococcus pneumoniae*, Inv.	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	10	31.17	0	0.00	9	28.05
Logan	3	8.84	0	0.00	3	8.84
Love	1	11.32	2	22.65	0	0.00
McClain	6	21.63	0	0.00	2	7.21
McCurtain	1	2.91	0	0.00	2	5.81
McIntosh	0	0.00	0	0.00	2	10.28
Major	0	0.00	0	0.00	1	13.25
Marshall	7	53.09	1	7.58	4	30.34
Mayes	0	0.00	0	0.00	7	18.24
Murray	2	15.84	0	0.00	2	15.84
Muskogee	2	2.88	0	0.00	19	27.36
Noble	5	43.82	0	0.00	0	0.00
Nowata	0	0.00	1	9.46	1	9.46
Okfuskee	0	0.00	1	8.46	4	33.86
Oklahoma	327	49.51	30	4.54	132	19.99
Okmulgee	0	0.00	0	0.00	7	17.64
Osage	0	0.00	0	0.00	6	13.50
Ottawa	0	0.00	1	3.01	4	12.05
Pawnee	1	6.02	1	6.02	8	48.16
Payne	4	5.87	2	2.93	6	8.80
Pittsburg	5	11.38	2	4.55	16	36.40
Pontotoc	10	28.46	0	0.00	2	5.69
Pottawatomie	141	215.20	0	0.00	13	19.84
Pushmataha	2	17.14	0	0.00	1	8.57
Roger Mills	0	0.00	0	0.00	0	0.00
Rogers	4	5.66	0	0.00	11	15.57
Seminole	6	24.10	0	0.00	6	24.10
Sequoyah	0	0.00	0	0.00	7	17.96
Stephens	32	74.10	4	9.26	4	9.26
Texas	0	0.00	0	0.00	0	0.00
Tillman	0	0.00	1	10.77	1	10.77
Tulsa	16	2.84	40	7.10	109	19.35
Wagoner	1	1.74	1	1.74	2	3.48
Washington	4	8.16	2	4.08	7	14.29
Washita	0	0.00	1	8.69	0	0.00
Woods	0	0.00	0	0.00	1	11.00
Woodward	0	0.00	0	0.00	1	5.41
State of Oklahoma	**937**	**27.15**	**132**	**3.83**	**542**	**15.71**

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Tuberculosis		Tularemia		West Nile Virus	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	2	9.51	1	4.75	0	0.00
Alfalfa	0	0.00	0	0.00	0	0.00
Atoka	0	0.00	0	0.00	0	0.00
Beaver	0	0.00	0	0.00	1	17.07
Beckham	1	5.05	0	0.00	0	0.00
Blaine	0	0.00	0	0.00	0	0.00
Bryan	1	2.74	0	0.00	0	0.00
Caddo	2	6.63	0	0.00	1	3.32
Canadian	3	3.42	0	0.00	1	1.14
Carter	1	2.19	0	0.00	0	0.00
Cherokee	7	16.46	0	0.00	0	0.00
Choctaw	0	0.00	0	0.00	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	7	3.37	0	0.00	0	0.00
Coal	0	0.00	0	0.00	0	0.00
Comanche	6	5.22	0	0.00	0	0.00
Cotton	0	0.00	0	0.00	0	0.00
Craig	0	0.00	0	0.00	0	0.00
Creek	1	1.48	0	0.00	0	0.00
Custer	1	3.83	0	0.00	0	0.00
Delaware	4	10.79	0	0.00	0	0.00
Dewey	0	0.00	0	0.00	0	0.00
Ellis	1	24.54	0	0.00	0	0.00
Garfield	0	0.00	0	0.00	0	0.00
Garvin	0	0.00	0	0.00	0	0.00
Grady	1	2.20	0	0.00	0	0.00
Grant	0	0.00	0	0.00	1	19.44
Greer	1	16.50	0	0.00	0	0.00
Harmon	0	0.00	0	0.00	0	0.00
Harper	0	0.00	0	0.00	0	0.00
Haskell	0	0.00	1	8.48	0	0.00
Hughes	2	14.13	0	0.00	0	0.00
Jackson	1	3.52	0	0.00	0	0.00
Jefferson	0	0.00	0	0.00	0	0.00
Johnston	0	0.00	0	0.00	0	0.00
Kay	0	0.00	2	4.16	0	0.00
Kingfisher	1	7.18	0	0.00	1	7.18
Kiowa	0	0.00	0	0.00	0	0.00
Latimer	1	9.35	1	9.35	0	0.00
LeFlore	1	2.08	4	8.31	0	0.00

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2005

	Tuberculosis		Tularemia		West Nile Virus	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	0	0.00	0	0.00	1	3.12
Logan	0	0.00	0	0.00	1	2.95
Love	0	0.00	0	0.00	0	0.00
McClain	0	0.00	0	0.00	0	0.00
McCurtain	8	23.25	0	0.00	0	0.00
McIntosh	0	0.00	0	0.00	0	0.00
Major	0	0.00	0	0.00	0	0.00
Marshall	0	0.00	0	0.00	0	0.00
Mayes	0	0.00	0	0.00	0	0.00
Murray	0	0.00	0	0.00	0	0.00
Muskogee	2	2.88	0	0.00	1	1.44
Noble	0	0.00	2	17.53	1	8.76
Nowata	0	0.00	1	9.46	0	0.00
Okfuskee	1	8.46	0	0.00	0	0.00
Oklahoma	33	5.00	0	0.00	2	0.30
Okmulgee	3	7.56	0	0.00	0	0.00
Osage	2	4.50	0	0.00	0	0.00
Ottawa	0	0.00	0	0.00	0	0.00
Pawnee	0	0.00	0	0.00	0	0.00
Payne	1	1.47	1	1.47	0	0.00
Pittsburg	4	9.10	0	0.00	0	0.00
Pontotoc	0	0.00	0	0.00	0	0.00
Pottawatomie	14	21.37	1	1.53	0	0.00
Pushmataha	0	0.00	2	17.14	0	0.00
Roger Mills	0	0.00	0	0.00	0	0.00
Rogers	2	2.83	0	0.00	0	0.00
Seminole	2	8.03	0	0.00	0	0.00
Sequoyah	0	0.00	2	5.13	1	2.57
Stephens	1	2.32	0	0.00	0	0.00
Texas	2	9.95	0	0.00	1	4.97
Tillman	1	10.77	0	0.00	0	0.00
Tulsa	21	3.73	2	0.36	1	0.18
Wagoner	2	3.48	0	0.00	1	1.74
Washington	0	0.00	0	0.00	0	0.00
Washita	0	0.00	0	0.00	0	0.00
Woods	0	0.00	0	0.00	1	11.00
Woodward	0	0.00	0	0.00	0	0.00
State of Oklahoma	**144**	**4.17**	**20**	**0.58**	**16**	**0.46**

^ 2005 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Sexually Transmitted Diseases by County, Oklahoma, 2005

	Chlamydia		Gonorrhea		Syphilis, Primary & Secondary	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	71	337.48	5	23.77	0	0.00
Alfalfa	5	81.90	2	32.76	0	0.00
Atoka	29	208.95	9	64.85	0	0.00
Beaver	7	119.52	0	0.00	0	0.00
Beckham	52	262.64	7	35.36	0	0.00
Blaine	15	125.25	10	83.50	0	0.00
Bryan	138	377.73	43	117.70	0	0.00
Caddo	93	308.46	17	56.38	0	0.00
Canadian	163	185.87	49	55.87	0	0.00
Carter	105	230.16	65	142.48	0	0.00
Cherokee	213	500.93	41	96.42	0	0.00
Choctaw	66	430.19	18	117.32	0	0.00
Cimarron	1	31.77	0	0.00	0	0.00
Cleveland	487	234.12	129	62.01	0	0.00
Coal	13	215.55	2	33.16	0	0.00
Comanche	775	673.94	398	346.10	11	9.57
Cotton	27	408.22	5	75.60	0	0.00
Craig	45	301.00	4	26.76	0	0.00
Creek	168	249.38	50	74.22	0	0.00
Custer	72	275.42	17	65.03	0	0.00
Delaware	51	137.55	2	5.39	0	0.00
Dewey	5	105.42	1	21.08	0	0.00
Ellis	3	73.62	0	0.00	0	0.00
Garfield	247	427.24	60	103.78	0	0.00
Garvin	52	191.11	8	29.40	0	0.00
Grady	100	219.70	20	43.94	2	4.39
Grant	4	77.76	0	0.00	0	0.00
Greer	11	181.49	4	66.00	0	0.00
Harmon	17	517.82	5	152.30	0	0.00
Harper	6	168.44	0	0.00	0	0.00
Haskell	33	279.85	2	16.96	0	0.00
Hughes	36	254.35	10	70.65	0	0.00
Jackson	115	404.37	35	123.07	0	0.00
Jefferson	10	146.67	2	29.33	0	0.00
Johnston	23	218.78	4	38.05	0	0.00
Kay	133	276.62	27	56.16	1	2.08
Kingfisher	19	136.44	5	35.90	0	0.00
Kiowa	24	234.67	5	48.89	0	0.00
Latimer	29	271.23	4	37.41	0	0.00
LeFlore	163	338.81	28	58.20	0	0.00

^ 2005 Rates illustrate county specific incidence rates per 100,000 population.

* OOS/Unknown: Clients whose county of residence at time of diagnosis/treatment was not a county of Oklahoma, may include cases with a county of residence unknown.

Reportable Sexually Transmitted Diseases by County, Oklahoma, 2005

	Chlamydia		Gonorrhea		Syphilis, Primary & Secondary	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	53	165.21	10	31.17	0	0.00
Logan	156	459.85	57	168.02	0	0.00
Love	10	113.24	1	11.32	0	0.00
McClain	69	248.74	7	25.23	0	0.00
McCurtain	137	398.23	23	66.86	0	0.00
McIntosh	63	323.81	5	25.70	0	0.00
Major	4	53.02	1	13.25	0	0.00
Marshall	17	128.94	6	45.51	0	0.00
Mayes	82	213.71	10	26.06	0	0.00
Murray	20	158.44	2	15.84	0	0.00
Muskogee	383	551.47	104	149.75	0	0.00
Noble	28	245.38	5	43.82	0	0.00
Nowata	20	189.23	2	18.92	0	0.00
Okfuskee	40	338.58	5	42.32	0	0.00
Oklahoma	3485	527.67	2151	325.69	22	3.33
Okmulgee	148	372.94	58	146.15	1	2.52
Osage	66	148.52	11	24.75	0	0.00
Ottawa	114	343.44	6	18.08	0	0.00
Pawnee	42	252.83	2	12.04	0	0.00
Payne	316	463.41	40	58.66	0	0.00
Pittsburg	134	304.87	46	104.66	0	0.00
Pontotoc	148	421.14	28	79.67	0	0.00
Pottawatomie	182	277.77	45	68.68	0	0.00
Pushmataha	42	359.99	5	42.86	0	0.00
Roger Mills	4	116.41	1	29.10	0	0.00
Rogers	134	189.69	26	36.81	1	1.42
Seminole	114	457.94	23	92.39	0	0.00
Sequoyah	101	259.16	23	59.02	0	0.00
Stephens	99	229.26	22	50.95	0	0.00
Texas	61	303.38	8	39.79	0	0.00
Tillman	45	484.55	3	32.30	0	0.00
Tulsa	2652	470.80	1103	195.81	8	1.42
Wagoner	92	160.03	41	71.32	0	0.00
Washington	85	173.48	17	34.70	0	0.00
Washita	17	147.72	0	0.00	0	0.00
Woods	26	286.06	2	22.00	0	0.00
Woodward	35	189.33	2	10.82	0	0.00
OOS/Unk*	107	N/A	37	N/A	18	N/A
State of Oklahoma	**12957**	**375.49**	**5031**	**145.80**	**49**	**1.42**

^ 2005 Rates illustrate county specific incidence rates per 100,000 population.

* OOS/Unknown: Clients whose county of residence at time of diagnosis/treatment was not a county of Oklahoma, may include cases with a county of residence unknown.

Oklahoma HIV and AIDS Cumulative Case Reports by County*, 1982-2005

County	HIV Cases	AIDS Cases	County	HIV Cases	AIDS Cases
Adair	5	13	Lincoln	6	14
Alfalfa	**	**	Logan	25	28
Atoka	**	13	Love	**	8
Beaver	**	**	Major	3	**
Beckham	5	12	Marshall	5	4
Blaine	9	10	Mayes	5	20
Bryan	12	24	McClain	11	18
Caddo	20	23	McCurtain	9	19
Canadian	39	69	McIntosh	6	16
Carter	12	28	Murray	**	6
Cherokee	8	23	Muskogee	35	66
Choctaw	7	9	Noble	4	**
Cimarron	**	**	Nowata	**	5
Cleveland	137	182	Okfuskee	**	10
Coal	**	**	Oklahoma	965	1,693
Comanche	140	132	Okmulgee	10	30
Cotton	**	4	Osage	11	21
Craig	6	14	Ottawa	9	16
Creek	19	38	Pawnee	9	10
Custer	11	13	Payne	25	52
Delaware	5	14	Pittsburg	14	40
Dewey	3	**	Pontotoc	10	20
Ellis	**	**	Pottawatomie	25	51
Garfield	31	52	Pushmataha	3	5
Garvin	3	8	Roger Mills	**	**
Grady	19	30	Rogers	25	36
Grant	**	3	Seminole	9	15
Greer	4	3	Sequoyah	9	23
Harmon	**	**	Stephens	14	14
Harper	**	**	Texas	6	6
Haskell	**	9	Tillman	**	**
Hughes	**	**	Tulsa	704	1,223
Jackson	7	15	Wagoner	14	23
Jefferson	3	5	Washington	8	25
Johnston	5	**	Washita	**	4
Kay	22	25	Woods	**	3
Kingfisher	5	7	Woodward	8	8
Kiowa	**	5	Other counties	9	56
Latimer	**	4	Out of State	547	1,473
LeFlore	18	31	**Total**	**2,572**	**4,423**

* Resident of a county in Oklahoma at time of diagnosis
** Confidentiality concerns restrict releasing data for counties in Oklahoma that have two or fewer cases
*** Totals do not include 'Out of State' cases
~ Anonymous cases are excluded from this report

Oklahoma HIV Infection Prevalence (Living HIV and/or Living AIDS cases) by County of Residence at Diagnosis per 100,000 Population, 1982-2005

County	Living HIV / AIDS Cases	Prevalence Rate	County	Living HIV / AIDS Cases	Prevalence Rate
Adair	8	38.0	Lincoln	11	34.3
Alfalfa	**	**	Logan	28	82.5
Atoka	4	28.8	Love	4	45.3
Beaver	**	**	Major	3	39.8
Beckham	6	30.3	Marshall	5	37.9
Blaine	11	91.9	Mayes	6	15.6
Bryan	21	57.5	McClain	17	61.3
Caddo	25	82.9	McCurtain	14	40.7
Canadian	54	61.6	McIntosh	10	51.4
Carter	19	41.6	Murray	3	23.8
Cherokee	13	30.6	Muskogee	51	73.4
Choctaw	7	45.6	Noble	5	43.8
Cimarron	**	**	Nowata	**	**
Cleveland	173	83.2	Okfuskee	**	**
Coal	3	49.7	Oklahoma	1,383	209.4
Comanche	160	139.1	Okmulgee	14	35.3
Cotton	**	**	Osage	10	22.5
Craig	10	66.9	Ottawa	13	39.2
Creek	31	46.0	Pawnee	10	60.2
Custer	13	49.7	Payne	29	42.5
Delaware	9	24.3	Pittsburg	21	47.8
Dewey	5	105.4	Pontotoc	16	45.5
Ellis	**	**	Pottawatomie	40	61.0
Garfield	36	62.3	Pushmataha	5	42.9
Garvin	5	18.4	Roger Mills	**	**
Grady	27	59.3	Rogers	33	46.7
Grant	**	**	Seminole	11	44.2
Greer	8	132.0	Sequoyah	16	41.1
Harmon	**	**	Stephens	13	30.1
Harper	**	**	Texas	7	34.8
Haskell	3	25.4	Tillman	**	**
Hughes	**	**	Tulsa	1,032	183.2
Jackson	13	45.7	Wagoner	18	31.3
Jefferson	5	73.3	Washington	17	34.7
Johnston	5	47.6	Washita	**	**
Kay	23	47.8	Woods	**	**
Kingfisher	5	35.9	Woodward	11	59.5
Kiowa	**	**	Unk/Other	787	N/A
Latimer	**	**	Out Of State	980	N/A
LeFlore	23	47.8	**Total****	**4,442**	**128.7**

* Resident of a county in Oklahoma at time of diagnosis
** Confidentiality concerns restrict releasing data for counties in Oklahoma that have two or fewer cases
*** Totals do not include 'Out of State' cases
~ Anonymous cases are excluded from this report

2005 Public Health Laboratory Specimen Summary

CLIA Test Count 2005	Public Helath Lab - Oklahoma State Department of Health										CLIA # 37D0656594	
	jan	feb	mar	apr	may	june	july	aug	sept	oct	nov	dec	totals
Immunohematology													
Rh	100	91	132	106	104	102	94	129	108	93	113	94	1266
Positive	85	82	123	98	87	95	87	127	101	75	104	83	1147
Negative	15	9	9	8	17	7	7	2	7	18	9	11	119
											Speciality Total		**1266**
Syphilis Serology													
RPR	2935	2576	2948	3026	2919	3071	2784	3149	3180	2598	3459	2674	35319
Reactive	33	52	47	61	49		55	53	50	119	48	46	613
Negative	2902	2524	2901	2965	2870	3071	2729	3096	3130	2479	3411	2628	34706
TPPA	33	59	46	54	65	58	53	71	53	53	61	51	657
Positive	31	45	28	31	44	39	42	46	31	30	45	31	443
Negative	2	14	18	23	21	19	11	25	22	23	16	20	214
											Speciality Total		**35976**
General Immunology													
HIV	2744	2712	3218	3004	2061	3763	2656	2928	2979	2575	2664	2767	34071
Positive	70	15	39	28	34	84	33	66	33	35	25	34	496
Negative	2674	2697	3179	2976	2027	3679	2623	2862	2946	2540	2639	2733	33575
Rubella	94	94	131	116	87	95	92	102	108	87	108	101	1215
Positive	89	83	117	105	83	94	75	96	99	79	95	89	1104
Negative	5	11	14	11	4	1	17	6	9	8	13	12	111
Hepatitis B	114	101	138	140	152	157	117	175	150	130	139	133	1646
Positive	5	2	0	5	5	4	0	2	3	0	0	0	26
Negative	109	99	138	135	147	153	117	173	147	130	139	133	1620
Confirmatory	7	2	0	4	9	3	1	2	4	0	0	0	32
Hepatitis C	26	25	76	61	52	18	40	42	16	13	4	4	377
Positive	5	9	16	18	13	3	13	10	6	2	1	0	96
Negative	21	16	60	43	39	15	27	32	10	11	3	4	281
Repeat positive	5	6	19	16	13	6	9	10	6	2	0	1	93
Tick Panel	3	4	8	22	52	57	67	34	56	31	13	4	351
RMSF: Positive > 1:64	1	1	2	4	15	10	19	10	9	9	0	0	80
Negative < 1:64	2	3	6	18	37	47	48	24	47	22	13	4	271
E. Chaff: Positive > 1:64	0	0	0	1	1	5	5	1	0	2	1	0	16
Negative < 1:64	3	4	8	21	51	52	62	33	56	29	12	4	335
Arboviral panel	12	3	1	41	8	14	34	35	7	50	18	11	234
WN IgM > 1:400 Positive	5	1	1	7	2	0	15	21	2	24	7	5	90
Negative	7	2	0	34	6	14	19	14	5	26	11	6	144
SLE IgM > 1:400 Positive	5	2	0	5	2	0	14	21	2	28	8	3	90
Negative	7	1	1	36	6	14	20	14	5	22	10	8	144
											Speciality Total		**37894**

2005 Public Health Laboratory Specimen Summary

NBS													
T4/TSH	4840	4150	4639	3997	4427	4771	4274	5069	4478	4586	4410	4469	54110
Abnormal T4, No TSH	38	38	48	42	55	47	49	63	49	36	36	41	542
TSH > 25	0	2	5	0	2	1	2	2	0	1	0	1	16
TSH> 50	2	4	2	1	2	3	1	4	2	0	4	3	28
T4 30 ug/dl	20	36	37	12	0	0	0	0	0	0	0	0	105
Normal	4802	4112	4591	3955	4372	4724	4225	5006	4429	4550	4374	4428	53568
Galactose	4840	4150	4639	3997	4427	4771	4274	5069	4527	4586	4410	4469	54159
Abnormal	9	8	12	2	4	7	3	1	2	6	6	10	70
Normal	4831	4142	4627	3995	4423	4764	4271	5068	4525	4580	4404	4459	54089
PKU	4843	4156	4646	4000	4431	4778	4279	5074	4533	4589	4413	4469	54211
Abnormal	0	1	0	1	1	4	2	1	0	3	0	2	15
Normal	4843	4155	4646	3999	4430	4774	4277	5073	4533	4586	4413	4467	54196
HBg Kids	4879	4178	4639	4035	4427	4799	4274	5069	4478	4586	4410	4469	54243
Abnormal	108	80	111	116	86	140	96	102	105	85	88	104	1221
Normal	4771	4098	4528	3919	4341	4659	4178	4967	4373	4501	4322	4365	53022
HBg Adults	119	149	161	89	105	114	49	141	77	40	44	50	1138
Positive	2	4	4	5	2	11	5	4	5	3	4	5	54
Negative	117	145	157	84	103	103	44	137	72	37	40	45	1084
CAH		2381	4639	3952	4427	4724	4274	5069	4527	4586	4410	4469	47458
17-OHP Elev / Steroid Panel Normal							1	22	37	32	29	44	165
17-OHP Elev / Steroid Panel abnormal							4	3	2	1	1	1	12
17-OHP High / Steroid Panel Normal							0	6	6	12	7	10	41
CF		2381	4639	3952	4427	4724	4274	5069	4527	4586	4410	4469	47458
IRT Elevated no mutations							72	81	80	98	114	157	602
IRT Elevated 1 mutations							6	5	10	8	7	5	41
IRT Elevated 2 mutations							0	2	5	1	3	1	12
IRT high/ no mutations							1	1	4	3	1	2	12
												Speciality Total	**312777**
Microbiology													
Bacteriology	164	188	171	129	102	148	69	54	59	62	63	179	1388
Positive													
Negative													
Enterics	123	103	141	176	209	228	175	224	197	162	114	88	1940
Positive													
Negative													
												Speciality Total	3328

2005 Public Health Laboratory Specimen Summary

Mycobacteriology	699	650	790	726	682	724	566	669	638	617	677	683	8121
Pos. TB	28	22	26	14	24	19	13	11	31	10	7	0	205
Pos. Mac	11	19	19	15	24	16	30	27	19	16	4	0	200
Pos. M. gordonae	11	14	18	15	22	11	12	13	10	4	1	0	131
Pos. M. kansasii	0	0	1	0	0	0	6	11	2	0	0	0	20
Pos. M. fortuitum qr.	4	2	2	4	1	2	1	5	5	3	5	5	39
Pos. M. chelonae qr.	19	9	22	21	9	27	20	16	15	10	9	8	185
Pos. M. scrofulaceum	1	0	0	3	0	2	0	0	1	1	0	0	8
Pos. M. marinum	0	1	0	1	0	2	0	0	2	3	0	0	9
Pos. other	6	4	6	8	11	4	15	19	2	4	4	4	87
Negative	671	628	764	712	658	705	553	658	607	607	670	683	7916
Mycology	3	8	4	3	9	11	6	14	7	12	26	15	118
Parasitology	24	42	60	52	38	56	49	50	54	52	52	41	570
Virology													
GC/CT	4870	4656	5992	5343	5413	5605	5403	6213	5993	4999	5412	5284	65183
GC: Positive	143	128	136	127	155	178	155	186	161	140	143	157	1809
GC: Negative	4727	4528	5856	5216	5258	5427	5248	6027	5832	4859	5269	5127	63374
CT: Positive	280	303	345	302	322	344	327	574	570	433	501	485	4786
CT: Negative	4590	4353	5647	5041	5091	5261	5076	5639	5423	4566	4911	4799	60397
Urines	235	68	89	115	69	85	64	272	85	61	57	71	1271
GC: Positive	0	1	1	0	2	1	0	2	3	1	1	1	13
GC: Negative	235	67	88	115	67	84	64	270	82	60	56	70	1258
CT: Positive	12	8	12	14	6	11	5	14	9	6	6	6	109
CT: Negative	223	60	77	101	63	74	59	258	76	55	51	65	1162
Rabies	86	94	122	150	142	176	138	116	102	106	95	76	1403
Positive	4	7	14	12	9	4	6	2	6	3	5	4	76
Most common animals submitted:													
Cat	0	0	0	1	0	0	4	0	0	1	0	1	7
Cow	0	0	1	3	1	1	2	0	0	0	0	1	9
Dog	0	2	1	0	0	1	0	0	1	0	0	0	5
Horse	0	0	1	0	1	0	0	0	1	1	0	0	4
Skunk	4	5	11	8	7	2	0	2	3	1	4	2	49
Negative	82	87	108	138	133	172	132	114	96	103	90	72	1327

The Annual Summary of Infectious Diseases is issued by the Oklahoma State Department of Health, as authorized by James M. Crutcher, M.D., M.P.H., Commissioner of Health and State Health Officer, Oklahoma State Department of Health. Mercury Press Inc. printed 4,700 copies in August 2006 at a cost of $12,378.00.

Number of Reported Cases of Communicable Diseases, Oklahoma, 1991 – 2006

Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Anthrax	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Botulism (Infant)	1	1	0	0	0	0	0	0	1	0	1	0	0	0	1	0
Botulism (Foodborne)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Brucellosis	2	1	0	0	1	1	0	0	0	1	0	1	0	0	1	2
Campylobacteriosis	205	267	199	187	289	281	247	241	320	361	308	362	417	591	547	406
Chlamydia	5714	5220	4886	3784	5050	7371	7566	9378	8737	9346	10622	10732	10983	10371	12957	12992
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Congenital rubella syndrome	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Creutzfeldt-Jakob disease	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	1
Cryptosporidiosis	8	0	1	1	12	10	12	7	14	30	16	16	24	22	46	56
Dengue Fever	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2	0
E. coli O157:H7 or other EHEC	0	5	8	* 13	16	14	13	26	41	19	36	25	30	29	38	44
Ehrlichiosis	3	8	0	0	0	0	0	2	1	12	24	13	36	49	96	47
GAS Invasive	0	0	0	0	0	8	3	1	12	28	49	56	99	73	132	125
Giardiasis	211	188	262	252	206	159	152	148	152	96	0	85	145	166	197	166
Gonorrhea	6546	6432	4855	4935	5652	4897	4840	4225	4291	5236	4818	4624	4543	4543	5031	4951
H. influenzae, Inv. Disease (Total)	41	20	45	44	33	31	33	35	47	46	48	53	52	67	74	78
H. influenzae, Inv. Disease, <5yrs. Type B	33	3	1	4	3	0	1	1	0	0	0	0	0	0	0	0
Hantavirus	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0
Hepatitis A	273	217	206	395	1497	2516	1441	667	534	271	116	52	29	19	6	11
Hepatitis B	198	174	193	129	176	60	63	169	185	179	115	111	73	80	59	96
Hepatitis C	0	0	0	0	1	8	10	23	13	13	6	21	6	7	14	19
Hemolytic Uremic Syndrome	0	0	0	0	0	0	0	0	1	2	4	3	4	2	5	2
Legionellosis	24	8	0	0	8	16	3	18	7	5	7	5	10	24	10	10
Leptospirosis	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Listeriosis	6	8	12	11	11	5	9	19	12	8	2	9	3	4	4	5
Lyme Disease	* 23	25	20	111	57	34	45	12	8	1	0	0	0	3	0	0
Malaria	9	5	5	9	1	3	9	4	2	10	5	12	4	10	12	11
Measles (Rubeola)	0	12	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Meningococcal Inf. (*N. meningitidis*)	16	17	36	52	49	46	45	44	40	34	32	25	25	10	18	15
Mumps	15	20	11	13	1	4	3	4	5	3	0	3	2	1	2	10

EXHIBIT

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Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Pertussis	48	53	60	19	47	20	60	36	40	60	43	135	106	120	127	64
Plague	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Primary Amebic Meningoencephalitis	4	6	7	0	0	0	0	2	0	0	1	0	0	0	2	0
Psittacosis											0	0	0	0	0	0
Rabies (Animal)	173	219	65	40	32	38	113	107	94	58	60	126	204	113	79	69
Rocky Mountain Spotted Fever	95	109	46	36	48	45	30	39	29	37	69	99	138	190	210	135
Rubella	2	0	1	4	0	0	0	0	1	0	0	0	0	0	0	0
Salmonellosis	481	368	320	444	471	520	392	501	468	405	503	524	494	425	448	605
Shigellosis	192	252	472	200	266	305	293	712	560	131	148	717	1078	724	937	195
S. pneumo Invasive, ≥ 5 yrs.	100	90	126	164	131	101	80	73	110	118	324	452	443	460	653	630
S. pneumo Invasive, < 5yrs.	28	11	20	54	22	6	10	13	21	16	32	47	76	52	47	73
Syphilis (Total Early)	596	709	636	399	489	398	275	264	347	245	185	183	141	88	73	191
Tetanus	0	1	1	1	0	1	2	1	0	0	1	0	0	0	0	1
Tuberculosis	206	216	209	261	237	201	211	198	208	154	194	190	163	178	144	144
Tularemia	12	10	16	4	7	4	5	5	7	11	7	10	9	19	20	3
Typhoid Fever	3	0	1	3	1	0	3	1	0	1	1	2	1	1	1	0
Vibrio parahaemolyticus	0	0	0	0	0	1	0	8	0	0	0	0	0	0	1	0
Vibrio spp	0	0	0	0	1	0	0	0	1	1	0	1	0	0	3	1
Vibrio vulnificus	0	0	0	0	2	0	0	1	0	0	0	1	1	1	1	0
West Nile Virus	0	0	0	0	0	0	0	0	0	0	0	*21	79	22	31	48
Yellow Fever	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* First year disease was reportable by law

Incidence Rate per 100,000 Oklahoma Population^ of Reported Communicable Diseases, Oklahoma, 1991 – 2006

Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Anthrax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Botulism (Infant)	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.03	0.00
Botulism (Foodborne)	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Brucellosis	0.06	0.03	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.03	0.06
Campylobacteriosis	6.52	8.49	6.33	5.94	9.19	8.93	7.85	7.66	10.17	10.46	8.93	10.49	12.08	17.13	15.85	11.77
Chlamydia	181.65	165.95	155.33	120.30	160.54	234.33	240.53	298.13	277.75	270.85	307.83	311.01	318.29	300.55	375.49	376.51
Cholera	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Congenital rubella syndrome	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Creutzfeldt-Jakob disease	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.12	0.03
Cryptosporidiosis	0.25	0.00	0.03	0.03	0.38	0.32	0.38	0.22	0.45	0.87	0.46	0.46	0.70	0.64	1.33	1.62
Dengue Fever	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.06	0.00
E. coli O157:H7 or other EHEC	0.00	0.16	0.25	*0.41	0.51	0.45	0.41	0.83	1.30	0.55	1.04	0.72	0.87	0.84	1.10	1.28
Ehrlichiosis	0.10	0.25	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.35	0.70	0.38	1.04	1.42	2.78	1.36
GAS Invasive	0.00	0.00	0.00	0.00	0.00	0.25	0.10	0.03	0.38	0.81	1.42	1.62	2.87	2.12	3.83	3.62
Giardiasis	6.71	5.98	8.33	8.01	6.55	5.05	4.83	4.71	4.83	2.78	0.00	2.46	4.20	4.81	5.71	4.81
Gonorrhea	208.10	204.48	154.34	156.89	179.68	155.68	153.87	134.32	136.41	151.74	139.63	134.00	131.66	131.66	145.80	143.48
H. influenzae, Inv. Disease	1.30	0.64	1.43	1.40	1.05	0.99	1.05	1.11	1.49	1.33	1.39	1.54	1.51	1.94	2.14	2.26
H. influenzae, Inv. Disease, <5yrs. Type B	1.05	0.10	0.03	0.13	0.10	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hantavirus	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00
Hepatitis A	8.68	6.90	6.55	12.56	47.59	79.99	45.81	21.20	16.98	7.85	3.36	1.51	0.84	0.55	0.17	0.32
Hepatitis B	6.29	5.53	6.14	4.10	5.60	1.91	2.00	5.37	5.88	5.19	3.33	3.22	2.12	2.32	1.17	2.78
Hepatitis C	0.00	0.00	0.00	0.00	0.03	0.25	0.32	0.73	0.41	0.38	0.17	0.61	0.17	0.20	0.41	0.55
Hemolytic Uremic Syndrome	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.12	0.09	0.12	0.06	0.14	0.06
Legionellosis	0.76	0.25	0.00	0.00	0.25	0.51	0.10	0.57	0.22	0.14	0.20	0.14	0.29	0.70	0.29	0.29
Leptospirosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00
Listeriosis	0.19	0.25	0.38	0.35	0.35	0.16	0.29	0.60	0.38	0.23	0.06	0.26	0.09	0.12	0.12	0.14
Lyme Disease	*0.73	0.79	0.64	3.53	1.81	1.08	1.43	0.38	0.25	0.03	0.00	0.00	0.00	0.09	0.00	0.00
Malaria	0.29	0.16	0.16	0.29	0.03	0.10	0.29	0.13	0.06	0.29	0.14	0.35	0.12	0.29	0.35	0.32
Measles (Rubeola)	0.00	0.38	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Meningococcal Inf. (*N. meningitidis*)	0.51	0.54	1.14	1.65	1.56	1.46	1.43	1.40	1.27	0.99	0.93	0.72	0.72	0.29	0.52	0.43

Disease	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Mumps	0.48	0.64	0.35	0.41	0.03	0.13	0.10	0.13	0.16	0.09	0.00	0.09	0.06	0.03	0.06	0.29
Pertussis	1.53	1.68	1.91	0.60	1.49	0.64	1.91	1.14	1.27	1.74	1.25	3.91	3.07	3.48	3.68	1.85
Plague	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary Amebic Meningoencephalitis	0.13	0.19	0.22	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.03	0.00	0.00	0.00	0.06	0.00
Psittacosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rocky Mountain Spotted Fever	3.02	3.47	1.46	1.14	1.53	1.43	0.95	1.24	0.92	1.07	2.00	2.87	4.00	5.51	6.09	3.91
Rubella	0.06	0.00	0.03	0.13	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Salmonellosis	15.29	11.70	10.17	14.12	14.97	16.53	12.46	15.93	14.88	11.74	14.58	15.19	14.32	12.32	12.98	17.53
Shigellosis	6.10	8.01	15.01	6.36	8.46	9.70	9.31	22.63	17.80	3.80	4.29	20.78	31.24	20.98	27.15	5.65
S. pneumo Invasive, ≥ 5 yrs.	3.18	2.86	4.01	5.21	4.16	3.21	2.54	2.32	3.50	3.42	9.39	13.10	12.84	13.33	20.26	20.16
S. pneumo Invasive, <5yrs.	0.89	0.35	0.64	1.72	0.70	0.19	0.32	0.41	0.67	0.46	0.93	1.36	2.20	1.51	1.33	2.00
Syphilis (Total Early)	18.95	22.54	20.22	12.68	15.55	12.65	8.74	8.39	11.03	7.10	5.36	5.30	4.09	2.55	2.12	5.54
Tetanus	0.00	0.03	0.03	0.03	0.00	0.03	0.06	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03
Tuberculosis	6.55	6.87	6.64	8.30	7.53	6.39	6.71	6.29	6.61	4.46	5.62	5.51	4.72	5.16	4.17	4.17
Tularemia	0.38	0.32	0.51	0.13	0.22	0.13	0.16	0.16	0.22	0.32	0.20	0.29	0.26	0.55	0.58	0.09
Typhoid Fever	0.10	0.00	0.03	0.10	0.03	0.00	0.10	0.03	0.00	0.03	0.03	0.06	0.03	0.03	0.03	0.00
Vibrio parahaemolyticus	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
Vibrio spp	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.03	0.00	0.03	0.00	0.00	0.09	0.03
Vibrio vulnificus	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.00
West Nile Virus	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.61	2.29	0.64	0.90	1.39
Yellow Fever	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* First year disease was reportable by law

^ Oklahoma population numbers are from the U.S. Census Bureau, 1990 and 2000 Census Data available at http://www.census.gov/

Reportable Diseases by County, Oklahoma, 2006

	Campylobacteriosis		Cryptosporidiosis		*E. coli* O157:H7 and other EHEC	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Adair	4	19.01	0	0.00	0	0.00
Alfalfa	0	0.00	0	0.00	0	0.00
Atoka	0	0.00	0	0.00	0	0.00
Beaver	0	0.00	0	0.00	0	0.00
Beckham	4	20.20	0	0.00	0	0.00
Blaine	1	8.35	0	0.00	0	0.00
Bryan	1	2.74	0	0.00	0	0.00
Caddo	2	6.63	0	0.00	0	0.00
Canadian	10	11.40	1	1.14	2	2.28
Carter	11	24.11	2	4.38	0	0.00
Cherokee	9	21.17	0	0.00	1	2.35
Choctaw	2	13.04	0	0.00	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	10	4.81	6	2.88	0	0.00
Coal	0	0.00	0	0.00	0	0.00
Comanche	2	1.74	3	2.61	3	2.61
Cotton	1	15.12	0	0.00	0	0.00
Craig	3	20.07	0	0.00	2	13.38
Creek	7	10.39	0	0.00	2	2.97
Custer	4	15.30	0	0.00	0	0.00
Delaware	6	16.18	2	5.39	0	0.00
Dewey	1	21.08	0	0.00	0	0.00
Ellis	0	0.00	0	0.00	1	24.54
Garfield	4	6.92	0	0.00	2	3.46
Garvin	3	11.03	0	0.00	0	0.00
Grady	9	19.77	0	0.00	0	0.00
Grant	1	19.44	0	0.00	0	0.00
Greer	3	49.50	0	0.00	0	0.00
Harmon	0	0.00	0	0.00	0	0.00
Harper	1	28.07	0	0.00	1	28.07
Haskell	3	25.44	0	0.00	0	0.00
Hughes	0	0.00	0	0.00	0	0.00
Jackson	5	17.58	0	0.00	0	0.00
Jefferson	1	14.67	0	0.00	0	0.00
Johnston	1	9.51	0	0.00	0	0.00
Kay	8	16.64	0	0.00	2	4.16
Kingfisher	1	7.18	0	0.00	0	0.00
Kiowa	1	9.78	0	0.00	0	0.00
Latimer	1	9.35	0	0.00	0	0.00
LeFlore	3	6.24	0	0.00	0	0.00

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Campylobacteriosis		Cryptosporidiosis		*E. coli* O157:H7 and other EHEC	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	2	6.23	1	3.12	0	0.00
Logan	2	5.90	0	0.00	1	2.95
Love	0	0.00	1	11.32	0	0.00
McClain	2	7.21	0	0.00	0	0.00
McCurtain	6	17.44	0	0.00	0	0.00
McIntosh	3	15.42	0	0.00	2	10.28
Major	0	0.00	0	0.00	1	13.25
Marshall	0	0.00	0	0.00	0	0.00
Mayes	4	10.43	0	0.00	1	2.61
Murray	3	23.77	1	7.92	1	7.92
Muskogee	10	14.40	6	8.64	1	1.44
Noble	3	26.29	0	0.00	0	0.00
Nowata	2	18.92	0	0.00	1	9.46
Okfuskee	2	16.93	5	42.32	0	0.00
Oklahoma	110	16.66	0	0.00	7	1.06
Okmulgee	16	40.32	0	0.00	1	2.52
Osage	2	4.50	0	0.00	0	0.00
Ottawa	3	9.04	0	0.00	0	0.00
Pawnee	1	6.02	0	0.00	0	0.00
Payne	12	17.60	7	10.27	3	4.40
Pittsburg	2	4.55	0	0.00	0	0.00
Pontotoc	5	14.23	0	0.00	2	5.69
Pottawatomie	6	9.16	0	0.00	0	0.00
Pushmataha	0	0.00	0	0.00	0	0.00
Roger Mills	0	0.00	0	0.00	0	0.00
Rogers	6	8.49	1	1.42	0	0.00
Seminole	5	20.09	0	0.00	0	0.00
Sequoyah	9	23.09	0	0.00	0	0.00
Stephens	11	25.47	11	25.47	0	0.00
Texas	5	24.87	0	0.00	0	0.00
Tillman	1	10.77	0	0.00	0	0.00
Tulsa	47	8.34	9	1.60	6	1.07
Wagoner	2	3.48	0	0.00	0	0.00
Washington	1	2.04	0	0.00	0	0.00
Washita	0	0.00	0	0.00	0	0.00
Woods	0	0.00	0	0.00	0	0.00
Woodward	0	0.00	0	0.00	1	5.41
State of Oklahoma	**406**	**11.77**	**56**	**1.62**	**44**	**1.28**

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Ehrlichiosis		Giardiasis		*Haemophilus influenzae*, invasive	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Adair	3	14.26	3	14.26	0	0.00
Alfalfa	0	0.00	1	16.38	0	0.00
Atoka	1	7.21	1	7.21	0	0.00
Beaver	0	0.00	0	0.00	0	0.00
Beckham	0	0.00	1	5.05	0	0.00
Blaine	0	0.00	1	8.35	0	0.00
Bryan	0	0.00	1	2.74	0	0.00
Caddo	0	0.00	2	6.63	1	3.32
Canadian	0	0.00	3	3.42	0	0.00
Carter	0	0.00	3	6.58	5	10.96
Cherokee	2	4.70	1	2.35	2	4.70
Choctaw	0	0.00	0	0.00	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	1	0.48	15	7.21	8	3.85
Coal	0	0.00	0	0.00	0	0.00
Comanche	0	0.00	1	0.87	3	2.61
Cotton	0	0.00	0	0.00	0	0.00
Craig	1	6.69	0	0.00	0	0.00
Creek	1	1.48	1	1.48	1	1.48
Custer	0	0.00	1	3.83	0	0.00
Delaware	0	0.00	5	13.49	0	0.00
Dewey	0	0.00	0	0.00	0	0.00
Ellis	0	0.00	0	0.00	0	0.00
Garfield	0	0.00	1	1.73	2	3.46
Garvin	0	0.00	0	0.00	0	0.00
Grady	0	0.00	5	10.99	0	0.00
Grant	0	0.00	0	0.00	0	0.00
Greer	0	0.00	0	0.00	0	0.00
Harmon	0	0.00	0	0.00	1	30.46
Harper	0	0.00	2	56.15	0	0.00
Haskell	0	0.00	1	8.48	0	0.00
Hughes	1	7.07	0	0.00	0	0.00
Jackson	0	0.00	0	0.00	0	0.00
Jefferson	0	0.00	0	0.00	0	0.00
Johnston	0	0.00	0	0.00	0	0.00
Kay	0	0.00	2	4.16	0	0.00
Kingfisher	0	0.00	3	21.54	0	0.00
Kiowa	0	0.00	0	0.00	1	9.78
Latimer	2	18.71	0	0.00	0	0.00
LeFlore	3	6.24	3	6.24	0	0.00

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Ehrlichiosis		Giardiasis		*Haemophilus influenzae*, invasive	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	0	0.00	2	6.23	0	0.00
Logan	0	0.00	0	0.00	1	2.95
Love	0	0.00	0	0.00	0	0.00
McClain	0	0.00	5	18.02	1	3.60
McCurtain	1	2.91	0	0.00	0	0.00
McIntosh	0	0.00	1	5.14	0	0.00
Major	0	0.00	0	0.00	0	0.00
Marshall	0	0.00	0	0.00	0	0.00
Mayes	2	5.21	1	2.61	2	5.21
Murray	0	0.00	1	7.92	0	0.00
Muskogee	0	0.00	6	8.64	0	0.00
Noble	0	0.00	0	0.00	1	8.76
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	0	0.00	1	8.46	0	0.00
Oklahoma	4	0.61	26	3.94	19	2.88
Okmulgee	2	5.04	3	7.56	1	2.52
Osage	0	0.00	2	4.50	0	0.00
Ottawa	1	3.01	1	3.01	0	0.00
Pawnee	0	0.00	3	18.06	0	0.00
Payne	3	4.40	2	2.93	1	1.47
Pittsburg	6	13.65	0	0.00	2	4.55
Pontotoc	1	2.85	2	5.69	0	0.00
Pottawatomie	2	3.05	3	4.58	2	3.05
Pushmataha	2	17.14	0	0.00	0	0.00
Roger Mills	0	0.00	0	0.00	1	29.10
Rogers	2	2.83	4	5.66	0	0.00
Seminole	0	0.00	0	0.00	1	4.02
Sequoyah	2	5.13	2	5.13	0	0.00
Stephens	0	0.00	3	6.95	0	0.00
Texas	0	0.00	0	0.00	0	0.00
Tillman	0	0.00	0	0.00	0	0.00
Tulsa	2	0.36	29	5.15	20	3.55
Wagoner	1	1.74	9	15.65	2	3.48
Washington	1	2.04	3	6.12	0	0.00
Washita	0	0.00	0	0.00	0	0.00
Woods	0	0.00	0	0.00	0	0.00
Woodward	0	0.00	0	0.00	0	0.00
State of Oklahoma	**47**	**1.36**	**166**	**4.81**	**78**	**2.26**

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Hepatitis A		Hepatitis B		Meningococcal invasive disease	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	0	0.00	1	4.75	0	0.00
Alfalfa	0	0.00	0	0.00	0	0.00
Atoka	0	0.00	1	7.21	0	0.00
Beaver	0	0.00	0	0.00	0	0.00
Beckham	0	0.00	0	0.00	0	0.00
Blaine	0	0.00	0	0.00	0	0.00
Bryan	0	0.00	0	0.00	0	0.00
Caddo	0	0.00	3	9.95	0	0.00
Canadian	0	0.00	2	2.28	0	0.00
Carter	0	0.00	0	0.00	0	0.00
Cherokee	0	0.00	1	2.35	1	2.35
Choctaw	0	0.00	1	6.52	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	1	0.48	4	1.92	0	0.00
Coal	0	0.00	0	0.00	0	0.00
Comanche	0	0.00	5	4.35	0	0.00
Cotton	0	0.00	0	0.00	0	0.00
Craig	0	0.00	2	13.38	0	0.00
Creek	0	0.00	7	10.39	0	0.00
Custer	0	0.00	0	0.00	0	0.00
Delaware	0	0.00	0	0.00	0	0.00
Dewey	0	0.00	0	0.00	0	0.00
Ellis	0	0.00	0	0.00	0	0.00
Garfield	0	0.00	0	0.00	0	0.00
Garvin	0	0.00	0	0.00	0	0.00
Grady	0	0.00	1	2.20	0	0.00
Grant	0	0.00	0	0.00	0	0.00
Greer	1	16.50	1	16.50	0	0.00
Harmon	0	0.00	0	0.00	0	0.00
Harper	0	0.00	0	0.00	0	0.00
Haskell	0	0.00	0	0.00	0	0.00
Hughes	0	0.00	1	7.07	1	7.07
Jackson	0	0.00	0	0.00	0	0.00
Jefferson	0	0.00	0	0.00	0	0.00
Johnston	0	0.00	1	9.51	0	0.00
Kay	1	2.08	0	0.00	1	2.08
Kingfisher	0	0.00	0	0.00	0	0.00
Kiowa	0	0.00	0	0.00	0	0.00
Latimer	0	0.00	0	0.00	0	0.00
LeFlore	0	0.00	2	4.16	0	0.00

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Hepatitis A		Hepatitis B		Meningococcal invasive disease	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	0	0.00	3	9.35	0	0.00
Logan	0	0.00	0	0.00	1	2.95
Love	1	11.32	0	0.00	0	0.00
McClain	0	0.00	1	3.60	0	0.00
McCurtain	0	0.00	0	0.00	0	0.00
McIntosh	0	0.00	1	5.14	0	0.00
Major	0	0.00	0	0.00	0	0.00
Marshall	0	0.00	0	0.00	0	0.00
Mayes	0	0.00	0	0.00	0	0.00
Murray	0	0.00	0	0.00	0	0.00
Muskogee	0	0.00	4	5.76	0	0.00
Noble	0	0.00	0	0.00	0	0.00
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	0	0.00	0	0.00	0	0.00
Oklahoma	2	0.30	4	0.61	3	0.45
Okmulgee	0	0.00	6	15.12	0	0.00
Osage	0	0.00	4	9.00	1	2.25
Ottawa	0	0.00	0	0.00	0	0.00
Pawnee	0	0.00	1	6.02	0	0.00
Payne	0	0.00	0	0.00	1	1.47
Pittsburg	0	0.00	4	9.10	1	2.28
Pontotoc	0	0.00	2	5.69	0	0.00
Pottawatomie	0	0.00	3	4.58	0	0.00
Pushmataha	0	0.00	0	0.00	0	0.00
Roger Mills	0	0.00	0	0.00	0	0.00
Rogers	0	0.00	0	0.00	0	0.00
Seminole	0	0.00	2	8.03	1	4.02
Sequoyah	0	0.00	7	17.96	0	0.00
Stephens	0	0.00	0	0.00	0	0.00
Texas	1	4.97	0	0.00	0	0.00
Tillman	0	0.00	0	0.00	0	0.00
Tulsa	4	0.71	16	2.84	2	0.36
Wagoner	0	0.00	0	0.00	1	1.74
Washington	0	0.00	0	0.00	0	0.00
Washita	0	0.00	0	0.00	0	0.00
Woods	0	0.00	0	0.00	0	0.00
Woodward	0	0.00	5	27.05	1	5.41
State of Oklahoma	**11**	**0.32**	**96**	**2.78**	**15**	**0.43**

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Pertussis		Rocky Mountain Spotted Fever		Salmonellosis	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	0	0.00	2	9.51	5	23.77
Alfalfa	0	0.00	1	16.38	2	32.76
Atoka	0	0.00	1	7.21	2	14.41
Beaver	0	0.00	0	0.00	0	0.00
Beckham	2	10.10	0	0.00	6	30.30
Blaine	0	0.00	0	0.00	0	0.00
Bryan	0	0.00	0	0.00	2	5.47
Caddo	0	0.00	0	0.00	3	9.95
Canadian	0	0.00	1	1.14	16	18.24
Carter	0	0.00	1	2.19	10	21.92
Cherokee	0	0.00	1	2.35	7	16.46
Choctaw	0	0.00	2	13.04	1	6.52
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	3	1.44	3	1.44	23	11.06
Coal	0	0.00	0	0.00	3	49.74
Comanche	2	1.74	1	0.87	10	8.70
Cotton	0	0.00	0	0.00	0	0.00
Craig	1	6.69	0	0.00	4	26.76
Creek	0	0.00	2	2.97	18	26.72
Custer	0	0.00	1	3.83	10	38.25
Delaware	2	5.39	3	8.09	7	18.88
Dewey	0	0.00	0	0.00	0	0.00
Ellis	0	0.00	0	0.00	0	0.00
Garfield	1	1.73	0	0.00	10	17.30
Garvin	0	0.00	2	7.35	11	40.43
Grady	2	4.39	0	0.00	8	17.58
Grant	0	0.00	0	0.00	2	38.88
Greer	0	0.00	0	0.00	1	16.50
Harmon	0	0.00	0	0.00	0	0.00
Harper	4	112.30	0	0.00	0	0.00
Haskell	0	0.00	2	16.96	3	25.44
Hughes	0	0.00	2	14.13	1	7.07
Jackson	0	0.00	0	0.00	7	24.61
Jefferson	0	0.00	1	14.67	3	44.00
Johnston	0	0.00	0	0.00	2	19.02
Kay	1	2.08	0	0.00	6	12.48
Kingfisher	0	0.00	1	7.18	1	7.18
Kiowa	0	0.00	1	9.78	3	29.33
Latimer	0	0.00	1	9.35	3	28.06
LeFlore	1	2.08	9	18.71	10	20.79

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Pertussis		Rocky Mountain Spotted Fever		Salmonellosis	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	0	0.00	2	6.23	6	18.70
Logan	1	2.95	2	5.90	6	17.69
Love	0	0.00	1	11.32	0	0.00
McClain	0	0.00	2	7.21	5	18.02
McCurtain	0	0.00	5	14.53	3	8.72
McIntosh	1	5.14	0	0.00	2	10.28
Major	0	0.00	0	0.00	2	26.51
Marshall	0	0.00	1	7.58	4	30.34
Mayes	2	5.21	5	13.03	8	20.85
Murray	0	0.00	1	7.92	2	15.84
Muskogee	0	0.00	2	2.88	12	17.28
Noble	0	0.00	1	8.76	0	0.00
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	0	0.00	0	0.00	3	25.39
Oklahoma	14	2.12	19	2.88	118	17.87
Okmulgee	0	0.00	1	2.52	4	10.08
Osage	0	0.00	1	2.25	8	18.00
Ottawa	0	0.00	4	12.05	2	6.03
Pawnee	0	0.00	1	6.02	6	36.12
Payne	0	0.00	4	5.87	17	24.93
Pittsburg	0	0.00	15	34.13	6	13.65
Pontotoc	0	0.00	3	8.54	8	22.76
Pottawatomie	0	0.00	7	10.68	11	16.79
Pushmataha	0	0.00	2	17.14	9	77.14
Roger Mills	0	0.00	0	0.00	4	116.41
Rogers	3	4.25	3	4.25	16	22.65
Seminole	2	8.03	1	4.02	1	4.02
Sequoyah	1	2.57	2	5.13	7	17.96
Stephens	3	6.95	2	4.63	19	44.00
Texas	0	0.00	0	0.00	6	29.84
Tillman	0	0.00	0	0.00	1	10.77
Tulsa	16	2.84	10	1.78	90	15.98
Wagoner	0	0.00	0	0.00	9	15.65
Washington	0	0.00	0	0.00	3	6.12
Washita	0	0.00	0	0.00	0	0.00
Woods	1	11.00	0	0.00	3	33.01
Woodward	1	5.41	0	0.00	4	21.64
State of Oklahoma	**64**	**1.85**	**135**	**3.91**	**605**	**17.53**

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Shigellosis		*Streptococcus*, Group A Invasive		*Streptococcus pneumoniae*, Inv.	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Adair	0	0.00	1	4.75	4	19.01
Alfalfa	1	16.38	0	0.00	0	0.00
Atoka	0	0.00	0	0.00	1	7.21
Beaver	0	0.00	0	0.00	0	0.00
Beckham	0	0.00	1	5.05	5	25.25
Blaine	1	8.35	0	0.00	2	16.70
Bryan	0	0.00	0	0.00	2	5.47
Caddo	0	0.00	0	0.00	12	39.80
Canadian	2	2.28	3	3.42	14	15.96
Carter	2	4.38	1	2.19	11	24.11
Cherokee	0	0.00	0	0.00	6	14.11
Choctaw	0	0.00	0	0.00	3	19.55
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	8	3.85	3	1.44	29	13.94
Coal	0	0.00	0	0.00	1	16.58
Comanche	12	10.44	4	3.48	18	15.65
Cotton	0	0.00	0	0.00	1	15.12
Craig	4	26.76	1	6.69	1	6.69
Creek	19	28.20	1	1.48	17	25.23
Custer	0	0.00	1	3.83	6	22.95
Delaware	0	0.00	0	0.00	3	8.09
Dewey	0	0.00	0	0.00	1	21.08
Ellis	0	0.00	0	0.00	0	0.00
Garfield	4	6.92	0	0.00	19	32.86
Garvin	0	0.00	0	0.00	11	40.43
Grady	8	17.58	5	10.99	11	24.17
Grant	0	0.00	0	0.00	2	38.88
Greer	0	0.00	0	0.00	1	16.50
Harmon	0	0.00	1	30.46	0	0.00
Harper	1	28.07	0	0.00	0	0.00
Haskell	0	0.00	0	0.00	7	59.36
Hughes	1	7.07	0	0.00	3	21.20
Jackson	6	21.10	0	0.00	3	10.55
Jefferson	0	0.00	0	0.00	0	0.00
Johnston	0	0.00	0	0.00	2	19.02
Kay	1	2.08	1	2.08	2	4.16
Kingfisher	1	7.18	1	7.18	0	0.00
Kiowa	1	9.78	1	9.78	0	0.00
Latimer	0	0.00	1	9.35	2	18.71
LeFlore	0	0.00	0	0.00	4	8.31

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Shigellosis		*Streptococcus*, Group A Invasive		*Streptococcus pneumoniae*, Inv.	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	1	3.12	1	3.12	8	24.94
Logan	0	0.00	1	2.95	8	23.58
Love	0	0.00	0	0.00	2	22.65
McClain	2	7.21	0	0.00	3	10.81
McCurtain	0	0.00	1	2.91	7	20.35
McIntosh	0	0.00	1	5.14	6	30.84
Major	0	0.00	0	0.00	2	26.51
Marshall	0	0.00	0	0.00	4	30.34
Mayes	1	2.61	1	2.61	11	28.67
Murray	0	0.00	0	0.00	2	15.84
Muskogee	3	4.32	0	0.00	7	10.08
Noble	0	0.00	1	8.76	1	8.76
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	1	8.46	0	0.00	1	8.46
Oklahoma	41	6.21	37	5.60	187	28.31
Okmulgee	27	68.04	1	2.52	6	15.12
Osage	0	0.00	0	0.00	3	6.75
Ottawa	0	0.00	1	3.01	6	18.08
Pawnee	0	0.00	0	0.00	2	12.04
Payne	0	0.00	2	2.93	12	17.60
Pittsburg	0	0.00	2	4.55	13	29.58
Pontotoc	2	5.69	3	8.54	5	14.23
Pottawatomie	4	6.10	1	1.53	20	30.52
Pushmataha	0	0.00	0	0.00	1	8.57
Roger Mills	0	0.00	2	58.21	0	0.00
Rogers	10	14.16	1	1.42	6	8.49
Seminole	3	12.05	0	0.00	4	16.07
Sequoyah	2	5.13	0	0.00	6	15.40
Stephens	0	0.00	0	0.00	9	20.84
Texas	1	4.97	0	0.00	0	0.00
Tillman	5	53.84	0	0.00	1	10.77
Tulsa	18	3.20	41	7.28	130	23.08
Wagoner	0	0.00	1	1.74	14	24.35
Washington	2	4.08	0	0.00	8	16.33
Washita	0	0.00	0	0.00	0	0.00
Woods	0	0.00	1	11.00	1	11.00
Woodward	0	0.00	0	0.00	3	16.23
State of Oklahoma	**195**	**5.65**	**125**	**3.62**	**703**	**20.37**

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Tuberculosis		Tularemia		West Nile Virus	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	0	0.00	0	0.00	0	0.00
Alfalfa	0	0.00	0	0.00	0	0.00
Atoka	1	7.21	0	0.00	0	0.00
Beaver	1	17.07	0	0.00	1	17.07
Beckham	0	0.00	0	0.00	1	5.05
Blaine	0	0.00	0	0.00	0	0.00
Bryan	3	8.21	0	0.00	0	0.00
Caddo	3	9.95	0	0.00	1	3.32
Canadian	3	3.42	0	0.00	2	2.28
Carter	2	4.38	0	0.00	7	15.34
Cherokee	4	9.41	1	2.35	0	0.00
Choctaw	0	0.00	0	0.00	0	0.00
Cimarron	0	0.00	0	0.00	0	0.00
Cleveland	9	4.33	0	0.00	1	0.48
Coal	0	0.00	0	0.00	0	0.00
Comanche	4	3.48	0	0.00	2	1.74
Cotton	0	0.00	0	0.00	0	0.00
Craig	0	0.00	0	0.00	0	0.00
Creek	2	2.97	0	0.00	0	0.00
Custer	1	3.83	0	0.00	0	0.00
Delaware	1	2.70	0	0.00	0	0.00
Dewey	0	0.00	0	0.00	0	0.00
Ellis	0	0.00	0	0.00	0	0.00
Garfield	3	5.19	0	0.00	0	0.00
Garvin	1	3.68	1	3.68	0	0.00
Grady	1	2.20	0	0.00	2	4.39
Grant	0	0.00	0	0.00	0	0.00
Greer	0	0.00	0	0.00	0	0.00
Harmon	0	0.00	0	0.00	0	0.00
Harper	2	56.15	0	0.00	0	0.00
Haskell	0	0.00	0	0.00	0	0.00
Hughes	1	7.07	0	0.00	0	0.00
Jackson	1	3.52	0	0.00	1	3.52
Jefferson	0	0.00	0	0.00	1	14.67
Johnston	1	9.51	0	0.00	0	0.00
Kay	2	4.16	0	0.00	0	0.00
Kingfisher	0	0.00	0	0.00	0	0.00
Kiowa	0	0.00	0	0.00	0	0.00
Latimer	0	0.00	0	0.00	0	0.00
LeFlore	0	0.00	0	0.00	0	0.00

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Diseases by County, Oklahoma, 2006

	Tuberculosis		Tularemia		West Nile Virus	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	0	0.00	0	0.00	0	0.00
Logan	1	2.95	0	0.00	0	0.00
Love	1	11.32	0	0.00	0	0.00
McClain	0	0.00	0	0.00	0	0.00
McCurtain	5	14.53	0	0.00	1	2.91
McIntosh	0	0.00	0	0.00	0	0.00
Major	0	0.00	0	0.00	0	0.00
Marshall	0	0.00	0	0.00	1	7.58
Mayes	3	7.82	0	0.00	0	0.00
Murray	0	0.00	0	0.00	0	0.00
Muskogee	5	7.20	0	0.00	0	0.00
Noble	0	0.00	0	0.00	0	0.00
Nowata	0	0.00	0	0.00	0	0.00
Okfuskee	1	8.46	0	0.00	0	0.00
Oklahoma	32	4.85	1	0.15	11	1.67
Okmulgee	1	2.52	0	0.00	1	2.52
Osage	1	2.25	0	0.00	0	0.00
Ottawa	0	0.00	0	0.00	1	3.01
Pawnee	0	0.00	0	0.00	0	0.00
Payne	3	4.40	0	0.00	0	0.00
Pittsburg	1	2.28	0	0.00	3	6.83
Pontotoc	2	5.69	0	0.00	1	2.85
Pottawatomie	7	10.68	0	0.00	0	0.00
Pushmataha	0	0.00	0	0.00	0	0.00
Roger Mills	0	0.00	0	0.00	1	29.10
Rogers	0	0.00	0	0.00	1	1.42
Seminole	1	4.02	0	0.00	0	0.00
Sequoyah	1	2.57	0	0.00	0	0.00
Stephens	1	2.32	0	0.00	1	2.32
Texas	5	24.87	0	0.00	0	0.00
Tillman	1	10.77	0	0.00	0	0.00
Tulsa	20	3.55	0	0.00	5	0.89
Wagoner	3	5.22	0	0.00	1	1.74
Washington	1	2.04	0	0.00	0	0.00
Washita	0	0.00	0	0.00	0	0.00
Woods	1	11.00	0	0.00	1	11.00
Woodward	1	5.41	0	0.00	0	0.00
State of Oklahoma	**144**	**4.17**	**3**	**0.09**	**48**	**1.39**

^ 2006 Rates illustrate county specific incidence rates per 100,000 population. Rates calculated by dividing the number of reported cases by the 2000 Census Bureau county population and multiplying by 100,000.

Reportable Sexually Transmitted Diseases by County, Oklahoma, 2006

	Chlamydia		Gonorrhea		Syphilis (Total Early)	
County	Number	Rate^	Number	Rate^	Number	Rate^
Adair	67	318.47	9	42.78	*	*
Alfalfa	8	131.04	*	*	*	*
Atoka	22	158.51	6	43.23	*	*
Beaver	5	85.37	*	*	*	*
Beckham	76	383.86	13	65.66	*	*
Blaine	23	192.05	*	*	*	*
Bryan	141	385.94	30	82.12	*	*
Caddo	120	398.01	49	162.52	*	*
Canadian	177	201.83	38	43.33	*	*
Carter	130	284.96	81	177.55	*	*
Cherokee	221	519.74	43	101.13	*	*
Choctaw	54	351.98	17	110.81	*	*
Cimarron	*	*	*	*	*	*
Cleveland	557	267.77	114	54.80	*	*
Coal	14	232.13	4	66.32	*	*
Comanche	823	715.68	316	274.79	9	7.83
Cotton	10	151.19	3	45.36	*	*
Craig	46	307.69	5	33.44	*	*
Creek	220	326.57	53	78.67	*	*
Custer	122	466.68	23	87.98	*	*
Delaware	39	105.19	*	*	*	*
Dewey	5	105.42	*	*	*	*
Ellis	5	122.70	*	*	*	*
Garfield	206	356.32	86	148.76	*	*
Garvin	72	264.61	18	66.15	*	*
Grady	95	208.72	24	52.73	*	*
Grant	6	116.64	*	*	*	*
Greer	12	197.99	*	*	*	*
Harmon	8	243.68	4	121.84	*	*
Harper	5	140.37	*	*	*	*
Haskell	28	237.45	*	*	*	*
Hughes	36	254.35	7	49.46	*	*
Jackson	124	436.02	83	291.85	*	*
Jefferson	8	117.34	*	*	*	*
Johnston	22	209.26	*	*	*	*
Kay	131	272.46	28	58.24	*	*
Kingfisher	21	150.80	6	43.08	*	*
Kiowa	20	195.56	3	29.33	*	*
Latimer	27	252.53	6	56.12	*	*
LeFlore	129	268.14	9	18.71	*	*

^ 2006 Rates illustrate county specific incidence rates per 100,000 population.

*Confidentiality concerns restrict releasing data for counties in Oklahoma that have two or fewer cases

Reportable Sexually Transmitted Diseases by County, Oklahoma, 2006

	Chlamydia		Gonorrhea		Syphilis (Total Early)	
County	**Number**	**Rate^**	**Number**	**Rate^**	**Number**	**Rate^**
Lincoln	83	258.73	15	46.76	*	*
Logan	156	459.85	76	224.03	*	*
Love	21	237.80	3	33.97	*	*
McClain	57	205.48	6	21.63	*	*
McCurtain	147	427.30	36	104.65	*	*
McIntosh	71	364.93	10	51.40	*	*
Major	7	92.78	*	*	*	*
Marshall	19	144.11	3	22.75	*	*
Mayes	97	252.81	12	31.28	*	*
Murray	27	213.90	3	23.77	*	*
Muskogee	370	532.75	146	210.22	*	*
Noble	19	166.51	7	61.34	*	*
Nowata	20	189.23	*	*	*	*
Okfuskee	27	228.54	7	59.25	*	*
Oklahoma	3502	530.25	2042	309.18	92	13.93
Okmulgee	184	463.65	38	95.75	*	*
Osage	60	135.02	7	15.75	*	*
Ottawa	107	322.35	16	48.20	*	*
Pawnee	30	180.59	15	90.30	*	*
Payne	286	419.42	67	98.25	*	*
Pittsburg	125	284.39	36	81.91	*	*
Pontotoc	179	509.35	36	102.44	*	*
Pottawatomie	229	349.51	49	74.79	*	*
Pushmataha	20	171.42	6	51.43	*	*
Roger Mills	5	145.52	*	*	*	*
Rogers	199	281.71	40	56.62	3	4.25
Seminole	114	457.94	20	80.34	*	*
Sequoyah	89	228.37	19	48.75	*	*
Stephens	86	199.16	24	55.58	*	*
Texas	71	353.11	4	19.89	*	*
Tillman	39	419.94	14	150.75	*	*
Tulsa	2357	418.43	1039	184.45	36	6.39
Wagoner	118	205.25	33	57.40	*	*
Washington	131	267.37	21	42.86	24	48.98
Washita	27	234.62	*	*	*	*
Woods	24	264.06	3	33.01	*	*
Woodward	53	286.70	*	*	*	*
State of Oklahoma	**12,992**	**376.51**	**4,951**	**143.48**	**191**	**5.54**

^ 2006 Rates illustrate county specific incidence rates per 100,000 population.

* Confidentiality concerns restrict releasing data for counties in Oklahoma that have two or fewer cases

Estimated Numbers of Persons Living with HIV Infection (non-AIDS), (per 100,000 population) by County of Residence, as of December 31, 2006, Oklahoma.

County	HIV Infection	Prevalence Rate per 100,000	County	HIV Infection	Prevalence Rate per 100,000
Adair	**	**	Lincoln	4	12.5
Alfalfa	**	**	Logan	23	67.8
Atoka	**	**	Love	**	**
Beaver	**	**	Major	3	39.8
Beckham	7	35.4	Marshall	5	37.9
Blaine	10	83.5	Mayes	7	18.2
Bryan	9	24.6	McClain	12	43.3
Caddo	20	66.3	McCurtain	7	20.3
Canadian	39	44.5	McIntosh	4	20.6
Carter	11	24.1	Murray	**	**
Cherokee	9	21.2	Muskogee	22	31.7
Choctaw	7	45.6	Noble	6	52.6
Cimarron	**	**	Nowata	**	**
Cleveland	127	61.1	Okfuskee	**	**
Coal	**	**	Oklahoma	865	131.0
Comanche	127	110.4	Okmulgee	8	20.2
Cotton	**	**	Osage	7	15.8
Craig	4	26.8	Ottawa	7	21.1
Creek	15	22.3	Pawnee	6	36.1
Custer	11	42.1	Payne	23	33.7
Delaware	3	8.1	Pittsburg	14	31.9
Dewey	3	63.3	Pontotoc	12	34.1
Ellis	**	**	Pottawatomie	20	30.5
Garfield	27	46.7	Pushmataha	**	**
Garvin	**	**	Rogers Mills	**	**
Grady	14	30.8	Rogers	22	31.1
Grant	**	**	Seminole	9	36.2
Greer	4	66.0	Sequoyah	8	20.5
Harmon	**	**	Stephens	9	20.8
Harper	**	**	Texas	8	39.8
Haskell	**	**	Tillman	**	**
Hughes	**	**	Tulsa	587	104.2
Jackson	6	21.1	Wagoner	9	15.7
Jefferson	4	58.7	Washington	9	18.4
Johnston	3	28.5	Washita	**	**
Kay	15	31.2	Woods	**	**
Kingfisher	4	28.7	Woodward	6	32.5
Kiowa	**	**	Other/Unknown*	4	NA
Latimer	**	**		**	**
LeFlore	16	33.3	**Total**	**2,243**	**65.0**

"Other/Unknown" are clients who are residing in Oklahoma where the county of residence at first diagnosis was not documented.

**Confidentiality concerns restrict releasing data for counties which have two (2) or fewer cases.

Estimated Numbers of Persons Living with AIDS (per 100,000 population) by County of Residence, as of December 31, 2006, Oklahoma.

County	AIDS Cases	Prevalence Rate per 100,000	County	AIDS Cases	Prevalence Rate per 100,000
Adair	8	38.0	Lincoln	10	31.2
Alfalfa	**	**	Logan	14	41.3
Atoka	8	57.6	Love	**	**
Beaver	**	**	Major	**	**
Beckham	3	15.2	Marshall	**	**
Blaine	5	41.8	Mayes	10	26.1
Bryan	14	38.3	McClain	13	46.9
Caddo	10	33.2	McCurtain	8	23.3
Canadian	38	43.3	McIntosh	7	36.0
Carter	11	24.1	Murray	**	**
Cherokee	14	32.9	Muskogee	31	44.6
Choctaw	4	26.1	Noble	**	**
Cimarron	**	**	Nowata	3	28.4
Cleveland	82	39.4	Okfuskee	5	42.3
Coal	**	**	Oklahoma	817	123.7
Comanche	49	42.6	Okmulgee	15	37.8
Cotton	**	**	Osage	9	20.3
Craig	10	66.9	Ottawa	8	24.1
Creek	20	29.7	Pawnee	8	48.2
Custer	8	30.6	Payne	18	26.4
Delaware	7	18.9	Pittsburg	14	31.9
Dewey	**	**	Pontotoc	7	19.9
Ellis	**	**	Pottawatomie	29	44.3
Garfield	14	24.2	Pushmataha	**	**
Garvin	7	25.7	Rogers Mills	**	**
Grady	14	30.8	Rogers	16	22.6
Grant	**	**	Seminole	7	28.1
Greer	**	**	Sequoyah	13	33.4
Harmon	**	**	Stephens	8	18.5
Harper	**	**	Texas	3	14.9
Haskell	6	50.9	Tillman	**	**
Hughes	**	**	Tulsa	632	112.2
Jackson	9	31.6	Wagoner	12	20.9
Jefferson	3	44.0	Washington	14	28.6
Johnston	**	**	Washita	**	**
Kay	13	27.0	Woods	**	**
Kingfisher	**	**	Woodward	4	21.6
Kiowa	**	**	Other/Unknown*	29	NA
Latimer	3	28.1		**	**
LeFlore	20	41.6	**Total**	**2,168**	**62.8**

"Other/Unknown" are clients who are residing in Oklahoma where the county of residence at first diagnosis was not documented.

**Confidentiality concerns restrict releasing data for counties which have two (2) or fewer cases.

Public Health Laboratory: Update

The Public Health Laboratory (PHL) provides accurate, and high quality laboratory testing to the citizens of Oklahoma by working closely with all divisions of the Oklahoma State Department of Health. The PHL actively participates in the evolving process to promote and improve the health and quality of life for the citizens of Oklahoma by being an essential component of both the State and the National Public Health infrastructure.

A national public health laboratory network has been established, and the PHL actively participates in this network to protect the health and safety of the citizens of Oklahoma. Infectious disease surveillance, detection and rapid diagnosis of communicable diseases, as well as, detection of possible bioterrorism events allow the PHL to be one of the first lines of defense for Oklahoma.

As the PHL, we provide laboratory support for the following programs:
- Disease Control and Prevention
- Maternal and Child Health
- Newborn Screening, and
- STD/HIV Services, and
- Terrorism Prepardeness

Currently the PHL participates in:
- Epidemiology surveillance activities
- Outbreak investigations
- Monitoring for emergence of new infectious agents and re-emergence of older infectious agents,
- Oversee laboratory quality assurance for County Health Department laboratory operations,
- Provide training of private and public laboratory personnel, and
- Support surveillance for possible Bioterrorism events.

The following are some of the services the PHL provides to the citizens of Oklahoma and the nation.

Bacteriology/Parasitology Section:

The general bacteriology laboratory performs primary isolation and identification on clinical specimens of human and nonhuman origin, as well as, identifying referred isolates from laboratories across the State. This section also performs testing for food borne pathogens during outbreak situations.

The enteric bacteriology section examines stools from both human and nonhuman sources for a wide variety of enteropathogens including: *Salmonella spp.*, *Shigella spp.*, enterohemorrhagic *Escherichia coli*, *Campylobacter spp.*, *Vibrio* spp., *Yersinia enterocolitica*, *Aeromonas spp.*, *Pleisomonas shigelloides*, *Bacillus cereus* and *Staphylococcus aureus*. In addition to clinical specimens, all *Salmonella*, *Shigella*

and enterohemorrhagic *E. coli* isolated in clinical laboratories are required to be sent to this laboratory for speciation and serotyping.

Identification of bacterial strains are performed by using a combination of rapid and traditional biochemical testing, serotyping and Real Time Polymerase Chain Reaction (PCR). All isolates of *Escherichia coli* are screened by Real Time PCR to detect the presence of STX I and STX II genes that are responsible for the production of shiga like toxins. The direct fluorescent antibody stain for *Bordetella pertussis* and *Bordetella parapertussis* has been replaced by Real Time PCR.

The Parasitology Section examines stool, referred stains, and blood for amoebas, nematodes, cestodes, and trematodes. Techniques used for these examinations include wet mounts using iodine and saline, trichrome stain and modified acid fast stain for the detection of *Cryptosporidium* and *Cyclospora*.

2006 Specimens:

Organism	Total #
Salmonella spp.	589
Shigella spp.	152
Suspect Shiga toxin Producing *E. coli*	136
Shiga toxin producing *E. coli*	40
Campylobacter spp.	256
Clinical stools	279
Bordetella pertussis & parapertussis screens	239
Bordetella pertussis positive	11
Bordetella paratussis positive	3
Group B Streptococcus screening	422
Group B Streptococcus positive	51

Molecular-Bioterrorism Section

The Bioterrorism Section consists of a Biosafety Level 3 and a Biosafety Level 3 enhanced facility with the ability to rapidly and safely identify anthrax and other potential agents of Bioterrorism (BT). Culture, fluorescent antibody staining, real time-PCR, and time resolved fluorescence assays are used to rapidly detect select agents thought to be most probable for use in BT events. These agents include *Bacillus anthracis, Yersinia pestis, Brucella species, Francisella tularensis, Burkholderia mallei/pseudomallei*, Ricin toxin, *Staphylococcus* enterotoxin B, *Clostridium botulinum* toxins as well as a variety of orthopox/nonorthopox viruses and avian influenza. The PHL is a Level B or Reference laboratory in the National Laboratory Response Network (LRN) employing standardized reagents and methods from CDC. The section also has the capability to gene sequence, which allows more accurate and rapid identification of unusual isolates by comparing the genetic structure with established databases.

Due to an increased awareness of avian influenza A H5N1 and the awareness of pandemic flu, the PHL was able to purchase instrumentation to rule out an exposure to this influenza strain. New viral extraction and real time PCR equipment will decrease the detection time of Influenza H5 by 2-3 hours. Preliminary rapid results are available within approximately 5 hours while definitive viral culture may take 3-5 days. All respiratory viral samples are routinely screened for Influenza A H1, H3, H5 and H7 and Influenza B. This same technology also gives the PHL added testing volume if needed for large-scale BT events.

The Molecular section collaborated with a commercial vendor in early validation studies of a respiratory viral panel (RVP). The PHL was the only lab in the US chosen to participate. Due to our technical expertise and quality results, an FDA approved kit, which simultaneously detects 17 different viruses including Influenza H5, should be on the market by mid-2007.

PulseNet Section

The Public Health Laboratory routinely analyzes all *Salmonella, Shigella, Escherichia coli* O157:H7, and *Listeria monocytogenes* isolates by Pulsed-field gel electrophoresis (PFGE). *Campylobacter, Haemophilus, Neisseria, Serratia, Pseudomonas,* MRSA, as well as a variety of other bacteria may be run based on need. PFGE patterns of each strain are digitalized and stored as computer files. These files can then be compared locally, national or internationally for similarity by standardized computer software.

PFGE is an invaluable epidemiological tool that characterizes chromosomal bacterial DNA allowing quick comparisons, which often will detect outbreaks before they reach epidemic proportions. Only a few isolates of a particular bacteria in one area of the country or state may often go unnoticed as an outbreak, but when these PFGE patterns are compared to the national database, they may be found to be part of a larger outbreak in other regions of the country. Currently, the Public Health Laboratory is a member of PulseNet, which is the standardized international molecular subtyping network of databases for foodborne pathogens provided by the Center for Disease Control and Prevention (CDC). PulseNet allows all 50 states, as well as the Food and Drug Agency, US Department of Agriculture, and Canadian Provinces to interact with one another to quickly recognize outbreaks at the outset when prevention measures can be effectively taken. PulseNet has recently expanded to include PulseNet Europe, Asia Pacific, Middle East, and Latin America.

In 2006 the PFGE lab analyzed over 2800 samples. These included:

Total	Organism
900	*Salmonella*
200	*Shigella*
100	*E. coli*
50	*Listeria*
200	MRSA
120	*Pseudomonas*
90	*Campylobacter*

PFGE staff responded to over 300 outbreak postings on PulseNet's WebBoard. The Webboard is an electronic forum that allows all PFGE laboratorians and epidemiologists to post outbreak or investigational information. Oklahoma posted over 30 clusters identified in our state to the WebBoard, and alerted state epidemiologists to approximately 30 additional smaller clusters.

The PFGE lab was also involved in testing during 2 national food recalls: the *E. coli* tainted spinach and *Salmonella* tainted peanut butter outbreaks.
Due to our technical expertise and training we were able to contribute to both outbreaks. Using PFGE results, we were able to eliminate Oklahoma O157:H7 *E. coli* suspects from the national cluster for spinach. The PHL was the first Public Health Laboratory to isolate *Salmonella* Tennessee from contaminated peanut butter. As of June 2006, approximately 25 *S.* Tennessee isolates from patient and/or peanut butter samples have been submitted to PulseNet's national database from our PHL.

Mycobacteriology/Mycology Section

The Mycobacteriology/Mycology section functions to isolate and identify tuberculosis and other *Mycobacterium sp*. The laboratory accepts specimens from all County Health Departments and hospitals located in Oklahoma. Specimens are processed in the laboratory with an acid-fast stain result available within 24 hours. Specimens are also inoculated into a liquid media and onto a solid media. Once growth is detected, mycolic acid analysis is performed utilizing high performance liquid chromatography (HPLC). In addition, DNA probes are utilized followed by traditional biochemical tests for identification to complete identification for samples not identified through mycolic acid analysis. Antimicrobial susceptibility to first line antimycobacterial drugs is performed on all isolates grown or referred.

The Mycology section serves the State of Oklahoma by isolating and identifying fungal specimens. The laboratory receives clinical specimens and referred isolates. The laboratory utilizes DNA probe technology for the rapid identification of *Histoplasma capsulatum*, *Blastomyces dermatitidis* and *Coccidiodes immitis*. Yeasts are identified by carbon assimilation tests. Fungal isolates are identified using microscopic and macroscopic observations with additional tests used to supplement as needed.

2006 Mycobacteriology and Mycology Numbers

- 6032 specimens processed for mycobacteria
- 385 referred specimens received for mycobacteria identification
- 340 (5.64%) specimens processed were culture positive for *M. Tuberculosis Complex* (M.tb.C)
- 41 (10.65%) referred specimens were culture positive for M.tb.C
- 498 (8.26%) specimens processed were smear positive
- 77 specimens had M.tb.C drug susceptibilities performed
- 5 M.tb.C. specimens were 0.1ug/ml INH resistant. Of these 2 were also 0.4ug/ml INH resistant
- 4 M.tb.C. specimens were 100.0 ug/ml PZA resistant
- 169 specimens were received for mycology testing

Virology Section

The Virology Section isolates and identifies all common viral agents by cell culture. This section comprises an essential part in the Influenza Surveillance Program. By providing strain characterization of influenza isolates, we assist in the determination of yearly vaccine strain selection and the efficacy of the vaccine. Virus isolation and identification enables us to track disease producing viral agents, which may become epidemic in Oklahoma.

The Virology section also performs rabies examinations by direct immunofluorescence on brain specimens from any animal suspected of having rabies, especially if a human or animal exposure is suspected. The rabies laboratory has a key role in the prevention and control of rabies in Oklahoma. This is the only laboratory in the State that provides rabies testing. Being a fatal disease, rapid laboratory diagnosis of the rabies virus can lead to timely and effective prophylaxis for exposed humans.

In 2006 the PHL tested 1,171 specimens for rabies. The most common animals tested are listed below:

Type Animal	Negative	Positive
Bat	28	3
Cat	337	4
Cow	52	6
Dog	563	1
Horse	27	5
Skunk	61	50

This section conducts testing for the two most common agents of sexually transmitted diseases, *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC). A nucleic acid amplified assay is used to test endocervical and male urethral swab

specimens from all the county health departments in the State of Oklahoma and several health clinics. We also test urine specimens from the Juvenile Detention Centers, a high-risk population, for CT and GC. Urine collection is a noninvasive method of sampling juveniles.

Early diagnosis of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* leads to timely treatment, thereby reducing the possibility of complications and the risk of further transmission.

Test	Total Tested	Positive CT	Positive GC	Positive Ct/GC
CT/GT	68252	6201	1961	1053

Test	Total Tested	Positive H1	Positive H3	Positive B
Influenza	3055	41	1961	1053

Immunology Section

The Immunology section supports the HIV/STD service and many Oklahoma healthcare providers by performing human immunodeficiency virus (HIV) antibody screening using the enzyme linked immunoassay (EIA) and Western Blot for confirmation. The lab screened approximately 36,500 specimens in 2006, and confirmed 240 specimens. The majority of county health departments in Oklahoma monitor prenatal patients or those patients who are considering pregnancy for rubella. Rubella screening is performed for county health departments.

This section works closely with Epidemiology on several infectious disease surveillance projects, including the Tick Panel Study testing for *Ehrlichia chaffeensis* and *Rickettesia ricketsii* (RMSF). These bacteria are identified using immunofluorescence antibody technology. The Immunology Section also monitors human arboviral activity in the state for the West Nile Virus and St. Louis Encephalitis. This testing utilizes a method developed by the CDC and includes the antigen capture of IgM antibodies. Since hepatitis has become a major public health issue in Oklahoma, the Public Health Laboratory has implemented hepatitis "B" testing for maternity patients and hepatitis "C" testing for approved facilities only.

Test	Total tested	Positive	Negative
HIV/WIB	36,408	277	36,131
Rubella	1,328	1,216	112
Arbovirus			
West Nile	156	60	96
SLE	153	29	124
Tick Panel			
RMSF	160	34	126
Ehrlichia	160	3	157
Hepatitis			
HbsAg	1,439	23	1,416
HCV	106	32	74

Syphilis Section

The Syphilis Section is responsible for the laboratory diagnosis of syphilis in Oklahoma. Patients with syphilis, either active or treated, will show a rise in their serum titer, although an incubating patient may have a negative antibody test. A pregnant female may also transmit the organism through the placenta to the fetus. The test used for syphilis screening is a nontreponemal test (RPR). The Syphilis section screened approximately 35,000 specimens during 2006. The confirmatory test for syphilis is the TP-PA. It is a qualitative gelatin agglutination assay to detect *Treponemal pallidum* antibodies in human serum. A positive test only shows that the patient has had syphilis at some point in his life, not that the infection is current. This section confirmed approximately 450 specimens by TP-PA this year in Oklahoma. This test has allowed more rapid reporting of suspected syphilis cases at a cost savings to the public.

Test	Total Tested	Positive	Negative
RPR	34,187	614	33,573
TPPA	758	441	317

Newborn Metabolic Screening Section

In 2006, the Newborn Screening Laboratory performed state mandated screens on 55,906 neonatal specimens. Each specimen was screened for Congenital Hypothyroidism, Congenital Adrenal Hyperplasia, Phenylketonuria (PKU), Galactosemia, Cystic Fibrosis, and Hemoglobinopathies. On June 5, 2006 the Newborn Screening panel was expanded to include screening for Medium-chain acyl-CoA dehydrogenase deficiency (MCAD); and 33,242 neonatal specimens were screened for this disorder

during the remainder of 2006. With early identification & treatment of these disorders, many Oklahoma children are saved from death, mental retardation, or chronic disease problems.

Disorder Name	Specimens Screened	Positive Screens	Confirmed Cases (info provided by Follow-up)
Congenital Hypothyroidism (CH)	55906	38	16
Phenylketonuria (PKU)	55906	32	2 classic PKU & I benign Hyperphe
Galactosemia	55906	10	1 classic & 2 variants
Cystic Fibrosis (CF)	55906	122	14 classic CF & 3 mid CF variants
Congenital Adrenal Hyperplasia (CAH)	55906	21	1 classic salt-waster
Hemoglobinopathies (HGB)	55906	15	15
Mediun-chain acyl-CoA dehydrogenase deficiency (MCAD)	33242	24	2
Total	**55906**	**262**	**51**

State Training Program

In 2006, the Public Health Laboratory provided training to Oklahoma laboratories in 3 critical categories: rule-out/referral protocols for select agents of bioterrorism; shipping and packaging regulations changes for infectious substances; collection/packaging/transfer of clinical specimens from a chemical terrorism event.

Rule-out/referral protocols were initiated and the trainings were held at 18 of the 66 sentinel laboratories, training 98 laboratorians on the protocols for ruling-out/referring Category A select agents (*Bacillus anthracis, Yersinia pestis, Francisella tularensis, Brucella sp., Variola and* viral hemorrhagic fevers). Changes in the infectious shipping regulations going into affect in October 2006 and January 2007 were discussed at each training. Data was collected on pandemic influenza testing, biosafety and transfer capabilities in Oklahoma laboratories.

Trainings in collection, packaging, transfer, and chain-of-custody during a response to a chemical terrorism event were completed with the last 9 hospitals out of 120. Seventy-seven laboratorians and emergency room personnel were trained on CDC protocols.

In an effort to reduce response time during a bioterrorism event or during an outbreak, sentinel programs were set-up in 9 laboratories across the state. The

program known as STATPack or Secure Telecommunication and Application Terminal Package (STATPack) allows these 9 (or 11 total to be installed) sentinels to send to the PHL, via live video feeds, macro and micro images of suspect organisms for consultation. The PHL is also able to receive still photos of these images through a closed email system. Sentinels during an event or outbreak can send an emergency message 24/7 to an on-call PHL laboratorian for immediate response. Over 40 laboratorians were trained on STATPack at these sites.

2006 Training Topic	Laboratories/Hospitals Trained	Personnel Trained
Rule-out Referral Protocols	18	98
Chemical Terrorism Collection Protocols	9	77
STATPack	9	40+

Public Health Fact Sheet

Campylobacter

Public Health Fact Sheet

What is campylobacteriosis?
Campylobacteriosis is a diarrheal disease caused by infection with the bacteria *Campylobacter*. There are different types of *Campylobacter* bacteria. *Campylobacter jejuni* is the most common cause of diarrheal illness in the United States.

What are the symptoms of campylobacteriosis?
The symptoms include diarrhea, abdominal pain, fatigue, and fever. Diarrhea may be severe or bloody and can be accompanied by nausea and vomiting. These symptoms usually last from two to five days and usually last no longer than ten days.

How does someone get campylobacteriosis?
Infection with *Campylobacter* mainly occurs by eating raw or undercooked chicken or pork, or contaminated food or raw milk. Illness may also be caused by handling raw poultry or pork and then not washing the hands. Bacteria from raw poultry and other contaminated foods may be transferred to other food items in the kitchen by using cutting boards or utensils that have not been washed thoroughly after contact with a contaminated food items. This is called cross-contamination. Cross-contamination of raw or uncooked foods such as fruits and vegetables occurs and these items are eaten with the bacteria on them. Direct contact with infected animals, especially puppies and kittens with diarrhea, is another way *Campylobacter* may be spread.

How long can someone spread *Campylobacter* if they have it?
Campylobacter may be present in a person's stool anywhere from a few days to several weeks after infection. However, person-to-person spread of *Campylobacter* is uncommon. Most infections come from eating food contaminated with the bacteria.

Should someone go to work, school, or send a child to day care with a *Campylobacter* infection?
Since the bacteria is passed in the stool, infected people should not go to work if they handle food, or care for people in a day care, hospital, nursing home, or institution until 24 hours after diarrhea has stopped. Children that attend day care should be kept at home while having diarrhea until 24 hours after the diarrhea has stopped.

Is there any treatment for campylobacteriosis?
Most people improve without medical treatment. Children or elderly persons with severe diarrhea, as well as persons with blood in their stools, or persons with diarrhea that lasts for several days should see a health care professional.
Severe *Campylobacter* infections may be treated with an antibiotic. It is important to remember to drink plenty of fluids when ill with diarrhea to prevent dehydration.

EXHIBIT
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What can be done to prevent campylobacteriosis?

1. Always refrigerate meat products.
2. Always cook meat completely.
3. Never eat raw or undercooked meat.
4. Do not drink milk or juice that isn't pasteurized.
5. ALWAYS wash your hands carefully before and after preparing food. ALWAYS wash your hands with soap and water after handling raw meats.
6. ALWAYS wash your hands after using the toilet or handling pets.
7. Take pets with diarrhea to a veterinarian.
8. Clean and sanitize countertops, cutting boards, knives, and utensils after preparing foods. Never reuse a plate or utensil for other foods after they have come into contact with raw meat.
9. Don't keep dishrags or sponges too long before laundering or discarding. They can trap bacteria and recontaminate items with bacteria.

OSDH 10/05

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Public Health Fact Sheet

Salmonellosis

Public Health Fact Sheet

What is salmonellosis?
Salmonellosis is a diarrheal disease caused by an infection with bacteria of the species *Salmonella*. *Salmonella* is found in the digestive tracts of humans and many kinds of animals, including mammals, birds and reptiles.

What are the symptoms of salmonellosis?
The symptoms of salmonellosis include diarrhea, fever, stomach cramps, nausea, and vomiting. Symptoms usually begin from six hours to three days after infection. The illness usually lasts about four to seven days, but can last as long as two weeks.

How does someone get salmonellosis?
Most infections are caused by eating food contaminated with *Salmonella*. The contamination is from the feces of infected humans or animals. Contaminated foods are often of animal origin. These include raw or undercooked eggs and egg products, raw or unpasteurized milk and milk products, poultry, and beef. Bacteria from contaminated foods can be transferred from utensils, cutting boards, and other kitchen surfaces to other uncooked foods. This is called cross-contamination. Cross-contamination of raw or uncooked food items such as fruits and vegetables with Salmonella is another well-known cause of illness. Direct contact with infected animals, especially those with diarrhea, is another way Salmonella may be spread. *Salmonella* may be found in the feces of a wide range of domestic animals, reptiles, and livestock such as dogs, cats, iguanas, tortoises, turtles, snakes, chicks, cattle, poultry, and swine.

Is there any treatment for salmonellosis?
Most people recover from *Salmonella* infections within one week and often do not require treatment. Anyone experiencing diarrhea should drink plenty of liquids to prevent dehydration, especially small children and the elderly. Persons with severe or prolonged diarrhea should seek care from a health care provider. Antibiotics are rarely necessary.

Should someone go to work or school, or send a child to daycare with salmonellosis?
Salmonella may be transmitted from person to person. Children should not attend daycare until 24 hours after diarrhea has stopped. People who handle food should NEVER work while they are still having diarrhea. People in these settings should wash their hands carefully and often, especially after using the bathroom.

What can be done to prevent salmonellosis?

1. Always treat raw poultry, beef and pork as if they are contaminated and handle accordingly:
    - Wrap fresh meats in plastic bags while purchasing to prevent blood from dripping on other foods during transport and storage.
    - Refrigerate foods promptly; minimize holding at room temperature.
    - Cutting boards and counters used for preparation should be washed immediately after use to prevent cross-contamination with other foods. Another method to prevent cross-contamination is to keep separate cutting boards for meats and for fruits and vegetables.
    - Avoid eating raw or undercooked meats.
    - Rotate food in a microwave to avoid "cold spots" where bacteria can survive.
    - Use a food thermometer to confirm appropriate internal temperature when cooking or reheating. Check food in the thickest part of the item. All reheated leftover items such as casseroles should reach 165°. Ground meat such as hamburgers should be cooked to at least 160°. Cuts of beef should be cooked to 145°F, poultry should be cooked to 165°F, and fish should be cooked to 145° or until opaque and easily flakes with a fork. Heat soups, sauces and gravies to a boil.
2. Cook eggs until the yolk is firm, and thoroughly cook foods containing raw eggs. Raw eggs can contain bacteria and eating raw eggs can cause illness.
3. Avoid drinking raw milk.

EXHIBIT
"17"

4. Encourage careful handwashing with soap and water before and after food preparation and during preparation to prevent cross-contamination.
5. Supervise handwashing in children, particularly after touching animals.
6. People working with animals should have separate work and non-work clothes, and should remove shoes or clothes contaminated with animal manure before coming indoors. Remember good handwashing after touching pets and animals.
7. Do not keep reptiles as pets in homes with immunocompromised persons or young children.

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Public Health Fact Sheet

GIARDIASIS

Public Health Fact Sheet

What is giardiasis?
Giardiasis is the name of the illness caused by the organism *Giardia lamblia*, a type of protozoa. It is a common cause of diarrhea in the U.S. A total of 166 cases of giardiasis were reported in 2004.

Who gets giardiasis?
Anyone can get giardiasis, but children are infected more often than adults. It occurs more often in people in hospitals, prisons, or in day care centers. Persons who travel overseas or who drink untreated water also increase their chances of getting giardiasis.

Where is *Giardia* found?
Giardia is found in infected people (who may or may not be ill) and in wild and domestic animals. *Giardia* is also found in lakes and streams that were contaminated with feces (stool) from infected humans or animals.

How is giardiasis spread?
Giardia organisms are passed in the feces of an infected person or animal and may contaminate water or food. The disease spreads most easily in group settings when people do not have access to hand washing facilities, or do not wash their hands well enough. People who go camping or hunting can get giardiasis by drinking untreated water.

What are the symptoms of giardiasis?
People with giardiasis may experience mild or severe diarrhea, stomach cramps, bloating, and fatigue. Diarrhea may last several weeks or months and can cause weight loss. People rarely experience a fever with giardiasis. Some people infected with *Giardia* do not become ill. Many young children have no symptoms. Children in day care centers are often infected and serve as a source for others, but do not need treatment unless they get diarrhea.

How soon do symptoms appear?
Diarrhea usually begins within ten days, but it can begin as early as three days or as late as 25 days after infection with *Giardia*.

How long can an infected person spread *Giardia*?
An infected person can spread *Giardia* for a few weeks to a few months. Treatment may shorten this length of time.

What is the treatment for *Giardia*?
Anti-protozoal drugs such as furoxone (furazolidone) or flagyl (metronidazole) are often prescribed by doctors to treat giardiasis.

Does everyone infected with *Giardia* need to be treated?
People who are infected with *Giardia* but do not have symptoms do not usually need treatment. People who have symptoms of giardiasis and have had positive laboratory work for the disease should discuss treatment options with their health care provider.

Should an infected person be excluded from work or school?
Since *Giardia* organisms are found in the feces (stool), people with diarrhea should not go to school or work. It is especially important that children in day care centers or people who handle food should not go to school or work until their diarrhea stops. Anyone with giardiasis should wash their hands each time after using the toilet.

EXHIBIT
"18"

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What can be done to stop the spread of giardiasis?

1. Always wash hands before preparing food and before eating.
2. Thoroughly wash hands after using the toilet or handling dirty diapers.
3. Properly dispose of sewage so water sources will not be infected.
4. Do not drink water that has not been properly treated. When camping, treat your drinking water by boiling. If boiling is not possible, two to four drops of household bleach may be added to each liter of water. If allowed to stand for 20 minutes, water treated in this way is an acceptable emergency alternative to boiling.

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Enterohemorrhagic *Escherichia Coli* Infection and Hemolytic Uremic Syndrome

2005 Case Total 40	**2005 Rate 1.16 per 100,000**
2004 Case Total 29	**2004 Rate 0.84 per 100,000**

The disease category of enterohemorrhagic *Escherichia Coli* (EHEC) includes infection with species of this bacteria which produce shiga toxin, notably *E. coli* O157:H7, along with several other less common types. Ninety percent (36/40) of Oklahoma's EHEC cases were caused by *E. coli* O157:H7 in 2005. The number of cases of EHEC rose 38% between 2004-2005. Twenty-one of 77 counties had cases of EHEC in 2005. Counties with both a high rate of disease and a high number of cases (that is, more than one or two cases) include Rogers (4 cases, 5.7 per 100,000) and Pittsburg (6 cases, 13.7 per 100,000). Upon investigation, no common exposures were found in either county.

EHEC infection occurred in equal proportions among males and females in 2005 (20 cases each). As in previous years, children continue to be at much higher risk of infection with EHEC. Children less than five years of age had a rate of disease of 5.1 per 100,000, which is over four times the rate for all ages. Rates of EHEC infection incidence are much higher than in the warmer months (see graph), although the reasons for this are not well understood. Increased outdoor activities including contact with infected animals, as well as consumption of contaminated foods are possible causes for this yearly increase. Failure to wash hands after contact with animals, for example, after visiting a petting zoo, is a well known risk factor for EHEC infection.

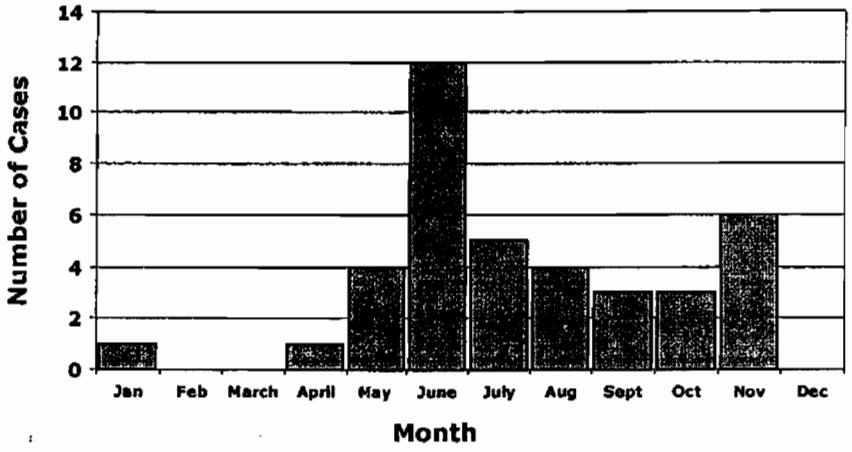
Racial information was available for 29 of 40 (72.5%) of cases. Twenty-eight cases reported their race as white, while the remaining case was Native American. Information regarding Hispanic ethnicity was available for 21 of 40 (52.5%) cases. Of these, all were non-Hispanic. Because of incomplete ascertainment of these data, rates by race and ethnicity are useful for comparison to each other only.

Hemolytic Uremic Syndrome (HUS) follows *E coli* O157:H7 infection in approximately 8% of infections; the rate of HUS may be different following infection with other strains of EHEC. Other infections, such as *Shigella dysenteriae*, as well as non-infectious causes, may lead to HUS. In 2005, five cases of HUS were reported to OSDH. All cases were female, and their ages ranged from 1 to 69 years. All were white, and one was Hispanic; Hispanic ethnicity status was unknown for one case. *E. coli* O157:H7 preceded HUS in two cases, and another species of EHEC preceded HUS in one case. In the other two cases, the preceding infection, if any, was unknown. One case each of HUS had onsets in the months of January, March, May, September, and October.

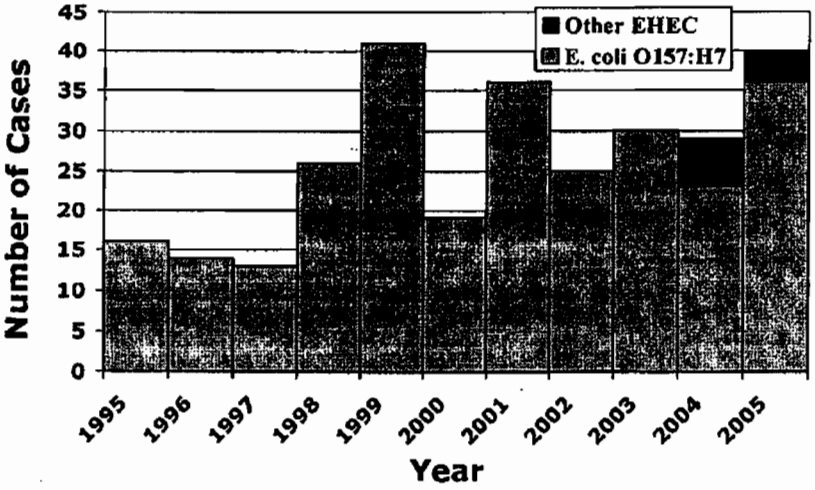
EXHIBIT

«19»

Incidence of Reported EHEC Cases by Month of Onset, Oklahoma, 2005



Reported Number of *E. coli* O157:H7 and other Enterohemorrhagic *E. coli* (EHEC) Cases by Year, Oklahoma, 1995-2005



Oklahoma Scenic Rivers Commission
Regular Business Meeting
June 20, 2006 5:30 p.m.
Oklahoma Scenic Rivers Commission Headquarters - Located two (2) miles North of Tahlequah, OK, on State Highway #10

MINUTES

Agenda Items are listed in the order of action by Commissioners.

01. Meeting called to order.

Chairman Blackard called the meeting to order.

02. Invocation

Chairman Blackard led the invocation.

03. Roll Call

MEMBERS PRESENT	MEMBERS ABSENT
Bill Blackard	Ed Brocksmith
Gerald Hilsher	Alan Chapman
John Larson	Larry Clark
Steve Randall	Bob Ed Culver
Jan Rucker	Jennifer Owen
Rick Stubblefield	
D. I. Wilkinson	

04. Introduction of Guests and Visitors

Philip Hixon of Joyce, Paul, & McDaniel; Bill Cauthron, Derek Smithee, OWRB; Glen Sizemore, Kurt Robinson, STIR; Ron Timmons; Joel McGough, Riley Needham, Bob Luckinbill, CCGCC; Teddye Snell, Tahlequah Daily Press; Rod Walton, Tulsa World; George Wilson, Sparrowhawk Camp; Jack Spears, David Spears, Arrowhead Resort; Chuck Hix; Mark Becker, Bob Blaz, USGS; Kevin Kelly, Diamondhead Resort; Keith Morgan, Poultry Partners; Steve Thompson, ODEQ; Barbara Hamrick, Brian Jenni, Hanging Rock Camp; Trevor Hammons, Oklahoma Attorney General's Office; Marla Peek, OK Farm Bureau; Brian Berry, Town Branch Guest Ranch; Bartow Hix; L.D. Stephens, War Eagle Resort; Cheryl Allen, Meredith Lee, Brian Stanglin, OSRC.

EXHIBIT
"20"

05. Public Comments.

Commissioner Stubblefield read a letter expressing his concern with the Oklahoma Department of Environmental Quality's closing of the Barren Fork Dam violation in Adair County with no punitive action taken.

06. Approval of Minutes of the April 25, 2006, OSRC Regular Business Meeting.

Commissioner Wilkinson motioned to approve the Minutes of the April 25, 2006, OSRC Regular Business Meeting. Commissioner Rucker seconded the motion.

The vote follows:

Blackard	-Aye-	Larson	-Aye-
Brocksmith	-Absent-	Owen	-Absent-
Chapman	-Absent-	Randall	-Aye-
Clark	-Absent-	Rucker	-Aye-
Culver	-Absent-	Stubblefield	-Aye-
Hilsher	-Aye-	Wilkinson	-Aye-

07. Distribution and discussion of the State Auditor's Agreed Upon Procedures Engagement Report for the Oklahoma Scenic Rivers Commission for the period July 1, 2003, through June 30, 2005.

Administrator Fite distributed the audit report to the Commissioners. He said that there was no audit points or errors discovered for the two audited fiscal years.

08. Consideration, vote to approve, amend, or take other action approving FY-2007 USGS Cooperative Water-Quality Sampling Program for $50,600.

Administrator Fite told the Commission that the water sampling program is the same as the previous one except that there is a 6% increase to cover fuel expenses. The funding for the FY-2007 USGS Cooperative Water-Quality Sampling Program is budgeted from next fiscal years poultry gift monies.

Commissioner Rucker motioned to approve the FY-2007 USGS Cooperative Water-Quality Sampling Program for $50,600 on the condition that the OSRC receives the next installment of the poultry gift monies. Commissioner Hilsher seconded the motion.

The vote follows:

Blackard	-Aye-	Larson	-Aye-
Brocksmith	-Absent-	Owen	-Absent-
Chapman	-Absent-	Randall	-Aye-
Clark	-Absent-	Rucker	-Aye-
Culver	-Absent-	Stubblefield	-Aye-
Hilsher	-Aye-	Wilkinson	-Aye-

09. Report by OSRC Budget Subcommittee Chairperson, Commissioner Steve Randall. Consideration, vote to approve, amend, or take other action on "interim" FY-2007 OSRC Budget until such time as the Oklahoma Legislature reaches an agreement on the state budget impasse.

Commissioner Randall distributed to the Commissioners a budget for review based on the assumption that there are no changes in the appropriations.

Mr. Fite added that the Budget Committee has been working on a "wish list" to the proposed budget. Proposed expenditures include the following:

Water sampling data has been collected by the USGS since 1979; it is recommended that a comprehensive report be generated for the Illinois River, Flint Creek, and Barren Fork Creek.

A basin wide survey of 400 stakeholders in Oklahoma is proposed to facilitate the 600 stakeholders being surveyed in Arkansas by the Illinois River Watershed Partnership.

Insulation and roof for the OSRC headquarters building.

Three new lightweight canoes and a new trailer.

The purchase of a $7,500 GSA vehicle for the Education Outreach Coordinator.

Commissioner Wilkinson motioned to approve the "interim" FY-2007 OSRC Budget until such time as the Oklahoma Legislature reaches an agreement on the state budget impasse. Commissioner Hilsher seconded the motion.

The vote follows:

Blackard	-Aye-	Larson	-Aye-
Brocksmith	-Absent-	Owen	-Absent-
Chapman	-Absent-	Randall	-Aye-
Clark	-Absent-	Rucker	-Aye-
Culver	-Absent-	Stubblefield	-Aye-
Hilsher	-Aye-	Wilkinson	-Aye-

10. Presentation by representatives of the Oklahoma Water Resources Board of the Beneficial Use Monitoring Program (BUMP) and other water quality monitoring work for Oklahoma scenic rivers.

Bill Cauthron reported to the Commission on the water sampling program for scenic streams for the last four years. Points of interest include the following:

Fish and Wildlife Propagation: Barren Fork Creek supported fish and wildlife propagation in 2001-2002. Illinois River at Watts partially supported fish and wildlife

propagation due to turbidity.

Primary Body Contact Recreation (PBCR): Every site in the Illinois River Basin sampled did not meet its primary use in PBCR due to bacteria. However, approximately 82% of the streams tested statewide did not meet the primary use in PBCR. The EPA is investigating to see if it is a criteria issue or there is actually a public health risk.

Public and Private Water Supply, Agriculture Use, and Aesthetics had no significant impairment in the Illinois River Basin.

After some discussion Mr. Cauthron said that, in the near future, the OWRB will make available to the public the raw data collected from all their monitoring sites on their website. Also, OWRB received a grant from the EPA for probabilistic monitoring in the Illinois River Watershed; a randomized stratified sampling program.

14. Presentation of Commendation to Steve Thompson, Executive Director, Oklahoma Department of Environmental Quality.

Chairman Blackard moved Agenda Item 14 to follow Agenda Item 10.

Administrator Fite presented a Letter of Commendation recognizing Steve Thompson, Oklahoma Department of Environmental Quality, for his devotion in supporting the OSRC in achieving its mission.

Mr. Thompson graciously accepted the Letter of Commendation and proceeded to commend the working relationship between the ODEQ and the OSRC. He then responded to Commissioner Stubblefield's letter regarding the Barren Fork Creek Dam in Adair County and explained to the Commission that the issue is still under investigation involving several agencies and would not comment on any details.

11. Presentation by Dr. Riley Needham, Ph.D., from Concerned Citizens for Green Country Conservation on bacteria levels in the Illinois River.

Dr. Needham told the Commission that the data he used for his analysis is from the USGS monitoring stations at Watts, Chewey, and Tahlequah from 1996 through 2003. The bacteria standard used in this study is for full body contact. Indicator bacteria are used because they tell when the water condition is favorable for increased pathogen levels.

In the Illinois River, Fecal Strep is the most common indicator that the water is unsafe for full body contact. At the Watts monitoring the geometric mean for 1996-1998 for Fecal Coliform was 49, whereas for 2000 –2003, Fecal Coliform increased to 1171. Similar results occurred for E. Coli and Fecal Strep. For Tahlequah, Fecal Coliform increased from 41 to 523 for the years sampled. There was no results given for the monitoring station at Chewey.

Nutrients tested in the Illinois River were nitrates plus nitrites and total phosphorus. From

2000 to 2004 averaged nitrate plus nitrite levels at Watts are 1.75 micrograms per liter (mg/L) and 1.59 mg/L at Tahlequah. Total averaged phosphorus levels at Watts are 0.31 mg/L and 0.15 mg/L at Tahlequah.

Higher concentrations of bacteria and nutrients occur when there is a rise in the river. This suggests that the dominant source of pollution is non-point. Also, higher concentrations of bacteria and nutrients are found at Watts. This suggests that the source of the pollution is further upstream.

12. **Report by OSRC Permit and User Fee Subcommittee Chairperson, Commissioner Jan Rucker. Consideration, vote to approve, amend, or take other action on recommendations to initiate process to conduct public hearings and development of new proposed rulemaking related to commercial flotation device permit limits and commercial float areas within Oklahoma Administrative Code 630:10 Licensing and Use Permits.**

Commissioner Rucker told the Commission that her subcommittee has met twice for a total of five hours. She said that, at this time, the subcommittee still needs to gather information before bringing a recommendation to the Commission.

13. **Presentation by OSRC Chairman Bill Blackard to discuss alcohol issues on the river. Consideration, vote to approve, amend or take other action authorizing the OSRC staff to begin the public hearing process on proposed rulemaking to prohibit alcoholic beverages in state-controlled public access areas and while recreating in the scenic rivers within OSRC jurisdiction.**

Chairman Blackard told the Commission that several years ago when he was a canoe operator; several of the businesses met with some people from other states that had banned alcohol from their river. The result was an increase in float business.

Commissioner Stubblefield motioned to approve the action authorizing the OSRC staff to begin the public hearing process on proposed rulemaking to prohibit alcoholic beverages in state-controlled public access areas and while recreating on the scenic rivers within OSRC jurisdiction. Commissioner Larson seconded the motion.

Commissioner Hilsher said there are two ways to approach the issue. One, the OSRC gives an advance notice of proposed rule making where there is no suggestion of a specific rule to be codified by the Administrative Code. The OSRC would present a concept of the proposed rule and allow public comment to help shape what the proposed rule should be. Two, the OSRC pursues through a committee a suggested rule and sends out a notice to the public of proposed rule making and subsequent public hearings.

After some discussion, Commissioner Stubblefield amended his motion to include that Chairman Blackard create a subcommittee to meet with Assistant Attorney General Debra Schwartz to explore the OSRC's statutory authority and to explore that authority to develop a rule according to the Agenda Item.

The vote follows:

Blackard	-Aye-	Larson	-Aye-
Brocksmith	-Absent-	Owen	-Absent-
Chapman	-Absent-	Randall	-Aye-
Clark	-Absent-	Rucker	-Aye-
Culver	-Absent-	Stubblefield	-Aye-
Hilsher	-Aye-	Wilkinson	-Aye-

Chairman Blackard appointed to the Proposed Alcohol Ban subcommittee Commissioner Hilsher, Chair, Commissioner Stubblefield, Commissioner Rucker, and Commissioner Randall.

14. Presentation of Commendation to Steve Thompson, Executive Director, Oklahoma Department of Environmental Quality.

Chairman Blackard had previously advanced action on this Agenda Item after Agenda Item 10.

15. Ranger Report.

Ranger Supervisor Brian Stanglin suggested to the Commission to consider creating an alcohol free portion of the river to accommodate floaters that are concerned about coming to float because of the problems associated with alcohol.

Ranger Stanglin reported that since the beginning of the year the OSRC Rangers have written 231 citations and have had 70 arrests. There have been 14 written and 308 verbal warnings.

On June 9th, rangers Mike Moore and Jake Combs participated in a safety fair at W.W. Hastings Hospital.

The Ranger Department recently added three more vehicles to its fleet for a total of seven patrol vehicles.

There is a total of ten rangers this season, up one from last year. The 10th ranger position is funded by the U .S. Army Corps of Engineers. Her primary duty is to patrol the Corps land at Welling Bridge, Boy Scout Hole, and Sequoyah Club.

The Junior Ranger program is scheduled to start in July and the class is rapidly filling up. It is the hope of the OSRC Rangers that the participants will develop a sense of responsibility for not only our scenic waterways but for all of our public lands and waters.

16. Education Outreach Coordinator Report.

Ms. Lee distributed a copy of the River Currents newsletter.

She told the Commission about the three river cleanups scheduled for this summer. The first river cleanup was on June 2 and it had 62 participants that picked up 900 pounds of trash. The next two river cleanups are scheduled for July 7th and September 8th.

The Campground Program has had a successful start with four programs completed. They will continue every Saturday through Labor Day weekend at Round Hollow Public Access Area.

Ms. Lee said that she is putting on some programs this summer; they include a Water Safety program for Help in Crisis, a Water Ecology program for Cherokee Elementary School, a Frog program for Kansas Boys and Girls Club, and will be helping with the Junior Ranger Program.

17. Administrator's Report.

Administrator Fite briefly turned the floor over to Derek Smithee. Mr. Smithee concurred what Mr. Riley and Mr. Cauthron said about Oklahoma waterways having a bacteria problem. He said that the Oklahoma Water Resources Board is focusing their attention on the bacteria issue and how to address its many facets. He stressed that although there is an elevated level of bacteria in Oklahoma streams and lakes; more people get sick from community swimming pools than from Oklahoma streams and lakes.

Mr. Fite reported that User Fees are up by approximately 2,500 from this time last year.

18. New Business.

There was no new business

19. Adjournment.

Passed and approved this 15th day of August, 2006.

_____
Secretary/Treasurer

Subscribed and sworn to before me on this_____ day of _____, 2006.

_____
Signature of notary officer
My Commission expires: December 11, 2009
Commission #01019412

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OKLAHOMA CONSERVATION COMMISSION

Water Quality Division

Blue Thumb Program

Data Interpretation: Tahlequah Creek

Tahlequah Town Branch: Spring Street

NE SE SW
Section 28-17N-22E
Cherokee County
Latitude N 35° 58' 4"
Longitude W 94° 58' 11.8"
WBID#: OK121700-03-0040P

Blue Thumb Volunteer Monitoring Data Review, December 6, 2006

Description of Watershed and Monitoring Site:

Tahlequah Town Branch is a beautiful, clear, spring-fed second order stream that is located primarily in a rapidly developing small city in northeast Oklahoma. It flows from north to south through both rural and urban areas in the city of Tahlequah and joins the Illinois River. It is in the Ozark Highlands ecoregion. The monitoring site is located near Northeastern State University where Spring Street crosses the creek.

Stream Condition & Habitat Overview

Though part of the stream has been stabilized by retaining walls where it runs through the NSU campus, most of the channel has not been altered. The water is clear and the bottom is rocky and stable for biological life in the creek. It is a low flow stream and is not very curvy. The banks are fairly stable with good vegetation and tree coverage which help shade the creek and keep the water temperature a little cooler. Most of the creek along a 400 meter stretch upstream from the monitoring site is ankle deep, with the deepest parts being around 0.5 meters (knee deep). Over half of the stream was pooled, 25% was classified as run and 25% as riffle. When compared to reference streams in the ecoregion known to be high quality, the habitat in Tahlequah Town Branch at Spring Street was ranked as very good.

Biological Conditions

Fish
The stream is not pristine. It is 43% of the quality of an average high quality Ozark Highland stream, a D - rating on a scale of A to E for fish sampling. The fish collection that was made on 9/13/2001 provided only 6 species of fish. (17 species was the average for the reference streams.) We found 2 intolerant species (southern redbelly dace and fantail darter) and 3 species of intermediate tolerance (central stoneroller, creek chub and orangethroat darter). By way of comparison, in reference conditions you would expect 11 intolerant species. Out of the total number of fish caught, 25% of the individuals were bluegill sunfish, a tolerant species. There were no insectivorous cyprinids, the dominant minnows in our streams that disappear as the quality of the food base deteriorates. Often as the density of aquatic invertebrates decreases, the standing crop of algae increases. This is because the aquatic invertebrates are the largest group of primary consumers. Fish that can switch their diet to algae or fish that eat only algae will replace fish that cannot adapt to the new conditions.

Benthic Macroinvertebrates (bugs)
The quality of the macroinvertebrate collections has been declining over the last five years. The winter collections have dropped from 81% of reference in 2002 to 69% of reference in 2005. The summer collections have dropped from 93% of reference conditions in 2001 to 60% of reference in 2005. The average collection from each of the seasons scores a B on a scale from A to D. While there is good diversity with many different taxa, this site is missing taxa and corresponding numbers of individuals from the orders Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies). With few exceptions, these insects are more sensitive to pollution than any other groups. As a stream deteriorates in quality, members of this group will be the first to disappear.

Bacteria Testing

EXHIBIT
"21"

Water from Tahlequah Town Branch at Spring Street has been tested for Escherichia coli sporadically over the past few summers. The amount of E. coli in the water in Town Branch was higher than expected. The numbers below represent colonies of E. coli per 100 milliliters of water.

7/26/2001 460 CFUs/100 mL
7/18/2002 548 CFUs/100 mL
8/22/2002 196 CFUs/100 mL
9/19/2002 2419 CFUs/100 mL
6/24/2004 770 CFUs/100 mL

Inconsistent levels are shown over the last five years; however anything over 400 is unfavorable.

Chemical Testing

DO. Dissolved oxygen saturation changes with the temperature of the water. By looking at the percent saturation, we can see when there are problems with the amount of oxygen available in the water for aquatic life. Too little oxygen can cause aquatic animals to die. Too much oxygen is an indicator that there are wide swings in the amount of oxygen available during a 24 hour period. This is often caused by algae in the water. The following data points fell outside the normal range of percent oxygen saturation.

10/11/2001 43%
8/7/2001 140%
8/28/2001 130%
3/25/2003 136%
8/28/2003 140%

pH. pH in the State of Oklahoma is normal between 6.5 and 9. While the pH averages 7 in Tahlequah Town Branch, it dropped to 6.5 on 11/1/2001 and to 5.5 on 3/25/2003.

Nitrogen. An estimate of soluble nitrogen was made by adding the amounts of ammonia-nitrogen and nitrate-nitrogen found in the water. Ideally, the level should remain below 0.8 mg/L nitrogen. It becomes a matter of concern when it is above 1.5 mg/L nitrogen. The soluble nitrogen in Town Branch was only below 0.8 mg/L nitrogen twice and was 1.5 mg/L nitrogen or more 75% of the times the creek was monitored between 2001 and 2006.

Phosphorus. The amount of phosphorus allowed in Oklahoma's Scenic Rivers, including the Illinois River, is 0.037 mg/L. The amount of orthophosphate phosphorus found in Town Branch was only below that level four times between 2001 and 2006 and was greater than or equal to 0.1 mg/L four times.

9/24/2003 0.10 mg/L P
3/25/2004 0.15 mg/L P
4/29/2004 0.12 mg/L P
11/30/2004 0/14 mg/L P

Chloride. Chloride levels in Town Branch average 14 mg/L.

Synopsis

Tahlequah Town Branch at Spring Street is a beautiful, clear stream with a fairly healthy physical habitat. Water chemistry shows increased levels of nutrients and high amounts of dissolved oxygen in the water, which indicate possible algal growth. The macroinvertebrate community, while still reasonable, has been showing signs of degradation over the past five years. The taxa that are missing are the sensitive mayflies, stoneflies and caddisflies. As the density of aquatic invertebrates decreases, the standing crop of algae increases. In 2001 limited numbers of individuals and fish species were collected and there were none of the insectivorous minnows that should dominate a healthy stream. E. coli levels in the stream are higher than expected.

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OKLAHOMA CONSERVATION COMMISSION

Water Quality Division

Blue Thumb Program

Data Interpretation: Polecat Creek

Polecat Creek: 33rd West Avenue
SW NW NW
Section 27-18N-12E
Tulsa County
Lattitude N 36° 00' 54.5"
Longitude W 96° 01' 45"
WBID#: OK120420-02-0050G

Site description:
Polecat Creek is located in the Cross Timbers ecoregion in northeast Oklahoma. As a 5th order stream, it is among the largest streams monitored by Oklahoma's Blue Thumb Program. Its watershed covers over 200 square miles. Its headwater starts between the towns of Drumright and Oilton in Creek County. From there it trends east and goes through Heyburn Reservoir, Sapulpa and eventually drains into the Arkansas River. Land use in the watershed is agricultural, urban, and industrial with some of Oklahoma's oldest oil fields along its banks. The effluent from several communities drains into Polecat Creek. Blue Thumb volunteers monitor the stream monthly at 33rd West Avenue south of 101st Street in Tulsa County.

Polecat Creek is deeply incised at the monitoring site under the bridge at 33rd West Avenue. To get down into the site, one must walk down a steep, rock-covered hill through thick brush and small trees. The stream itself is rocky and often has scattered trash items in it. There is a topsoil mining company on the north bank of the stream. The lack of ground cover in the mining area seems to cause heavy erosion on the north side of the stream bank. There is also a commercial dump just to the southwest of the site.

Habitat assessment:
Two habitat assessments have been conducted, one in 1996 and the other in 2001. The results of a 2006 assessment are pending. Overall, the habitat assessment shows that the stream habitat is in moderate condition when compared with the average of high quality reference streams in the ecoregion. Because of its size, Polecat Creek always has water, even during the recent drought. There is good high quality cover for organisms to hide behind, though some of it is trash that has been dumped from the bridge. Average water depth is 0.67 meters; the maximum depth is 2.5 m. About 80% of the stream is pooled. There is not much canopy cover to shade the water. Soil mining activities on the north bank of the stream have reduced the amount of streamside vegetation and contributed to some sedimentation. Polecat Creek is fairly straight in this reach.

Aquatic life collections:
There have been two **fish collections** in the past ten years. The state of health is measured by comparing Polecat Creek with reference conditions for the Cross Timbers ecoregion, which is the average of high quality streams in the ecoregion. The total metric score for reference conditions for fish is 22.
The fish collection made 10/15/1996 had 21 species of fish which included seven species of sunfish (green sunfish, orangespotted sunfish, longear sunfish, redear sunfish, spotted bass, largemouth bass and white crappie.) There were two intolerant species, the suckermouth minnow and the slim minnow. The biggest difference between this collection and reference conditions is the absence of sensitive benthic species like darters. The 1996 fish collection receives a total metric score of 18 which is 82% as good as reference conditions. This scores a "B" on the Index of Biotic Integrity (IBI), indicating decreased species richness, mostly the intolerant species.
The fish collection made 6/27/2001 had 20 species of fish which also included seven species of sunfish (bluegill sunfish, longear sunfish, redear sunfish, spotted bass, largemouth bass and white crappie.) There was only one intolerant species, the suckermouth minnow, though there was one species of darter (slenderhead darter.) The total metric score in 2001 is 16; 73% as good as reference conditions. This collection scores a "C" on the Index of Biotic Integrity (IBI), indicating that intolerant and sensitive species are rare or absent.

Macroinvertebrates have been collected every winter in January/February and every summer in July/August. Summer collections in the last five years have an average number of 11 taxa compared with 20 taxa in reference conditions. This indicates reduced water and/or habitat quality. There were three Ephemeroptera, Plecoptera and Trichoptera (EPT) taxa in Polecat Creek compared with 7 taxa in reference conditions. The EPT taxa are the mayflies, stoneflies, and caddisflies that are more sensitive to pollution than any other groups. A single taxon, Trichoptera Cheumatopsyche, made up 53% of the individuals collected in the samples. Species diversity is limited. As more and more species are excluded by increasing pollution, the remaining species can increase in numbers due to the unused resources left by the excluded animals. The summer riffle metric score at Polecat Creek is 44% of reference conditions for the Cross Timbers ecoregion, earning an IBI score of "C".

Winter macroinvertebrate collections in the last five years have an average number of 13 taxa compared with 16 taxa in reference conditions. Once again the EPT taxa were limited and the dominant taxon was 46% of the sample. The winter metric score at Polecat Creek is 69% of reference conditions, earning an IBI score of "B".

Bacteria

Eschericia coli has been measured during the summer months of May through September. For streams where people wade and play the E. coli level should be below 400 CFU/100 ml. The highest values each year were measured in May and June. All of the results above 400 CFU/100 ml are listed below:

5/26/1999 690 CFU/100 ml
6/24/1999 >2400 CFU/100 ml
6/29/2000 >2400 CFU/100 ml
7/27/2000 460 CFU/100 ml
5/31/2001 2000 CFU/100 ml
6/28/2001 1700 CFU/100 ml
6/26/2003 >2400 CFU/100 ml
6/24/2004 950 CFU/100 ml
8/25/2005 825 CFU/100 ml

Chemical Quality:
The chemical data show that Polecat Creek usually has a healthy amount of dissolved oxygen in the water. The percent oxygen saturation dropped to 29% on 12/29/2001, the only time it was below 50% saturation. There have been eight times since 7/28/2001 when the percent oxygen saturation was between 50% and 80%.

pH has stayed between 7.5 and 8.0, which is healthy.

An estimate of **soluble nitrogen** is made by adding the amounts of ammonia-nitrogen and nitrate-nitrogen found in the water. A healthy stream should have less than 0.8 mg/L N. Polecat Creek exceeded this level:

on 7/27/2002 with 1.16 mg/L N,
on 12/31/2004 with 0.88 mg/L N,
on 11/4/2005 with 1.0 mg/L N,
on 11/26/2005 with 2.0 mg/L N, and
on 12/24/2005 with 1.0 mg/L N.

These are not dangerous amounts, but will support algae growth.
Orthophosphate. phosphorus is another nutrient found occasionally in Polecat Creek. A healthy stream should have less than 0.1 mg/L P. Levels found have exceeded this level:

on 12/1/2001 with 0.1 mg/L P,
on 12/28/2002 with 0.107 mg/L P,
on11/31/2002 with 0.120 mg/L P,
on12/28/2002 with 0.5 mg/L P,
on1/26/2003 with 0.167 mg/L P,
on 6/28/2003 with 1.433 mg/L P,
on 11/29/2003 with 0.137 mg/L P,
on 6/26/2004 with 0.163 mg/L P,
on 10/30/2004 with 0.2 mg/L P,
on 8/27/2005 with 0.190 mg/L P,
on 9/24/2005 with 0.240 mg/L P,
on 11/14/2005 with 0.173 mg/L P,
on 11/26/2005 with 0.170 mg/L P,
on 12/24/2005 with 0.1 mg/L P,
on 2/8/2006 with 0.133 mg/L P, and
on 4/11/2006 with 0.107 mg/L P.

Chloride presence is less than 200 mg/L, which is a safe level.

Monitoring Polecat Creek monthly provides information about the health of a large and important watershed. The habitat is quite good, especially considering the soil mining and dump on the banks at the site. Biological collections indicate a loss of some of the most sensitive species of fish and macroinvertebrates. Overall, the creek remains fairly healthy. It faced challenges in the past from effluent released by Sapulpa's water treatment plant. Fortunately, the plant has been modernized in recent years and the effluent released has been kept to a minimum. Through continued monitoring, problems can be addressed before they become serious. Under the watchful eyes of volunteers, the life supported by Polecat Creek and its watershed will continue to be protected.

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OKLAHOMA CONSERVATION COMMISSION

Water Quality Division

Blue Thumb Program

Data Interpretation: Mooser Creek

Mooser Creek: South Haven Data Report

SE NE SW
Section 33-19N-12E
Tulsa County
Latitude N 36° 4' 50"
Longitude W 96° 2' 15"
WBID OK 120420-01-007P

Blue Thumb Volunteer Monitoring Data Review - December 7, 2006

Description of Watershed and Monitoring Site:

Mooser Creek: South Haven is a stream that is located primarily in the southwest portion of Tulsa in northeast Oklahoma. It flows from west to east through an urban area of the city of Tulsa and joins the Arkansas River. The land use in the upper reaches of the watershed is primarily industrial and commercial. The lower reaches are low to moderate income residential. Mooser Creek is in the Cross Timbers ecoregion in the Arkansas River watershed. The monitoring site is located at a bridge where South Haven crosses the creek in an older, established, low income residential area. The stream is narrow and susceptible to very low flows during the winter and summer months.

Stream Condition & Habitat Overview

This stream was compared to reference streams in the ecoregion that were known to be high quality. The habitat of Mooser Creek above the bridge was better than reference conditions. Except for the lower reach where the stream banks are mowed to water's edge, the banks are fairly stable with thick vegetation and tree coverage. The habitat is fairly healthy. Most of the channel is not altered by humans. The water is clear and the bottom is rocky. It is a low flow stream and has low sinuosity. The lower portion of the stream flows through South Haven public housing project. Most of the creek is ankle deep, with the deepest parts being around 0.5 meter (knee deep.) Out of the sampling length of 400 meters, over 70% of the stream was pooled, 8% was run and 21% was riffle.

Biological Conditions

Fish

The fish community is poor. In both fish collections, conducted in 1998 and 2003, only 3 species of fish were found (19 species is the average in the high quality reference conditions.) In addition, the numbers of fish were low. The 2003 collection had 36 individuals compared with 594 individuals in reference conditions. Pollution tolerant fish species were dominant (red shiner and green sunfish) with one species found of intermediate tolerance (central stoneroller). Metric calculations indicate that the 2003 collection from Mooser Creek is 36% of the quality of an average high quality Cross Timbers ecoregion stream. The condition gets an E rating on a scale of A to E for biological sampling.

Benthic Macroinvertebrates (bugs)

Macroinvertebrate collections were attempted in the winter and summer index periods, but the flow at this site is very low and only one summer collection was procured in 2003. Metric calculations indicate that this collection was 27% as good as reference conditions. It was missing the Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) that are more sensitive than any other groups.

Winter collections were made every year except 2003. They were better than the summer collection with limited numbers of the sensitive EPT taxa. Metric calculations show that the average winter collection at Mooser Creek is 54% of reference conditions.

Bacteria Testing

Water from Mooser Creek was tested for Bacteria during the months of May through September. The scores on Escherichia coli were very high. Of the 22 data points gathered, 6 were greater than or equal to 2400 colonies per 100 mL. Six additional data points were less than 2400 but greater than 1000 colonies per 100 mL. The source of the bacteria is unknown.

Chemical Testing

Chemical data were collected monthly between 7/1/2001 and 11/19/2005.

DO. Dissolved oxygen saturation shows when there are problems with the amount of oxygen available in the water for aquatic life. Too little or too much are indicators of problems. Chemical data show that the level of dissolved oxygen at Mooser Creek was in the ideal range only 7% of the time, was at a critically low level 36% of the time, and below ideal 75% of the time. These levels of oxygen may have been caused by the low flow levels in the creek.

Ph. Ph was consistently in a normal range.

Nitrogen. An estimate of soluble nitrogen is made by adding the amounts of ammonia-nitrogen and nitrate/nitrite-nitrogen found in the water. Levels of soluble nitrogen were very low except on 7/11/2003 when it was 0.9 mg/L and in August, September and October 1995 when the levels were near 1.0 mg/L N.

Phosphorus. Orthophosphate - Phosphorus has been very low with average concentrations below 0.05 mg/L P except for the summer of 2003. On 7/11/2003 the result was 1.667 mg/L P.

Chloride. Chloride levels at Mooser Creek are normal with spikes during ice and snow events.

Except for pathogens, chemical results for the parameters analyzed do not represent a threat to the stream.

Synopsis

Mooser Creek at South Haven is a typical urban stream with a fairly healthy habitat and a moderately healthy macroinvertebrate community. However, it is showing signs of degradation. Each of the two fish collections had small numbers of individuals and small numbers of taxa that are predominantly tolerant to poor water quality. There appears to be a problem with E. coli. This site is in the upper reaches of the watershed and limited amounts of flow may be affecting the biological community.

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Discarded

EXHIBIT
"22"

Definition: Discarded

Discarded

Adjective

1. Thrown away; "wearing someone's cast-off clothes"; "throwaway children living on the streets"; "salvaged some thrown-away furniture".
2. Disposed of as useless; "waste paper".

Source: WordNet 1.7.1 Copyright © 2001 by Princeton University. All rights reserved.

Date "discarded" was first used in popular English literature: sometime before 1595. (references)

Synonyms: Discarded

Synonyms: cast-off(a) (adj), junked (adj), scrap(a) (adj), throwaway(a) (adj), thrown-away (a) (adj), waste (adj). (additional references)

Top

Synonyms within Context: Discarded

Context	Synonyms within Context (source: adapted from Roget's Thesaurus).
Error	Exploded, refuted; **discarded**.

Source: adapted from Roget's Thesaurus.

Top

Crosswords: Discarded

English words defined with "discarded": abdicable, Adamite ♦ circular file ♦ discard ♦ food waste ♦ garbage, garbage heap, go ♦ inessential ♦ junk heap, junk pile ♦ magpie ♦ nonessential ♦ pack rat, polar body ♦ refuse, refuse heap, rubbish, rubbish heap ♦ salvage,

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Waste

Definition: Waste

EXHIBIT "28"

Waste

Adjective

1. Disposed of as useless; "waste paper".
2. Located in a dismal or remote area; desolate; "a desert island"; "a godforsaken wilderness crossroads"; "a wild stretch of land"; "waste places".

Noun

1. Any materials unused and rejected as worthless or unwanted; "they collect the waste once a week"; "much of the waste material is carried off in the sewers".
2. Useless or profitless activity; using or expending or consuming thoughtlessly or carelessly: "if the effort brings no compensating gain it is a waste"; "mindless dissipation of natural resources".
3. The trait of wasting resources; "a life characterized by thriftlessness and waste"; "the wastefulness of missed opportunities".
4. An uninhabited wilderness that is worthless for cultivation; "the barrens of central Africa"; "the trackless wastes of the desert".
5. (law) reduction in the value of an estate caused by act or neglect.

Verb

1. Spend thoughtlessly; throw away; "He wasted his inheritance on his insincere friends".
2. Use inefficiently or inappropriately; "waste heat"; "waste a joke on an unappreciative audience".
3. Get rid of; "We waste the dirty water by channeling it into the sewer".
4. Run off as waste: "The water wastes back into the ocean".
5. Get rid of; kill; "The mafia liquidated the informer".
6. Spend extravagantly; "waste not, want not".
7. Lose vigor, health, or flesh, as through grief; "After her husband died, she just pined away".
8. Cause to grow thin or weak; "The treatment emaciated him".
9. Devastate or ravage; "The enemy lay waste to the countryside after the invasion".
10. : waste away; "Political prisoners are wasting away in many prisons all over the world".