IOWA DEPARTMENT OF PUBLIC HEALTH

DIVISION OF ACUTE DISEASE PREVENTION AND EMERGENCY RESPONSE
DIVISION OF ENVIRONMENTAL HEALTH
DIVISION OF BEHAVIORAL HEALTH

Iowa Surveillance of Notifiable and Other Diseases

Annual Report 2009

Iowa Department of Public Health
Promoting and Protecting the Health of Iowans

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Contents

Figures

Tables

EXECUTIVE SUMMARY

Promoting and protecting the health of Iowans is the mission of the Iowa Department of Public Health (IDPH). Surveillance of notifiable health conditions is essential in establishing what, how, and when events impact the public's health. Multiple divisions and bureaus are dedicated to accomplishing the goals of surveillance. In 2009, there were more than **53,000** reports of infectious disease submitted to IDPH disease surveillance programs. IDPH also investigates conditions related to lead, occupational, and environmental hazards like carbon monoxide.

Crucial partners in public health contributing to surveillance and reduction of the burden of disease include the State Hygienic Laboratory at the University of Iowa, local public health agencies- both city and county, and health professionals such as primary care physicians, hospital laboratorians, and infection preventionists.

In 2009, numerous public health events challenged the staff of IDPH, local public health agencies, and health care providers. Iowa experienced its first influenza pandemic since the early 1950s. The pandemic appeared in two waves; first in early May and was relatively mild compared to a typical influenza season. The second wave came in October and November and had widespread impacts. School-age children were significantly affected by illness, though severe disease was apparent in middle-aged people and those with underlying medical conditions. Decisions for how to best respond to the pandemic were often based on surveillance data from within the department and from the Centers for Disease Control and Prevention (CDC).

Foodborne and person-to-person illnesses referred to as enteric diseases, like salmonellosis and campylobacteriosis, were generally lower than in previous years. A higher number of acute hepatitis B infections were reported in 2009 likely due to better screening in immigrant populations.

Diseases spread through insects and other vectors continue to impact Iowans. Only a handful of West Nile virus cases were detected in 2009, but patients with Lyme disease numbered greater than 100 for the third consecutive year.

Despite efforts to notify and treat exposed partners, chlamydial infections continue to increase slightly and have for the past 30 years. Gonorrhea and syphilis remain relatively stable. The number of newly diagnosed HIV cases was 19% higher than in 2008. Though a small number of cases accounts for the increase, surveillance data show that a disproportionate number of black, non-Hispanic men with an exposure risk of having sex with men are being diagnosed with HIV. Despite budgetary constraints, the department continues to prioritize targeted, voluntary screening for sexually transmitted diseases, including HIV, and widespread access to treatment.

The department made great strides in improving surveillance for carbon monoxide poisoning and lead exposure in young children. These data have already begun to help shape new policies like a new legislative requirement of children with a completed lead screening prior to kindergarten entry.

Approximately 600 health workers using the Iowa Disease Surveillance System; a system that is now capable of receiving electronic laboratory results on a daily basis. Surveillance systems are becoming increasingly streamlined, electronically and web-based, and interconnected.

As national progress in assessing disease improves every year, the Iowa Department of Public Health and its partners will keep moving forward in promoting and protecting the health of Iowans.

TABLE 1. SUMMARY OF COMMON, NOTIFIABLE DISEASES, 2005-2008 AND PERCENT CHANGE IN NUMBER OF CASES REPORTED COMPARED TO 3-YEAR AVERAGE

	2006	2007	2008	3-yr average 2006-2008	2009	Percent change†
			Number of cases ‡			
Campylobacteriosis	449	524	591	521	552	5.9%
Chlamydia	8399	8643	9372	8805	9406	6.8%
Cryptosporidiosis	230	610	284	375	232	-38.1%
E. coli and other shiga-toxin producing	161	175	208	181	163	-10.1%
Giardiasis	302	301	326	310	291	-6.0%
Gonorrhea	1981	1928	1700	1870	1658	-11.3%
Hepatitis A	13	48	109	57	38	-32.9%
Hepatitis B, acute	21	27	25	24	38	56.2%
HIV (new diagnoses)	113	127	108	116	127	9.5%
Legionellosis	13	12	21	15	24	56.5%
Listeriosis	6	8	1	5	4	-20.0%
Lyme disease	97	124	109	110	108	-1.8%
Meningococcal invasive disease	20	15	19	18	15	-16.7%
Mumps	1963	27	24	671	15	-97.8%
Pertussis (whooping cough)	342	150	257	250	235	-5.9%
Salmonellosis	475	477	425	459	408	-11.1%
Shigellosis	134	109	214	152	53	-65.2%
Syphilis	88	64	75	76	65	-14.1%

†The percent change is calculated by subtracting the 3-year average from the total cases for 2007 and dividing by the absolute value of the 3-year average.

‡ Table includes all confirmed and probable cases.

INTRODUCTION

The purpose of this report is to provide an overall snapshot of the types and trends of infectious diseases that occur in Iowa. When possible, details specific to the disease are provided, including information on which serotypes or groups were prevalent and which strains caused outbreaks. Comparisons to national rates are provided whenever possible. Aggregated county-level data are provided in a table at the end of the report. The report is intended for general public, media, public health, and health care use at all levels.

The report is divided into the following sections: vaccine-preventable diseases, sexually-transmitted diseases, HIV/AIDS, hepatitis C, zoonotic diseases, environmental health, and rare and unusual diseases.

The Iowa Department of Public Health (IDPH) has seven divisions and of those, three contributed disease data to this report, including the Division of Behavioral Health (BH), Acute Disease Prevention and Emergency Response (ADPER), and Environmental Health (EH). Two bureaus within ADPER are responsible for infectious disease investigation- the Center for Acute Disease Epidemiology (CADE) and the Bureau of Immunization and TB (BIT).

CADE conducts surveillance for emerging infectious disease, agents of bioterrorism, disease outbreaks, and occurrence of rare and unusual acute disease. BIT conducts surveillance of tuberculosis, perinatal hepatitis B, and coordinates the immunization program for the state. Specific disease conditions are reportable to the department per Iowa Administrative Code 641, Chapter 1. The urgency tied to reporting varies by disease[1].

The Division of Environmental Health has three Bureaus: the Bureau of Radiological Health, Bureau of Lead Poisoning Prevention (BLPP), and the Bureau of Environmental Health Services (BEHS). Each bureau has distinct goals and objectives and is comprised of very diverse programs. Certain health conditions of environmental origin are required to be reported to IDPH per Iowa Administrative Code. The content in this report includes data from BEHS, which includes disease/outbreak surveillance with the EHS-Net program and carbon monoxide poisoning surveillance, and BLPP, which includes the Childhood Lead Poisoning Prevention Program, Adult Blood Lead Epidemiology and Surveillance Program, and Occupational Health and Safety surveillance program.

The Division of Behavioral Health includes the Bureau of HIV, STD, and Hepatitis. This bureau identifies, monitors, and supports patients with HIV, AIDS, STDs, or hepatitis C. Disease reporting and tracking are a large component of the work accomplished by this bureau.

Public health emergency response planning plays a major role in preparing IDPH to respond to events of public health significance. The department has used an incident management system in several events such as the severe weather in 2008 and the 2009 H1N1 pandemic. Preparedness planning at both the state and local levels has greatly improved the way public health responds to large-scale disease outbreaks.

This report provides an overview of disease investigations and represents only a fraction of work accomplished by IDPH staff each year. The time invested in each disease report varies greatly by disease and nature of the report. Some reports require a quick database query and update of an electronic file. Others require hours of staff time in contact tracing, mentoring other health investigators, and communication, education, and intervention implementation.

Support for the initiatives of both divisions stem from Federal and State allocations and grants. The TB, STD, and HIV/AIDS surveillance programs are funded under separate cooperative agreements with the Centers for Disease Control and Prevention (CDC), National Center for HIV, Viral Hepatitis, STDs and TB Prevention.

METHODS

Disease reports are submitted to the Iowa Department of Public Health (IDPH) via phone, fax, e-mail, or an electronic reporting system. Reporters include health care providers, hospitals, local public health agencies, and laboratories.

Reports received by CADE are tracked in the web-based Iowa Disease Surveillance System (IDSS). Data are electronically exchanged between IDSS and the Centers for Disease Control and Prevention (CDC). Electronic laboratory reports are sent from the State Hygienic Laboratory (SHL) at the University of Iowa directly to IDSS daily.

Cases of acute, infectious disease are typically referred to local public health agencies for patient investigation and interview. Agencies primarily use IDSS to report information back to IDPH.

Local public health agencies are critical in conducting outbreak investigations. These agencies work to identify, investigate, and contain outbreaks at the city and county level.

A few diseases require a secondary reporting system used by IDPH in transmitting data to program-specific staff at CDC. These diseases include influenza and West Nile virus. The National Outbreak Reporting System is a CDC-sponsored system used by IDPH to report outbreaks of enteric illness.

CADE surveillance reports are generated weekly, annually, and on an as-needed basis.

Rates were calculated using the 2009 estimated census population for the State of Iowa or the appropriate estimated census year. Threshold values used in the graphs in the summary of enteric disease were calculating by adding two standard deviations to the three-year moving average. Outbreak cases were removed when calculating the three-year averages and outbreak cases were kept in 2009 case counts.

Calculations were performed with SPSS 16 ®, SAS, and Microsoft® Excel. Maps were generated using ARC GIS ®.

CADE uses the most recent Council of State and Territorial Epidemiologists (CSTE) and Centers for Disease Control and Prevention (CDC) case definitions found at http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm. Case status assigned by using the CSTE/CDC definitions is used to classify the case as confirmed, probable, suspect, not a case, awaiting more information, or chronic hepatitis B reported in a past year. Confirmed and probable cases meet the CSTE/CDC definitions and are reported to CDC weekly. All other case classifications are for CADE internal use, and reports other than confirmed and probable are not reported to CDC.

All case counts and Iowa-specific case demographics were retrieved from IDSS, which is maintained within CADE. The specific file used for this report was created in May 2010. Case reports or additional information that may have altered the disease counts received after this date was excluded from this report.

Methodology for influenza surveillance data analysis varies by program. Percent of influenza-like illness is determined by assessing the percent of ILI over number of patients seen by clinic site. Hospitalizations and deaths are case counts verified by a laboratory result. School percent absence is calculated by taking the total absent due to illness over the total enrolled times the number of days school was in session. Each daily absence is counted as a single occurrence.

RSV rapid antigen test data are used to determine the percent positive by region and for the state, weekly. Laboratories report the total tests performed and total positive. Each region must attain one lab reporting for every 50,000 population for the regional percentage to be considered statistically significant. When the number of reporting labs is not reached, the state percentage is used as the default. All

percentages are calculated using three-week moving averages to account for the variability in the positive predictive value of the rapid antigen test.

The enteric figures in this report display threshold and case count values. The threshold is calculated using a three-year moving average with the addition of two standard deviations. The base file used to create the three-year average does not contain outbreak-associated cases. The actual annual case counts for the preceding three years are then plotted over the threshold. The actual annual case counts contain outbreak-associated cases.

The surveillance case definitions for HIV, AIDS, STDs, and TB are those developed by CDC. Surveillance is conducted in adherence to detailed guidelines developed by that agency. Several programs enter data into CDC-developed software programs. Programs transfer data via a secure data network on a weekly or monthly basis.

The STD program has retired the use of a CDC database called STD*MIS or the STD Management Information System. On January 1, 2010, the STD Program launched STD IDSS. EpiInfo is used by this program to track results of screening in the public sector also.

For accuracy of analysis, and because jurisdiction for HIV and AIDS cases is determined by the person's residence at the time of diagnosis, great care is taken both within and between states to maintain unduplicated databases for HIV and AIDS.

With regard to HIV/AIDS surveillance, reports are generated quarterly, and at other times as needed. An epidemiological profile is produced every three years, with annual interim updates[2].

HIV/AIDS data analysis for this report utilized a combination of CDC's HARS and eHARS software, Microsoft® Excel, SAS® and SAS® Enterprise Guide. Maps were generated using ArcGIS®.

STD and TB reports are generated annually and as needed. Programs used include IDSS, Epi Info, Microsoft® Excel and PowerPoint.

The results of blood lead testing done on all Iowa citizens are required to be reported to the Bureau of Lead Poisoning Prevention. Data are entered into the CDC database, STELLAR; which is designed to be used on an individual computer or on a computer network. BLPP exports data from STELLAR to CDC on a quarterly basis per programming developed by CDC. IDPH analyzes STELLAR data on a quarterly basis. The analyses and reports are produced in Microsoft Access and Microsoft Excel.

Most disease-specific data are transmitted to CDC electronically and on a routine basis. Some disease information is communicated at the request of CDC. The statistics reported by ADPER programs to CDC are used to composite the picture of disease burden in the U.S.

SUMMARY OF VACCINE-PREVENTABLE DISEASES

HAEMOPHILUS INFLUENZAE B

Cases of *Haemophilus influenzae* type B (Hib) are rare in Iowa and the U.S. In 1991, Hib vaccine was recommended for all infants after age 2 months. Since then, the incidence of Hib in children <5 years of age has declined >99%. In 2009, one patient with *Haemophilus influenzae* type B cases was reported to IDPH. The case was a female infant less than two years of age. The infant had received three Hib vaccinations.

HEPATITIS A

See Summary Enteric Disease Section.

HEPATITIS B (ACUTE AND CHRONIC)

A total of 38 cases or 1.3 cases of acute hepatitis B for every 100,000 persons reported to CADE in 2009. Sixty-three percent of these 38 cases were males. Nationally, acute hepatitis B infections occur 1.8 times more often in men than women.

The Centers for Disease Control and Prevention (CDC) estimates there were 43,000 new hepatitis B infections in the U.S. in 2007. CDC states that nationally there are between 800,000 and 1.4 people living with chronic hepatitis B disease.

There were 255 confirmed or probable chronic hepatitis B cases reported in 2009.

A greater number of acute and chronic hepatitis B infections were reported in 2009 than in preceding years. This increase is largely attributed to improved detection and reporting of infections, particularly among immigrant populations.

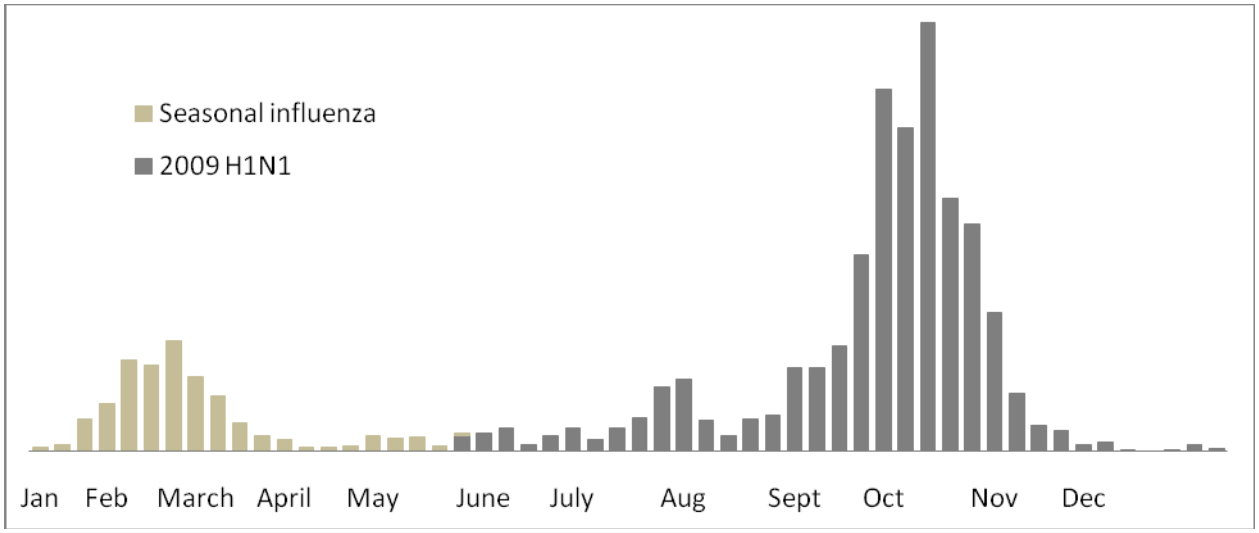
INFLUENZA

The Iowa Influenza Surveillance Network (IISN) tracks influenza activity, age groups impacted, outbreaks, virus type and strain, and severity of seasonal influenza. This past year was the first pandemic in more than 30 years. Activity did not follow the typical seasonal pattern; instead waves were reported in late April and early May, then again in October and November. Morbidity was widespread, particularly in the fall when the highest numbers of infections were reported.

In 2009, there were more than 300 surveillance sites enrolled in the IISN that included medical clinics, hospitals, laboratories, schools, and mortality surveillance.

Impact was significant in medical clinics. In peak weeks the percentage of patients with influenza-like illness exceeded 10% and was

Figure 1. Laboratory-confirmed cases of seasonal and 2009 H1N1 reported to the Iowa Department of Public Health, 2009



higher than ever reported since the late 1990s.

Schools were impacted as well. In late October, more than 500 Iowa schools reported at least one day of absence due to illness that met or exceed 10% of the school's enrollment. That equates to one-third of all Iowa schools experiencing illness during that week.

IDPH issued two reporting orders in 2009; one specifying the requirement for health care professionals to report laboratory-confirmed cases of 2009 H1N1 and a second issued in September requiring the reporting of 2009 H1N1-associated hospitalizations and deaths.

There were 644 hospitalizations confirmed by laboratory evidence of infection in 2009. Of those, 41 were reported to have died from 2009 H1N1. All deaths due to 2009 H1N1 were required to have laboratory confirmation of infection by rapid, PCR, DFA, or culture test methods. Interestingly, 11 of the 41 deaths were confirmed with specimens submitted postmortem.

MEASLES

One case of measles was reported in 2009. No source of infection was identified and there were no secondary cases.

MENINGOCOCCAL INVASIVE DISEASE

In 2009, there were 15 confirmed and 1 probably cases or 0.5 cases for every 100,000 persons in Iowa. The age of case patients ranged from <1 to 89 years old with the mean age of 32 years. Nationally, there are 0.36 cases for every 100,000 persons.

Of the confirmed cases, four were group Y, four were group B, two were group A and C respectively, one was group W135, and two was undetermined (Table 2).

Table 2. Cases of Meningococcal disease by serogroup

Meningococcal Serogroups reported, 2009					
A	**B***	**C**	**W135**	**Y**	**Unk**
1	4	2	1	4	2

*Serogroup B is not covered by the meningococcal vaccine

CDC defines a community-based outbreak of meningitis as the occurrence of three or more confirmed or probable cases during a period of ≤3 months among persons residing in the same area who are not close contacts of each other and who do not share a common affiliation, with a primary attack rate of at least 10 cases per 100,000 population[3]. There were no instances of this in Iowa in 2009.

Meningococcal invasive disease is fatal in 10-14 percent of cases. Three Iowa cases (20%) were fatal in 2009. There are two vaccines currently licensed for use in the U.S. One vaccine is commonly used for people 11-55 years old; the other is used in people aged 2-11 and over 55 years[4].

MUMPS

There were 15 confirmed cases of mumps reported to IDPH this year. In 2006, Iowa was the center of the largest mumps outbreak in 20 years with 1,963 confirmed and probable cases. Prior to 2006, most cases were typically imported from countries with endemic disease. Case ages in 2009 ranged from 3 to 94 years with a median of 25 years old.

PERTUSSIS (WHOOPING COUGH)

Pertussis is caused by *Bordetella pertussis* and causes epidemics every three to four years. The last significant state-wide increase in pertussis occurred in 2005. In non-epidemic years, annual incidence in Iowa ranged from 168-481 cases. There were 235 confirmed and probable cases reported to IDPH in 2009 or 7.8 cases for every 100,000 persons in Iowa.

The highest numbers of cases were reported in Polk, Dallas, Buchanan, Cedar, and Scott counties.

RESPIRATORY SYNCITIAL VIRUS (RSV)

Surveillance for respiratory syncitial virus began in 2008. IDPH and SHL solicit rapid RSV test results from clinical and reference labs throughout the state to determine the percentage of positive test results of those performed. In addition, various labs including

SHL report PCR or culture confirmation of RSV as a means to verify the presence of RSV in Iowa.

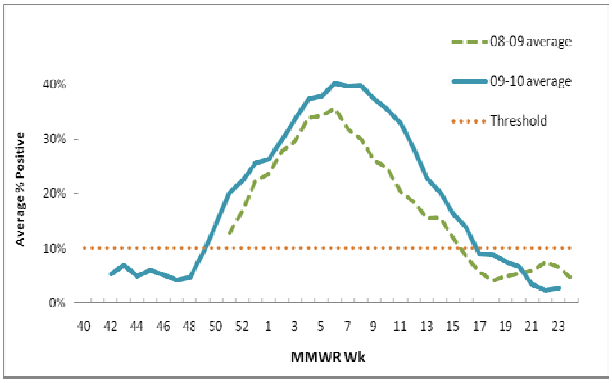


Figure 2. Trends in respiratory syncitial virus by season, 2008-2010

RSV surveillance nationally is conducted by CDC using data from the National Respiratory and Enteric Virus Surveillance System. Data is reported from 19 laboratories throughout the U.S.

Recent research has highlighted variability among different regions and states in the US[5]. The typical RSV season in Iowa extends from December through May.

TUBERCULOSIS

In 2009, 42 tuberculosis (TB) cases were reported in Iowa. Between the years of 2000-2009, Iowa reported 433 cases to the Centers for Disease Control and Prevention; an average of 43 cases each year.

State law requires active cases of TB to be reported to the Iowa Department of Public Health. Iowa has one of the lowest TB case rates in the country, thanks in part to contact investigations, strict, directly observed therapy for active disease cases, and the provision of medication for latent-Tuberculosis infection (LTBI) to Iowans annually. By completing 6 – 9 months of therapy, patients reduce their risk of developing TB disease by 70 – 90%.

Local health departments are to be commended for their vigilance in controlling tuberculosis in Iowa.

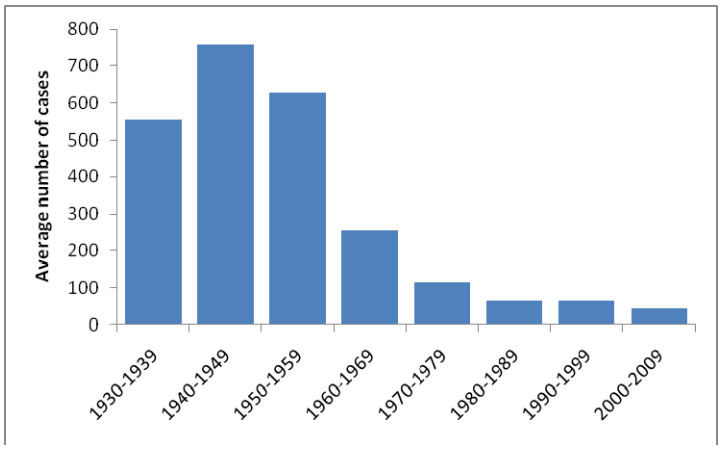


Figure 3. Tuberculosis cases by decade in Iowa, 1930-present

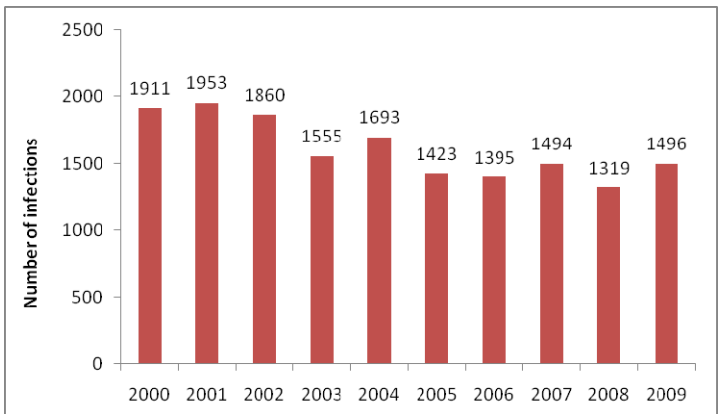


Figure 4. Number of latent TB infections by year in Iowa, 2000-2009

SUMMARY OF SEXUALLY TRANSMITTED DISEASES, HEPATITIS C, HIV AND AIDS

HIV AND AIDS

In 2009, HIV diagnoses returned nearly to the record-breaking level of 2007. There were 127 HIV diagnoses in 2009, an increase of 19 (18%) from the 108 diagnoses reported in 2008. The number of diagnoses in 2009 exceeds both the 10-year (1999 through 2008) average of 104 diagnoses and the 5-year (2004 through 2008) average of 113 diagnoses. There were 4.2 HIV diagnoses per 100,000 people in 2009, compared to 3.6 HIV diagnoses per 100,000 population in 2008 and 4.3 per 100,000 people in 2007.

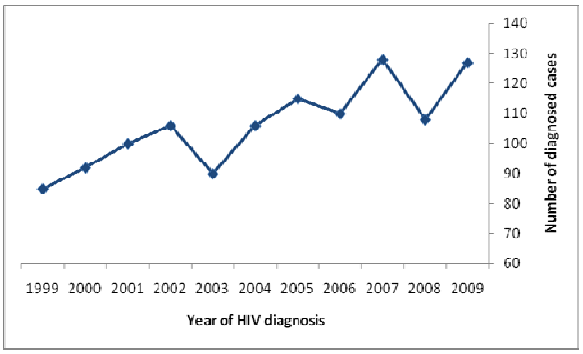


Figure 5. Number of newly diagnosed cases of HIV by year, 1999-2009

The number of males diagnosed rose again in 2009 to 107. The number of diagnoses among females was steady at 20, compared to 19 in 2008 and 21 in 2007. Males accounted for 84% of diagnoses in 2009. The proportion of diagnoses among males and females seems to have stabilized with 83% among males and 17% among females for the years 2006 through 2009.

Diagnoses of HIV among the foreign born have declined since 2002. Only 14% (18) of the 127 persons diagnosed in 2009 were born in a country other than the United States or one of its dependencies. In 2002, 30% (32) of the 108 persons diagnosed were foreign born.

Diagnoses among persons 13 to 24 years of age numbered 24, a 50% increase over 2008, and an increase of 130% from 2007.

Diagnoses in persons aged 25-44 years in 2009 also increased 18% from the previous year. This age group accounts for the largest proportion of cases with 71 reported in 2009.

Diagnosed cases in the age group of 45 and older continue to decline from previous years. There were 30, 35, and 42 cases reported in 2009, 2008, and 2007, respectively.

The majority of HIV diagnoses occurred in white, non-Hispanic persons. Cases among black, non-Hispanic persons were relatively steady and account for 15% (19) of all cases. There were seven diagnoses among Asians, in contrast to an average of 1.2 diagnoses per year from 1999 through 2008. Five of the Asians were refugees who had been infected prior to immigrating to the United States. Discontinuation of refugee resettlement programs in Iowa has been announced for mid-year 2010; it is likely that diagnoses among Asians will decrease as a result. Diagnoses among black, non-Hispanic persons continue to be markedly disproportionate to the size of the population.

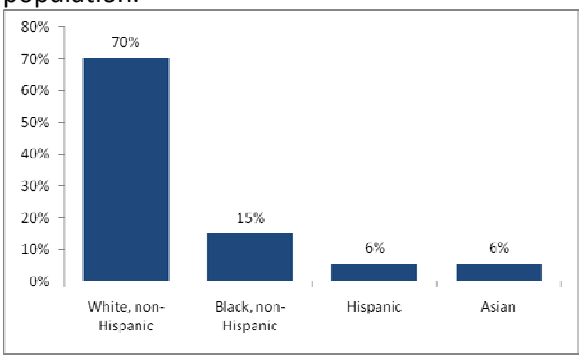


Figure 6. Percent distribution of newly diagnosed cases by race and ethnicity

Black, non-Hispanic persons make up 2.5% of Iowa's population, but accounted for 15% of the new HIV diagnoses in 2009. Nineteen blacks were diagnosed, equating to 24.8 per 100,000 people. Non-Hispanic black persons were 7.6 times more likely to be diagnosed with HIV in

2009 than were non-Hispanic white persons in Iowa.

Men-who-have-sex-with-men (MSM) remained the leading category for mode of exposure to HIV infection. The number of diagnoses among MSM increased to 67 in 2009, compared to 64 in 2008 and 69 in 2007. Reported numbers of other modes of HIV exposure in 2009 were as follows: injection drug use (IDU), 13 (10%); men-who-have-sex-with-men and inject drugs (MSM/IDU), 3 (2%); heterosexual contact, 26 (20%); and no identified risk (NIR), 16 (13%). There were two pediatric diagnoses (2%) in 2009. Both infections were passed from mother to child during pregnancy or labor and delivery.

HIV/AIDS prevalence continues to increase. As of December 31, 2009, there were 1,748 persons living with HIV or AIDS who were Iowa residents at time of diagnosis, a prevalence of 58.2 per 100,000 people. This compares to 1,616 persons living with HIV/AIDS on the same date in 2008, a prevalence of 53.8 per 100,000. Figure 7 shows the upward trend in the estimated number of persons living with HIV or AIDS, as documented at the end of each calendar year. The top tier of the graph represents the estimated numbers of undiagnosed/unreported persons, based on the surveillance program's estimate of the timeliness of case reporting and CDC's estimate of patients undiagnosed. When the figure of 1,748 is adjusted for under-reporting of diagnosed HIV (4%) and AIDS (2%) and CDC's estimated percentage of undiagnosed infections (21%), there may have been 2,276 Iowans living with HIV or AIDS at the end of 2009.

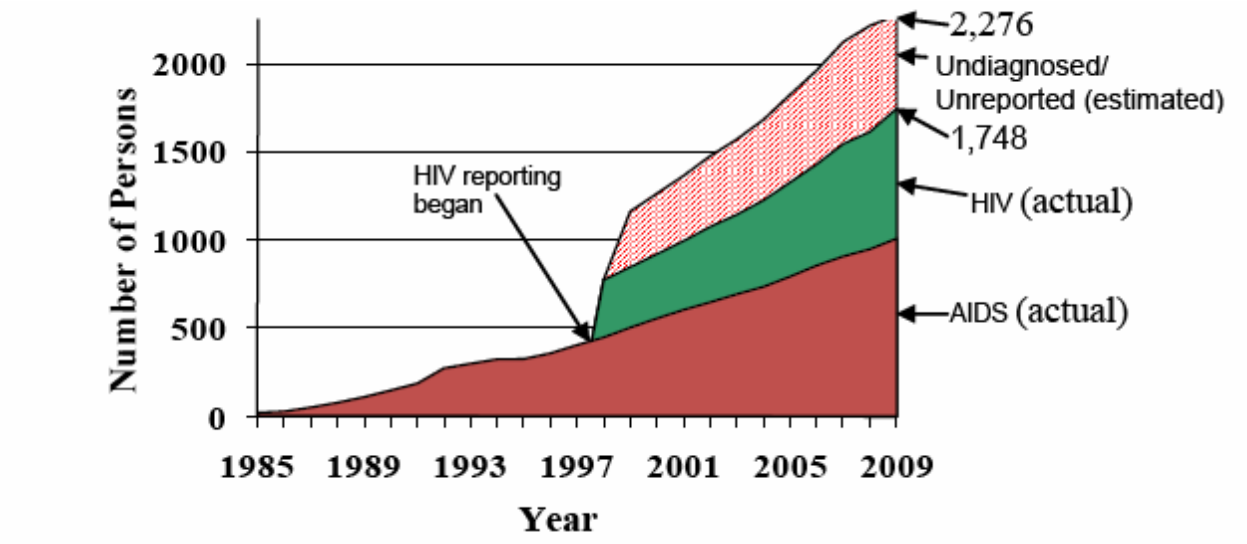
AIDS diagnoses rose to 88 in 2009, the highest number since 1996. Of those diagnosed with AIDS in 2009, 55 (63%) were also newly diagnosed with HIV and received a concurrent diagnosis of AIDS with progression to AIDS by the end of 2009. This is more an indication of prevention failures as opposed to failure in treatment or access to care. By comparison, 65 persons were diagnosed with AIDS in 2008, 67 in 2007, and 79 in 2006.

For a detailed report of the HIV/AIDS statistics for the state of Iowa, please visit our website: http://www.idph.state.ia.us/adper/hiv_aids_programs.asp#surveillance

HEPATITIS C

There were an estimated 4.1 million cases of hepatitis C in the United States; up to 85 % of these cases are chronic. According to the 2009 census population estimate for Iowa, there were 3,007,856 people residing in the state. The Centers for Disease Control and Prevention (CDC) estimate that 1.8 % of the state's population, or 54,141 Iowans, have potentially

Figure 7. Estimated number of persons living with HIV or AIDS in Iowa on December 31 of each year, 1984-2009



been infected with the hepatitis C virus. To date, approximately 10,630 cases of hepatitis C have been identified by IDPH.

Hepatitis C data are collected using Iowa Disease Surveillance System (IDSS), the state's Web-based reporting system, to allow for collection of risk information, test results, referral information, and data on whether immunizations were offered.

Due to a lack of funding, surveillance activities are not performed at the state level. The CDC provides funding for the adult viral hepatitis prevention program coordinator, but surveillance is not a supported prevention activity.

SEXUALLY TRANSMITTED DISEASES

The Bureau of HIV, STD, and Hepatitis is responsible for tracking the incidence of sexually transmitted diseases, including C*hlamydia*, gonorrhea, and syphilis.

In addition to surveillance, IDPH supports targeted voluntary screening at 68 public sites throughout Iowa. IDPH also works with private health care providers to increase screening rates in those clinics.

IDPH provides prophylaxis to persons examined and testing positive at one of the 68 public screening sites. Medication is also provided to contacts of confirmed cases.

Iowa Code 139A was updated to allow for partner delivered therapy in 2008. This statute allows health care practitioners to give medications or prescriptions to their patients or to public health professional to pass along to exposed partners.

CHLAMYDIA

CDC estimates that about 40% of chlamydial infections and 50 % of gonorrhea infections remain undiagnosed and untreated each year. This means that in 2009, an estimated 10,135 infections went undiagnosed and untreated in Iowa.

Chlamydia and gonorrhea are more often diagnosed in women. This is because women are more likely to have routine STD screening tests performed during annual exams.

There were 9,406 chlamydial infections reported to IDPH in 2009, which equates to 466 cases for every 100,000 people. Rates have been steadily increasing for the past three decades. Due to underlying prevalence of disease, outbreaks are rarely reported. Iowa is below the national average of 544 cases for every 100,000 people.

The majority of infections, 74%, were reported in persons aged 15-24 years. Although African Americans account for only 2% of Iowa's population, 20% of all reported chlamydial infections are among African Americans. Improved partner services may be finding more cases contributing to the continual increase in the number of identified cases.

GONORRHEA

In 2009, 1,658 cases of gonorrhea were reported to IDPH. This is a rate of 55 for every 100,000 people. Like C*hlamydia*, gonorrhea also most strongly impacts those 15-24 years of age. Sixty-five percent of gonorrhea cases are among people of this age. Disparities among African Americans are even more pronounced, however, with 44% of gonorrhea cases being reported among this population. The state has about half as many cases for every 100,000 people as the national average of 119 cases.

SYPHILIS

There were 65 total cases of syphilis reported in 2009, or 2 for every 100,000 people. However, sporadic clusters of cases and spread from other states make it challenging to eliminate syphilis completely from Iowa. Syphilis cases were reported primarily among males, ages 20-55, often among men who have sex with men. The rate of infection was highest among African Americans who experience a rate of 26 for every 100,000 people. Clusters of syphilis are common, especially in early stages of infection and in urban areas.

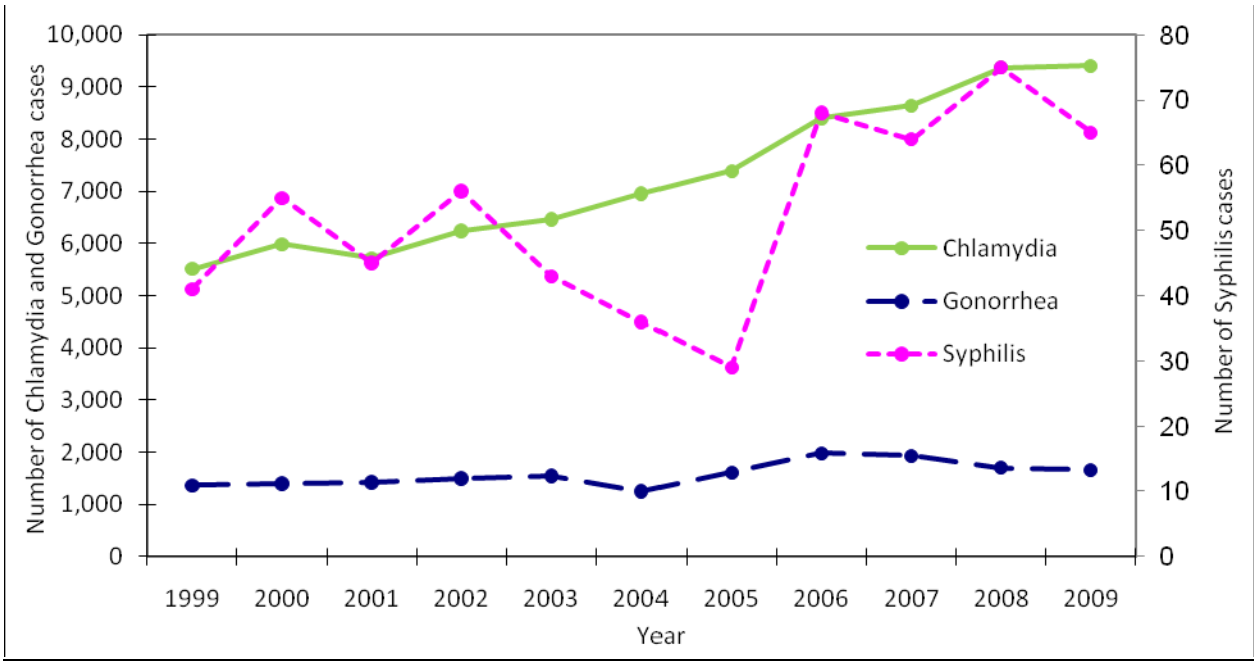


Figure 8. Number of cases of *Chlamydia*, gonorrhea, and syphilis by year, 1999-2009

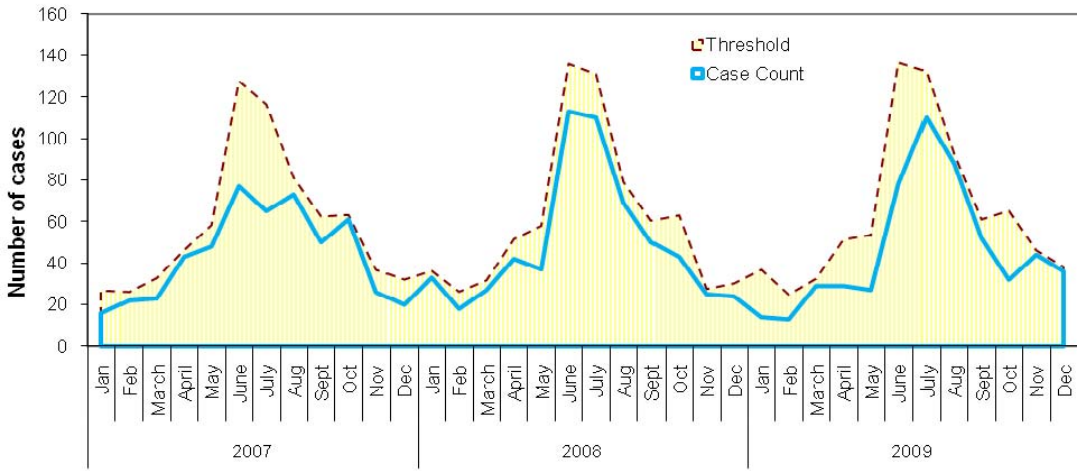
SUMMARY OF ENTERIC DISEASES

Outbreak summary tables are at the end of this report.

CAMPYLOBACTERIOSIS

The total number of campylobacteriosis cases reported in 2009 was high for the second consecutive year (Figure 9). The average numbers of cases reported for 2006-2008 were 521; 552 cases were reported in 2009. Campylobacteriosis incidence was 18.4 cases for every 100,000 people in 2009.

Figure 9. Campylobacteriosis cases versus maximum expected cases or threshold by month, 2007-2009

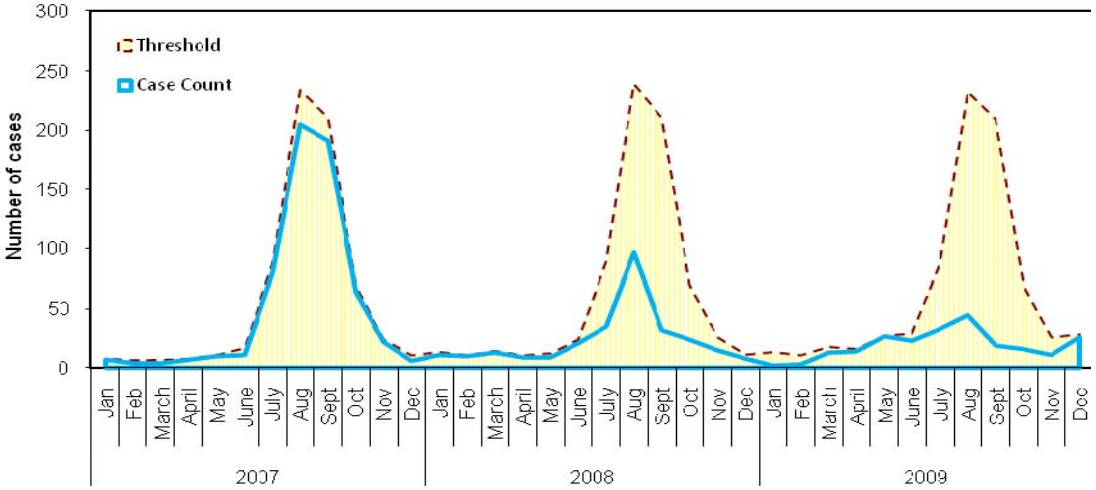


Campylobacteriosis activity typically peaks in early summer. Consumption of raw, undercooked meat, raw milk, contact with infected animals, and contaminated water are common sources of Campylobacter infection. In June 2009, a new rapid, non-culture test for Campylobacter was introduced. IDPH and SHL are evaluating whether the new test is having any effect on the increased number of reported cases.

CRYPTOSPORIDIOSIS

Cryptosporidiosis activity in 2009 was lower overall than in 2008. There were 7.7 cases for every 100,000 Iowans in 2009 compared to 9.5 in 2008. Most cases reported either child care or recreational water exposure. One hypothesis for the reduced number of reported cases is the cooler, summer weather contributed to fewer recreational water exposures. The CDC case definition for Cryptosporidiosis cases in 2009 includes epidemiologically linked cases. Those cases are currently being tracked and reported.

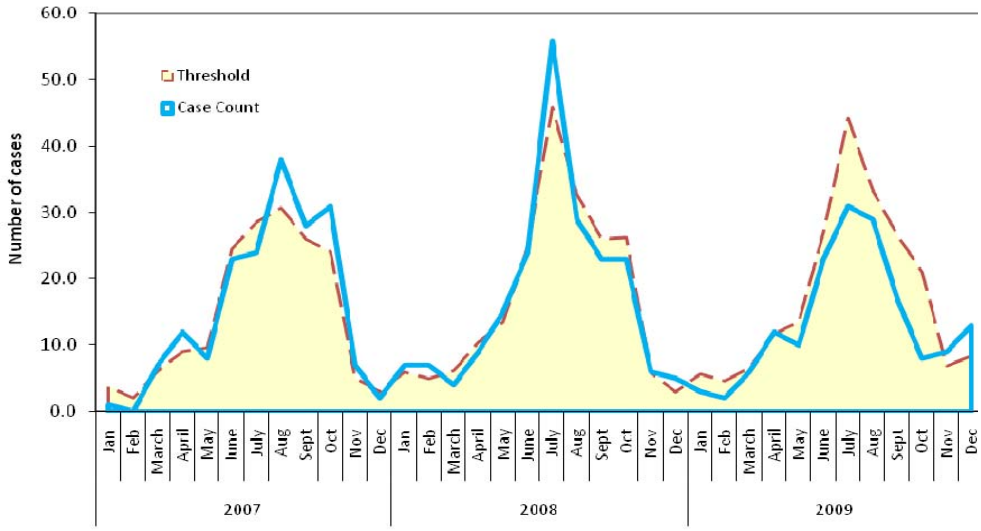
Figure 10. Cryptosporidiosis cases versus maximum expected cases or threshold by month, 2007-2009



E. COLI O157:H7 AND OTHER SHIGA-TOXIN PRODUCING STRAINS

The incidence of *E. coli* shiga-toxin cases in Iowa fell to 5.4 cases/100,000 persons in 2009 from 6.9 cases/100,000 persons in 2008. In 2009, IDPH investigated national outbreaks involving raw cookie dough and blade-tenderized steak. There were 163 cases reported in 2009.

Figure 11. E. coli O157:H7 and other STX-producing strains cases versus maximum expected cases or threshold by month, 2007-2009

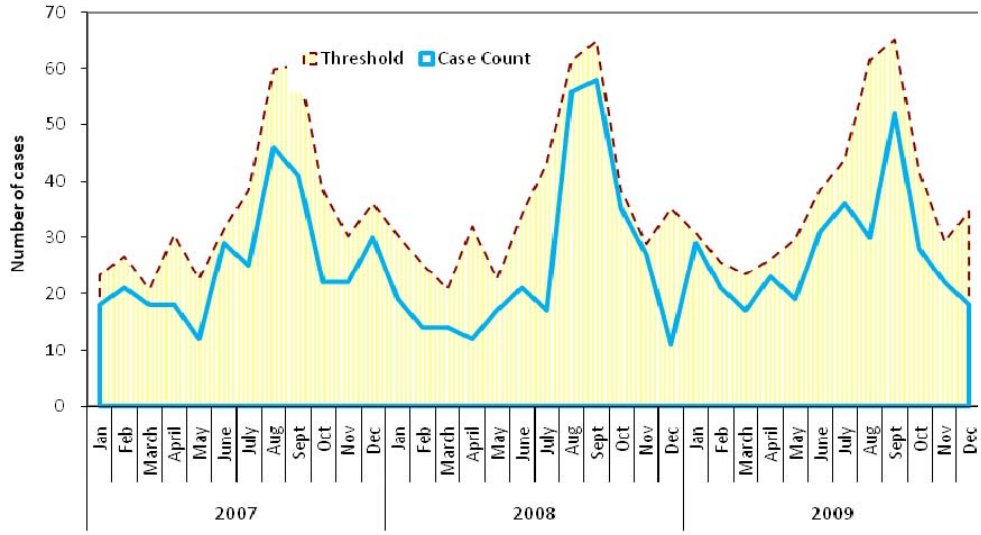


GIARDIASIS

Giardiasis is one of the leading waterborne diseases that typically peaks in late summer or early fall (

Figure 12). In 2009, there were 291 cases in Iowa. Diapered children and those in childcare are most likely to become infected with Giardia. Twenty-seven percent of cases were age 5 and under. There were 9.7 cases for every 100,000 Iowans compared to 10.9/100,000 in the previous year.

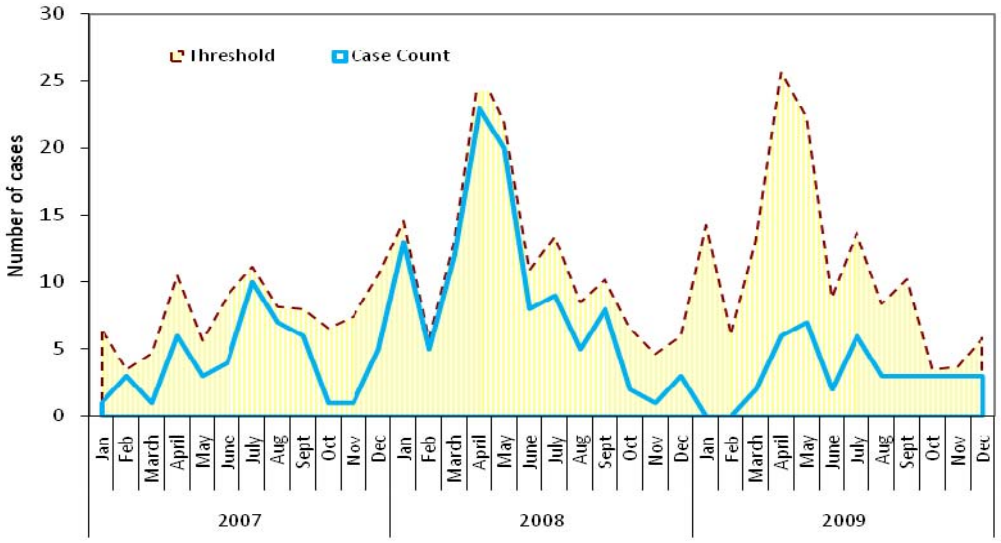
Figure 12. Giardiasis cases versus maximum expected cases or threshold by month, 2007-2009



HEPATITIS A

In 2009, there were 38 cases of Hepatitis A reported in Iowa. This represents a 33% reduction over the previous three year average of 57. Ages of the cases ranged from 1 to 79 with only three cases younger than 20. Fifty-eight percent of cases were male. None of the illnesses were associated with large outbreaks.

Figure 13. Hepatitis A cases versus maximum expected cases or threshold by month, 2007-2009



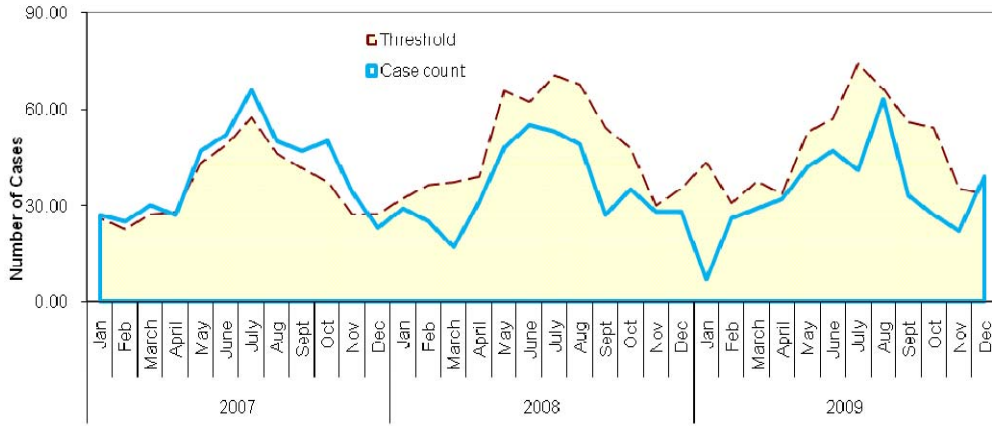
LISTERIOSIS

There were four cases of *Listeria montocytogenes* infection reported in 2009. None of these cases were associated with any known *Listeria* outbreaks.

SALMONELLOSIS

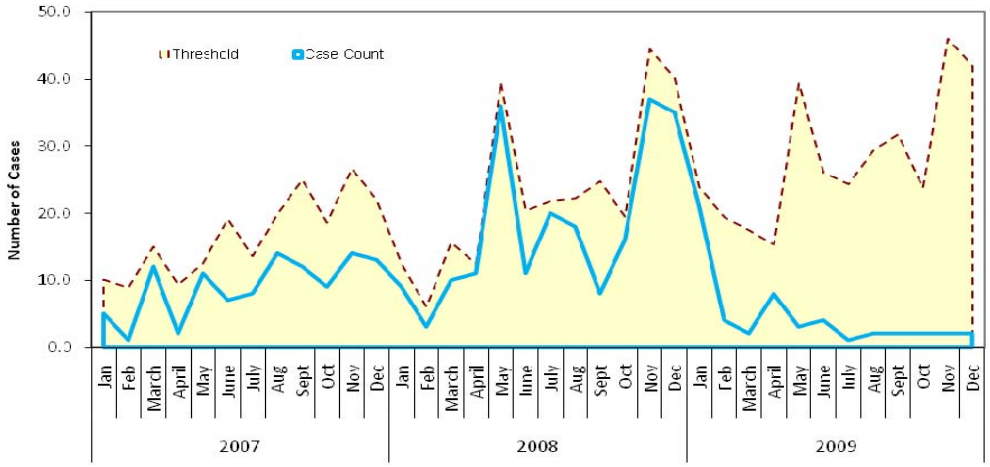
Salmonellosis incidence in 2009 decreased to 13.6 cases per 100,000 persons from 14.2 cases per 100,000 persons in 2008. The total number of cases reported was 408. The graph below shows the number of salmonellosis cases reported for the past three years along with the calculated threshold for each month. A regional outbreak of *Salmonella* Saintpaul associated with alfalfa sprouts occurred in March and April. In December 2009 a *Salmonella* Newport outbreak occurred in Eastern Iowa. No cause was determined.

Figure 14. Salmonellosis cases versus maximum expected cases or threshold by month, 2007-2009



SHIGELLOSIS

Figure 15. Shigellosis cases versus maximum expected cases or threshold by month, 2007-2009



In 2009, there were 53 cases of *Shigella* in Iowa. This was an approximately a 65 % decrease over the average number of cases for the past three years. *Shigella* infections were reported in all areas of the state. Approximately 30% cases were under 5 years old; approximately 55% in persons aged 24-64 years. This corresponds to children and their parents/caretakers being at most risk.

SUMMARY OF ZOONOTIC DISEASES

BRUCELLOSIS

There were two cases of human infection reported to the IDPH in 2009. Median age of cases was 58 years. One case was likely infected outside of the United States, and the source of infection was not identified in the other case.

DENGUE FEVER

In 2009, two Dengue cases were reported to IDPH. Both were considered probable cases and reported recent international travel to countries where Dengue virus is endemic.

EHRLICHIOSIS/ANAPLASMOSIS

There are at least three species of bacteria responsible for ehrlichiosis/ anaplasmosis in the United States: *Ehrlichia chaffeensis, Anaplasma phagocytophilum* ,and *Ehrlichia ewingii*. The clinical signs of disease that result from infection with these agents are similar.

In 2009, there were eight cases of ehrlichiosis/ anaplasmosis reported to IDPH. Median age of the cases was 57 years.

HANTAVIRUS

There were no reports of Hantavirus Pulmonary Syndrome (HPS) case in Iowa in 2009.

There have been seven cases of HPS reported in Iowa since the disease was first identified in 1993. Substantial rodent exposure was identified in most cases.

LYME DISEASE

Lyme disease is caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans by the bite of an infected tick, specifically the blacklegged tick. Symptoms of Lyme disease include fever, headache, fatigue, and skin rash also known as erythema migrans. There were 108 cases of Lyme disease reported to the IDPH in 2009. The 2009 Iowa case rate for Lyme disease was 3.6 per 100,000*. Cases ranged from ages two to 82.

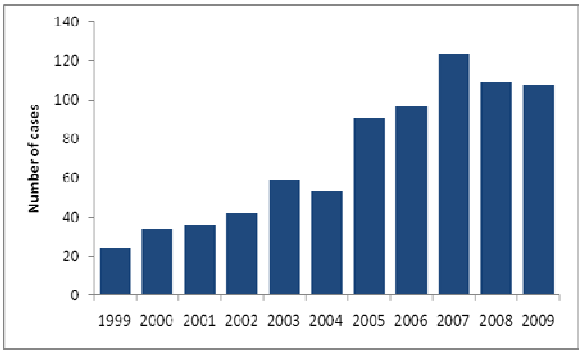


Figure 16. Confirmed and probable cases of Lyme disease reported to IDPH, 1999-2009

MALARIA

Ten cases of malaria were identified in Iowa in 2009. All ten cases had recently immigrated to the United States. Two cases were determined to have *Plasmodium malariae;* two *Plasmodium vivax*; six cases had *Plasmodium falciparum* infections.

RABIES, ANIMAL

In 2009, 35 cases of animal rabies were reported in Iowa, which is a slight increase from 2008 (see the Table below). Rabies was identified most frequently in wildlife species including 13 skunks, 11 bats, and one squirrel. Five cases were diagnosed in domestic species including 3 cats and 2 dogs. Five cows tested positive.

Table 3. Number of animals positive for rabies virus by species, 2009

Species	Positive	Total Tested	% Positive
Dogs	2	369	0.54%
Cows	5	86	5.81%
Cats	3	444	0.68%
Bat	11	558	1.97%
Squirrel	1	17	5.88%
Skunks	13	39	33.33%

During 2009, 1694 animals in Iowa were tested for rabies and 35 were confirmed positive (2.07%). The percent positive varies greatly by species, see the Table 3 above. It is important to note that this data is greatly influenced by the number of animals tested. Many animals are tested because they exhibit unusual behavior or clinical signs making them more

likely to be infected with the rabies virus. For these reasons, the percentages should not be considered representative of the true distribution of disease within the animal population in Iowa.

There are two rabies strains that commonly circulate in Iowa (bat and skunk), and many different species can be infected with these strains. In animal samples that are strongly positive for rabies (the strain typing procedure is only effective in samples that are strongly positive as opposed to weakly positive), the University Hygienic Laboratory (UHL) can differentiate the rabies strain that infected the animal. In 2009, UHL was able to identify the rabies strain in 16 of the 35 positive rabies cases, 10 were skunk strain and 6 were bat strain. Skunk strain rabies was identified in 6 skunks, 3 cows, and 1 cat. Bat strain rabies was identified in 5 bats and 1 squirrel.

RABIES, HUMAN

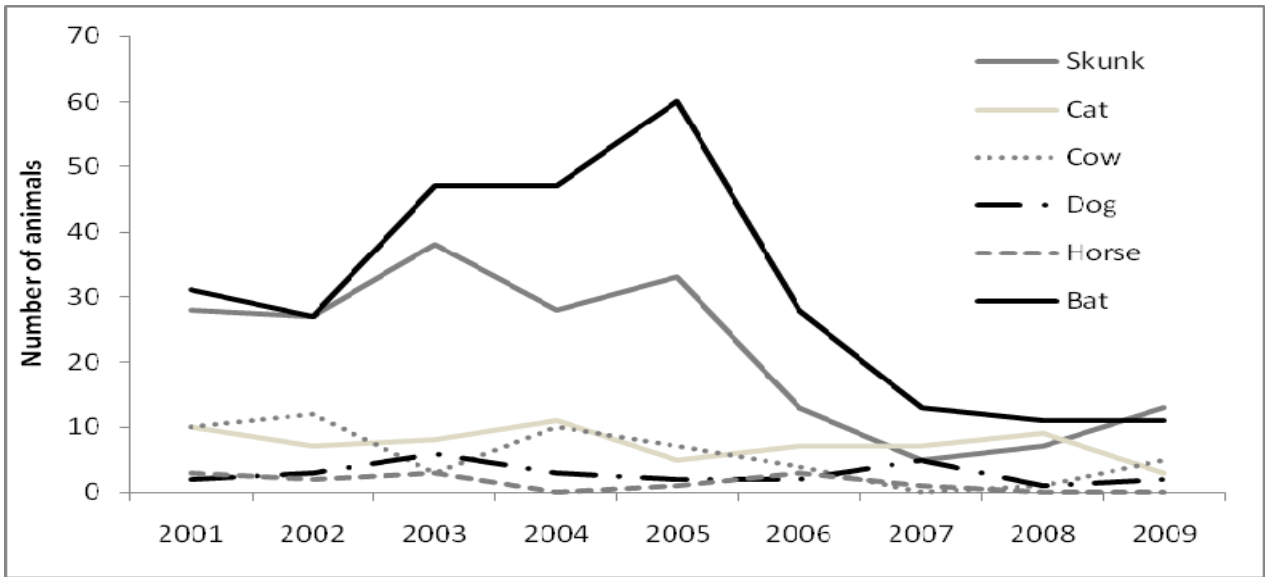
Iowa's most recent human rabies case occurred in 2002. The illness was caused by the bat strain. Prior to that, the last reported case occurred in 1951.

While the exact number of people who receive rabies post exposure prophylaxis each year in the United States is unknown, it is estimated to be about 40,000 people. Based upon Iowa's population, that would equate to approximately 390 Iowan's receiving preventative treatment each year.

ROCKY MOUNTAIN SPOTTED FEVER (RMSF)

In 2009, there were 5 cases of Rocky Mountain Spotted Fever (RMSF) reported in Iowa. American dog ticks are carriers of *Rickettsia rickettsii*, the bacterium that causes RMSF. The American dog tick is the most common species of tick in Iowa and can be found in every county in Iowa. The tick is active late March through August[6]. Iowa RMSF cases in 2009 had symptom onset dates from May to September. Cases ranged from age 14 to 75 with a median age of 43. All the five cases are male.

Figure 17. Number of animals positive for rabies virus by species and year, 2001-2009



WEST NILE VIRUS

There were five human cases of West Nile virus reported to the IDPH in 2009. Two of the five cases were hospitalized. There were no West Nile virus related deaths reported in 2009.

The first human cases of West Nile virus infection in Iowa were reported in 2002 (see table below).

Table 4. Iowa West Nile virus activity by species and outcome, 2002-2009

	2002	2003	2004	2005	2006	2007	2008	2009
Human cases	54	147	23	37	37	30	5	5
Human deaths	2	6	2	2	0	3	1	0
Sentinel chickens	31	15	9	19	18	18	3	6
Mosquito pools	8	27	0	7	15	5	5	9
Horses	1142	96	18	15	12	10	4	3

SUMMARY OF ENVIRONMENTAL HEALTH CONDITIONS

CARBON MONOXIDE (CO) POISONING SURVEILLANCE

Each year, according to the CDC, more than 400 Americans die from unintentional CO poisoning, more than 20,000 visit the emergency room and more than 4,000 are hospitalized due to CO poisoning. Fatality is highest among Americans 65 and older. IDPH collects reports of CO poisoning and CO exposure from health care providers and facilities, and the Iowa Statewide Poison Control Center. CO poisoning is defined in Iowa as:

- A blood carbon monoxide level equal to or greater than 10 % carboxyhemoglobin or its equivalent with a breath analyzer test **or**;
- A clinical diagnosis of carbon monoxide poisoning regardless of any test result.

Information collected includes basic demographics (age, gender, county of residence), diagnosis, blood carboxyhemoglobin test results, exposure (circumstance, source, location), and severity of health impact. Reports are reviewed to identify clusters and possible occupational exposures for further investigation.

In 2009 there were no reported deaths from CO exposure in Iowa. Eighty-four individual reports of CO exposure were received by IDPH as a result of 47 exposure events. Fifty-six of these reports met the case definition for carbon monoxide poisoning.

The majority of exposure events only affect one or two individuals, but occasionally a larger group of people is affected by a single source of CO particularly in occupational or recreational settings. In April 2009, a cluster of 12 workers were exposed to high levels of CO while operating a propane-fueled concrete resurfacing machine in a large (12,000 square foot) refrigerated space. Despite the space's size, the lack of ventilation caused by shutting off the cooling equipment led to the buildup of CO. Eight of the workers reported headache, nausea, and dizziness and were seen in the nearby hospital emergency room. All eight workers were treated with oxygen and discharged after symptoms resolved. The crew was able to resume work the next day after the space's ventilation systems were operational.

The following statistics comprise the 2009 carbon monoxide poisoning surveillance summary:

- Reported fatalities: 0
- Reported exposures: 84
- Reported cases meeting case definition: 56
- Number of reported exposure events: 47*

**Events may have involved more than one person*

Table 5. Gender of cases with carbon monoxide poisoning meeting case definition, 2009

	Number of cases
Male	38
Female	18
Total	56

Table 6. Cases with and without physician diagnosis and carboxhemoglobin results, 2009

	Carboxyhemoglobin Result ≥ 10%		
Physician Diagnosis	**Yes**	**No**	**Total**
Yes	34	21	55
No	1	28	29
Total	35	49	84

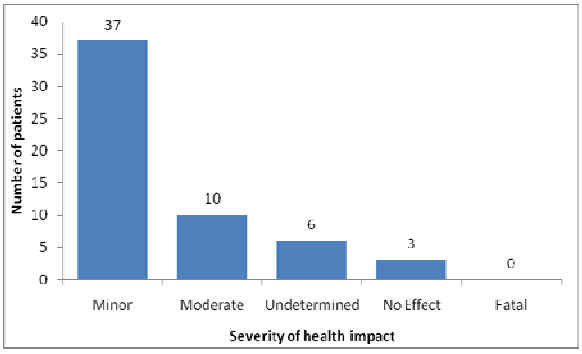


Figure 18. Severity of health impact among case patients with carbon monoxide poisoning, 2009

Fatal – Patient died due to Carbon monoxide poisoning
Moderate – Patient experienced moderate symptoms such as nausea, vomiting, confusion
Minor – Patient experienced minor symptoms such as headache, dizziness

No Effect – Patient experienced no symptoms consistent with CO exposure

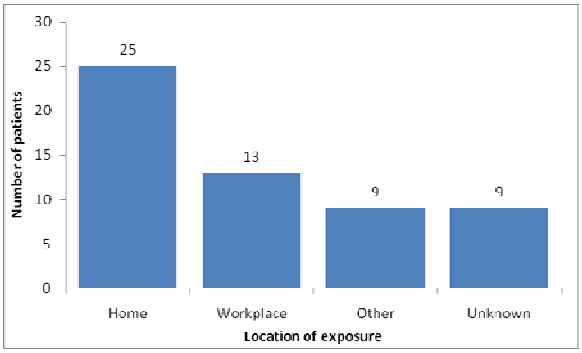


Figure 19. Location of exposure among case patients with carbon monoxide poisoning, 2009

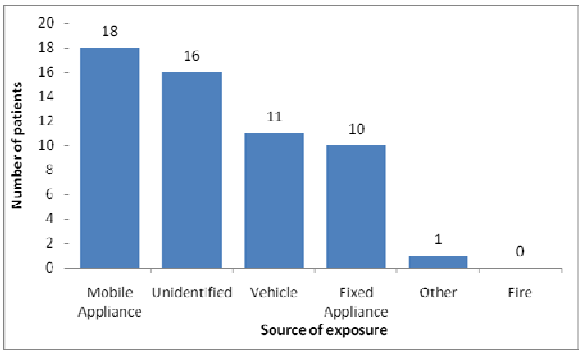


Figure 20. Sources of exposure among case patients with carbon monoxide poisoning, 2009

Vehicles include automobiles and other fuel-powered recreational vehicles (i.e. boats, four-wheelers, Zamboni, etc).
Fixed appliances include fuel-burning equipment that is typically stationary (i.e. furnaces, gas water heaters, gas stoves or fireplaces, etc).
Mobile appliances include generators, space heaters, and other small power equipment (i.e. power washers, lawn mowers, chainsaws, etc).

LEAD PROGRAM

Lead has adverse effects on nearly all organ systems in the body. It is especially harmful to the developing brains and nervous systems of children under the age of 6 years. At very high blood lead levels, children can have severe brain damage or even die. At blood lead levels as low as 10 micrograms per deciliter (µg/dL), children's intelligence, hearing, and growth are affected. This damage can be minimized if a child's lead exposure is reduced. However, the damage cannot be reversed. A child is considered to be lead-poisoned at a blood lead level of 10 µg/dL.

In 2002, researchers estimated that the average decrease in lifetime earnings of a child with a blood lead level of 10 µg/dL would be at least $40,000 and that the average decrease for a child with a blood lead level of 20 µg/dL would be at least $80,000[7].

Iowa's children are most commonly poisoned by lead-based paint found in homes built before 1950. Lead-based paint in a home becomes a lead hazard as it deteriorates and lead-based paint chips end up on the floors and in window wells throughout the home as well as in the soil around the exterior of a home. Since 1992, IDPH has recommended that all children under the age of six years be tested for lead poisoning through a blood test and has also has required the results of all blood lead testing to be reported to IDPH. State and Federal laws mandate lead testing for children receiving Medicaid. Finally, since 2008, Iowa law has required that all children have proof of a blood lead test when enrolling in kindergarten.

IDPH reports the rate of blood lead testing among children and the prevalence of lead poisoning by birth cohort. A birth cohort is a group of children born during a specific year. IDPH has complete data for children born in 1991 through 2003. During that time, the percentage of children tested for lead poisoning has increased from 26 % to 95 %.

In Iowa, the prevalence of lead poisoning among children under the age of six years is 5.1 % (combined birth cohorts). This is more than three times the national average of 1.6 %. Data collected by the Childhood Lead Poisoning Prevention Program include the number and percentage of children born in 2003 who were tested for lead poisoning, the number and percentage of all children tested who were identified as lead-poisoned as well as the number and percentage of who were tested for lead poisoning and identified as lead-poisoned by Medicaid and WIC status.

SUMMARY OF RARE AND UNUSUAL DISEASES

HANSEN'S DISEASE (LEPROSY)

In 2009, one case of Hansen's disease was reported in Iowa. The case was an immigrant from Liberia who had been in the United States for many years.

LEGIONELLOSIS

The average number of *Legionella* cases for the past three years is 15 cases. There were 24 cases of legionellosis reported to IDPH in 2009.

TOXIC SHOCK SYNDROME

There was one confirmed and one probable case of menstruation-associated Toxic Shock Syndrome occurring in a teenager reported in 2009.

TULAREMIA

One case of tularemia was reported in a farmer. The source of infection was not determined.

YELLOW FEVER

There were two confirmed cases of yellow fever. One patient reported traveling to Tanzania prior to infection. The second case had traveled to Brazil before becoming ill.

There were no cases of human illness reported for the following diseases:

TETANUS
HEPATITIS E
PSITTACOSIS

OUTBREAK SUMMARIES

TABLE 7. FOODBORNE OUTBREAKS, 2009

Type	Nature of Episode	Event/Place	Location of Food Preparation	Location of Food Consumption	Region	Month	Number Affected	Food Vehicle of Transmission	Agent
Foodborne	Abdominal Cramps, Diarrhea	Multi-State	Deli/Sandwich Shop	Deli/Sandwich Shop	Multi-County	Feb-Mar	37 (35 primary, 2 secondary)	Alfalfa Sprouts	*Salmonella* Saintpaul
Foodborne	Diarrhea, Vomiting	Multi-State	Company Warehouse	Home	Multi-County	March 2009-May 2009	2	Raw Cookie Dough	*E.coli* O157:H7
Foodborne	Diarrhea, Vomiting	Restaurant	Restaurant	Restaurant	6	April	22/27	Unknown	Norovirus – 4
Foodborne	Diarrhea, Muscle Weakness	Multi-State	Restaurant	Restaurant	3	November	1	Blade Tenderized Steak	E.coli 0157:H7
Foodborne	Diarrhea, Vomiting	Restaurant	Restaurant	Restaurant	6	December	11	Unknown	*Salmonella* Newport

TABLE 8. NON-FOODBORNE OR UNKNOWN CAUSE OUTBREAKS, 2009

Type	Nature of Episode	Event/Place	Region	Month	Number Affected	Vehicle of Transmission	Agent Involved
Person-to-Person	Diarrhea, Vomiting	Restaurant	Multi-County	January	57/110	Person-to-Person	Norovirus - 5
Person-to-Person	Diarrhea, vomiting	Funeral	Multi-County	January	28/40	Person-to-Person	Norovirus - 4
Person-to-Person	Diarrhea, vomiting	School	4	March	33/314	Person-to-Person	Susp Norovirus
Person-to-Person	Diarrhea, Vomiting	School	5	March	38/372	Person-to-Person	Norovirus – 2
Person-to-Person	Diarrhea, Vomiting	Restaurant	Multi-State	April	107/300	Person-to-Person	Norovirus - 3
Person-to-Person	Diarrhea, Vomiting	Restaurant	3	April	18/37	Person-to-Person	Norovirus -1
Animal-to-Person	Diarrhea	Special Need Camp	6	May	4	Animal-to-Person	Cryptosporidium
Person-to-Person	Vomiting, Diarrhea, Fever, Headache	Birthday Party	3	August	22/24	Person-to-Person	Unknown

TABLE 9. PFGE (PULSE-FIELD GEL ELECTROPHORESIS) CLUSTERS, 2009

Type	Nature of Episode	Event/Place	Region	Month	Number Affected	Vehicle of Transmission	Agent Involved
Foodborne	Diarrhea, Vomiting	Multi-State	Multi-County	Sept 2008-Jan 2009	3	Peanut Butter	*Salmonella* Typhimurium
Foodborne	Diarrhea, Vomiting	Regional	Multi-County	March 2009	37	Alfalfa Sprouts	*Salmonella* Saintpaul
	Diarrhea, Vomiting	Multi-State	Multi-County	April 2009	4	Unknown	*Salmonella* Enteritidis
Animal-person	Diarrhea, Vomiting	Regional/Midwest	Multi-County	May 2009	2	Unknown	*Salmonella* Thompson
Foodborne	Bloody Diarrhea	Multi-State	6	May 2009	1	Unknown	*E.coli* O157H7
	Diarrhea, Vomiting	Multi-State	Multi-County	March 2009- May 2009	6	Unknown	*Salmonella* Enteritidis
Foodborne	Diarrhea, Vomiting	Multi-State	Multi-County	March 2009-May 2009	2	Raw cookie dough	*E.coli* O157:H7
	Diarrhea, Muscle Weakness	Multi-State	3	May 2009	1	Unknown	*Salmonella* Oranienburg
	Diarrhea, Vomiting	Multi-State	5	May 2009	1	Unknown	*Salmonella* Typhimurium
	Fever	Multi-State	6	May 2009	1	Ground Beef	*E.coli* O157:H7
	Diarrhea, Vomiting, Abdominal Cramps	Multi-State	Multi-County	July 2009	4	Unknown	*Salmonella* Javiana
Foodborne	Diarrhea	Multi-State	3	November 2009	1	Unknown	*Salmonella* Montevideo
Foodborne	Diarrhea, Muscle Weakness	Multi-State	3	November 2009	1	Blade Tenderized Steak	*E.coli* 0157:H7
Foodborne	Diarrhea, Vomiting	Restaurant	6	December 2009	11	Unknown	*Salmonella* Newport

TABLE 10. CASES AND RATES PER 100,000 POPULATION FOR 2009 BY AGE GROUP

	0 to 4		5 to 19		20 to 29		30 to 39		40 to 64		>64		Unk	Total	
Disease	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Cases	Rate
AIDS (diagnoses)	0	0.0	2	0.3	12	2.9	26	7.2	44	4.5	4	0.9	0	88	2.9
BOT INFANT	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
CAMPY	79	39.2	101	16.8	74	18.0	79	22.0	154	15.6	65	14.6	0	552	18.4
CHLAMYDIA	7	3.5	3313	550.1	5232	1275.9	704	195.7	142	14.4	10	2.2	7	9406	313.3
CRYPTOSPOR	39	19.4	60	10.0	36	8.8	28	7.8	45	4.6	24	5.4	0	232	7.7
DENGUE FEVER	0	0.0	0	0.0	1	0.2	1	0.3	0	0.0	0	0.0	0	2	0.1
E.COLI SHGT	34	16.9	48	8.0	23	5.6	16	4.4	20	2.0	22	4.9	0	163	5.4
EHRLICHIOSIS / ANAPLASMOSIS	0	0.0	0	0.0	0	0.0	0	0.0	7	0.7	1	0.2	0	8	0.3
GIARDIA	55	27.3	54	9.0	33	8.0	39	10.8	84	8.5	26	5.8	0	291	9.7
GONORRHEA	0	0.0	520	86.3	863	210.5	203	56.4	71	7.2	1	0.2	0	1658	55.2
H UREMIC SY	8	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	9	0.3
HEP A	1	0.5	2	0.3	9	2.2	4	1.1	17	1.7	5	1.1	0	38	1.3
HEP B	0	0.0	1	0.2	6	1.5	10	2.8	20	2.0	1	0.2	0	38	1.3
HEP B CHRON	0	0.0	27	4.5	63	15.4	54	15.0	100	10.2	11	2.5	0	255	8.5
HIV (diagnoses)	2	1.0	5	0.8	32	7.8	39	10.8	46	4.7	3	0.7	0	127	4.2
LEGION	0	0.0	0	0.0	0	0.0	1	0.3	16	1.6	7	1.6	0	24	0.8
LYME	4	2.0	24	4.0	17	4.1	11	3.1	40	4.1	12	2.7	0	108	3.6
MALARIA	0	0.0	0	0.0	6	1.5	1	0.3	3	0.3	0	0.0	0	10	0.3
MENINGO.INF	3	1.5	5	0.8	3	0.7	0	0.0	2	0.2	3	0.7	0	16	0.5
MUMPS	2	1.0	5	0.8	2	0.5	0	0.0	4	0.4	2	0.4	0	15	0.5
PERTUSSIS	47	23.3	130	21.6	12	2.9	9	2.5	29	2.9	8	1.8	0	235	7.8
Q FEVER,ACU	0	0.0	0	0.0	0	0.0	1	0.3	3	0.3	1	0.2	0	5	0.2
RMSF	0	0.0	1	0.2	0	0.0	0	0.0	3	0.3	1	0.2	0	5	0.2
SALM	66	32.8	65	10.8	62	15.1	38	10.6	133	13.5	44	9.9	0	408	13.6
SHIG	14	7.0	15	2.5	7	1.7	8	2.2	5	0.5	4	0.9	0	53	1.8
SYPHILIS	0	0.0	2	0.3	17	4.1	16	4.4	21	2.1	7	1.6	0	65	2.2
TB	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0

TYPH FEV	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
WEST NILE VIRUS	0	0.0	1	0.2	1	0.2	1	0.0	1	0.1	1	0.2	0	5	0.2

TABLE 11. CASES AND RATES PER 100,000 POPULATION FOR 2009 BY SEX

	Sex						
	Female		Male		Unk	Total	
Disease	Cases	Rate	Cases	Rate	Cases	Cases	Rate
AIDS (diagnosis)	13	0.9	75	5.1	0	88	2.9
Campylobacteriosis	243	16	291	19.6	18	552	18.4
Chlamydia	6785	446.5	2621	176.8	0	9406	313.3
Cryptosporidiosis	124	8.2	108	7.3	0	232	7.7
E. coli and other shiga-toxin producing	92	6.1	70	4.7	1	163	5.4
Ehrlichiosis (HME)	2	0.1	6	0.4	0	8	0.3
Giardia	127	8.4	160	10.8	4	291	9.7
Gonorrhea	1049	69	609	41.1	0	1658	55.2
Hemolytic uremic syndrome	4	0.3	5	0.3	0	9	0.3
Hepatitis A	16	1.1	22	1.5	0	38	1.3
Hepatitis B, acute	14	0.9	24	1.6	0	38	1.3
Hepatitis B, chronic	110	7.2	142	9.6	3	255	8.5
HIV (diagnoses)	20	1.3	107	7.2	0	127	4.2
Legionellosis	9	0.6	15	1.0	0	24	0.8
Listeriosis	2	0.1	2	0.1	0	4	0.1
Lyme disease	48	3.2	60	4.0	0	108	3.6
Meningococcal invasive disease	8	0.5	7	0.5	0	15	0.5
Mumps	4	0.3	11	0.7	0	15	0.5
Pertussis (whooping cough)	132	8.7	101	6.8	2	235	7.8
Rocky Mountain Spotted Fever	0	0.0	5	0.3	0	5	0.2
Salmonellosis	242	15.9	165	11.1	1	408	13.6
Shigellosis	26	1.7	27	1.8	0	53	1.8
Syphilis	28	1.8	37	2.5	0	65	2.2

TABLE 12. NOTIFIABLE DISEASES BY YEAR, 1991-2009

NOTIFIABLE DISEASES	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
AIDS (diagnosis)	76	117	156	104	110	104	97	75	60	77	80	80	75	75	70	79	80	66	65	88
Anthrax																				
Botulism										1					1		1	1	1	0
Brucellosis (Undulant Fever)	3	1	1	2	1	2	4	4	1	6		2	1			1	2	0	2	2
Campylobacteriosis	388	333	260	292	280	274	339	425	455	467	499	467	427	458	559	537	449	524	591	552
Chlamydia			6125	5214	5412	5088	4165	4906	5173	5511	5989	5716	6241	6462	6958	7390	8399	8643	9372	9406
Cholera					1					1										
Cryptosporidiosis					71	21	75	71	66	56	77	82	49	122	90	122	230	610	284	232
Cyclospora							3	1	3			1								1
Dengue Fever																1	1	6	5	2
Diphtheria																				
Ehrlichiosis													1	1		4	7	7	7	8
Encephalitis (arboviral except WNV)	7	4	3	4	1	13	19	3	3	3	4	3	3		2		1			
Escherichia coli 0157:H7 (includes HUS & Shiga-toxin producing)	0	15	20	27	54	64	123	114	93	114	180	81	122	103	124	108	161	185	208	163
Giardiasis	435	422	351	340	339	391	410	358	429	377	420	345	315	277	301	280	302	301	326	291
Gonorrhea			1653	1824	1645	1723	1144	1309	1615	1365	1394	1424	1496	1544	1249	1606	1981	1928	1700	1658
Haemophilus influenzae Type B	23	15	7	5	6	3	4	6	5	2					1		2	1	2	1
Hansen's Disease (Leprosy)		1							1		2	1				1	1		1	
Hantavirus Syndromes								2	1	2				1					1	
Hepatitis A (Viral, infectious)	277	48	53	58	64	106	346	490	400	161	67	41	72	40	50	22	13	48	109	38
Hepatitis B (Serum) Acute / Chronic	54	42	33	36	27	46	74	44	54	44	38	24	20	27	17	32	21/35	269	25/226	293
Hepatitis B (Perinatal)																	1		1	
Hepatitis C or unspecified	17	14	12	12	25	1	43						1	1						262
Hepatitis E																1			1	
HIV (diagnosis)									98	87	94	98	109	92	107	117	113	127	108	127
Legionellosis	4	12	18	19	34	21	11	12	11	17	15	8	13	12	8	8	13	12	21	24
Listeria monocytogens	6						1		2	6	2	3	5		3	7	6	8	1	4
Lyme Disease	16	22	33	8	17	16	19	8	27	24	34	36	42	58	56	91	97	124	109	108
Malaria	2	7	5	5	5	3	3	10	8	11	2	9	4	6	5	9	2	3	12	10
Measles (Rubeola)	26	17	1		7		1								3					1

Meningococcal Inv. Disease	7	15	18	28	25	31	56	47	46	42	37	32	29	28	17	19	20	15	19	16
Mumps	22	23	13	11	16	11	3	10	11	8	8	1	1	2	2	6	1,963	27	24	15
Pertussis (Whooping Cough)	20	26	11	38	23	11	32	207	78	111	67	167	230	182	1066	1106	342	150	257	235
Plague																				
Poliomyelitis		1																		
Psittacosis		3	2	2								3				1				
Rabies (Animal)	215	155	175	78	90	141	237	160	153	159	81	83	74	105	100	108	57	31	29	35
Rabies (Human)													1							
Rocky Mountain Spotted Fever	2	1	3	7	1		1	2	2	1	2	5	7	3	2	7	5	17	8	5
Rubella (German Measles)	4	6	3							30		1								
Salmonellosis	314	304	339	242	404	433	335	296	375	260	373	339	509	413	435	410	475	477	425	408
Shigellosis	51	33	46	68	338	351	151	90	69	74	569	367	122	93	64	103	134	109	214	53
Syphilis			154	175	235	171	91	65	25	31	54	43	56	46	36	28	88	27	75	65
Tetanus			1	1	1			1	1		1		1			1				
Toxic Shock Syndrome	10	7	7	7	8	5	4	3	4	4	4	1	3	5	5	5			1	2
Trichinosis	79	1			1	6						3				1				
Tuberculosis	72	71	49	58	66	67	70	74	55	58	37	42	31	40	47	55	36		46	42
Tularemia																				1
Typhoid Fever	1		1				1	1		1				2				1	6	
West Nile Virus													52	147	23	37	37	30	5	5
Yellow Fever																				2

TABLE 13. SALMONELLA SEROTYPES REPORTED 2009

	Serotype	Cases		Serotype	Cases
Salmonella	Adelaide	1	*Salmonella*	Montevideo	11
Salmonella	Agona	4	*Salmonella*	Muenchen	4
Salmonella	Anatum	4	*Salmonella*	Muenster	1
Salmonella	Baildon	1	*Salmonella*	Newport	24
Salmonella	Berta	2	*Salmonella*	Norwich	1
Salmonella	Bovismorbificans	4	*Salmonella*	Oranienburg	10
Salmonella	Braenderup	12	*Salmonella*	Panama	1
Salmonella	Brandenburg	3	*Salmonella*	Paratyphi B var Java	3
Salmonella	Bredeney	1	*Salmonella*	Poona	3
Salmonella	Coeln	1	*Salmonella*	Saintpaul	7
Salmonella	Cotham	1	*Salmonella*	Sandiego	1
Salmonella	Derby	2	*Salmonella*	Stanley	4
Salmonella	Dublin	2	*Salmonella*	Subspecies I	3
Salmonella	Enteritidis	84	*Salmonella*	Subspecies II	1
Salmonella	Galiema	1	*Salmonella*	Subspecies IV	1
Salmonella	Give	1	*Salmonella*	Tennessee	3
Salmonella	Hadar	7	*Salmonella*	Thompson	9
Salmonella	Hartford	7	*Salmonella*	Typhimurium	31
Salmonella	Heidelberg	15	*Salmonella*	Typhimurium Var Copenhagen	27
Salmonella	Hvittingfoss	1	*Salmonella*	Uganda	4
Salmonella	Infantis	9	*Salmonella*	Virchow	1
Salmonella	Javiana	3	*Salmonella*	Wandsworth	1
Salmonella	Johannesburg	2	*Salmonella*	Worthington	1
Salmonella	Kottbus	1			
Salmonella	Litchfield	1			
Salmonella	Manhattan	1			
Salmonella	Mbandaka	1			
Salmonella	Monophasic	22	***Total***		**425**

TABLE 14. SHIGELLA SEROGROUPS 1991-2009

Shigella Serogroups	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Boydii		1			1	1				4	6	2		3	1	1	0	1	1
Dysenteriae	1	1				1										1	0	0	0
Flexneri	8	8	8		3	13	12	6	7	10	7	11	5	8	7	15	9	11	7
Group B						3		1	1						3		2	0	0
Group C				1													2	0	0
Group D		1		4	3	5		1					1				1	1	0
Sonnei	24	33	50	199	119	116	62	44	55	514	306	63	62	41	58	110	97	136	45
Unknown										41	46	46	25	12	7	7	0	0	0
TOTAL CASES	**33**	**46**	**68**	**338**	**351**	**151**	**90**	**69**	**74**	**569**	**365**	**122**	**93**	**64**	**78**	**134**	**109**	**214**	**53**

TABLE 15. IOWA CHILDREN BORN IN 2003 AND TESTED FOR BLOOD LEAD LEVELS BEFORE THE AGE OF 6 YEARS
(AS OF 12/31/2009)

COUNTY	2003 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl	COUNTY	2003 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl
Adair	81	71	87.7	0	0.0	Des Moines	496	496	100.0	38	7.7
Adams	40	40	100.0	1	2.5	Dickinson	164	131	79.9	2	1.5
Allamakee	170	170	100.0	9	5.3	Dubuque	1231	1032	83.8	38	3.7
Appanoose	182	144	79.1	5	3.5	Emmet	151	139	92.1	2	1.4
Audubon	70	65	92.9	9	13.8	Fayette	243	228	93.8	10	4.4
Benton	333	324	97.3	19	5.9	Floyd	182	170	93.4	5	2.9
Black Hawk	1547	1547	100.0	85	5.5	Franklin	121	121	100.0	9	7.4
Boone	320	320	100.0	18	5.6	Fremont	93	93	100.0	0	0.0
Bremer	242	242	100.0	4	1.7	Greene	110	110	100.0	8	7.3
Buchanan	298	246	82.6	9	3.7	Grundy	117	109	93.2	2	1.8
Buena Vista	251	251	100.0	7	2.8	Guthrie	151	151	100.0	5	3.3
Butler	157	157	100.0	4	2.5	Hamilton	181	172	95.0	10	5.8
Calhoun	86	86	100.0	4	4.7	Hancock	107	107	100.0	3	2.8
Carroll	266	257	96.6	12	4.7	Hardin	213	213	100.0	16	7.5
Cass	152	152	100.0	8	5.3	Harrison	176	141	80.1	3	2.1
Cedar	204	204	100.0	4	2.0	Henry	194	194	100.0	18	9.3
Cerro Gordo	493	493	100.0	27	5.5	Howard	100	81	81.0	1	1.2
Cherokee	115	115	100.0	7	6.1	Humboldt	107	107	100.0	2	1.9
Chickasaw	150	150	100.0	6	4.0	Ida	72	72	100.0	10	13.9
Clarke	135	135	100.0	7	5.2	Iowa	197	197	100.0	10	5.1
Clay	223	215	96.4	5	2.3	Jackson	220	220	100.0	14	6.4
Clayton	214	209	97.7	10	4.8	Jasper	439	383	87.2	10	2.6
Clinton	529	529	100.0	30	5.7	Jefferson	148	130	87.8	4	3.1
Crawford	239	239	100.0	17	7.1	Johnson	1514	1339	88.4	22	1.6
Dallas	593	593	100.0	16	2.7	Jones	221	221	100.0	10	4.5
Davis	130	92	70.8	1	1.1	Keokuk	128	92	71.9	3	3.3
Decatur	95	79	83.2	8	10.1	Kossuth	161	161	100.0	2	1.2
Delaware	216	158	73.1	6	3.8	Lee	393	356	90.6	19	5.3

COUNTY	2003 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl	COUNTY	2003 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl
Linn	2754	2553	92.7	71	2.8	Poweshiek	193	188	97.4	9	4.8
Louisa	140	140	100.0	8	5.7	Ringgold	63	50	79.4	5	10.0
Lucas	101	94	93.1	11	11.7	Sac	112	111	99.1	9	8.1
Lyon	164	116	70.7	6	5.2	Scott	2233	2150	96.3	97	4.5
Madison	194	179	92.3	7	3.9	Shelby	123	123	100.0	3	2.4
Mahaska	280	280	100.0	17	6.1	Sioux	459	443	96.5	14	3.2
Marion	392	392	100.0	7	1.8	Story	912	906	99.3	19	2.1
Marshall	572	572	100.0	58	10.1	Tama	239	231	96.7	17	7.4
Mills	169	168	99.4	5	3.0	Taylor	62	62	100.0	5	8.1
Mitchell	119	94	79.0	3	3.2	Union	144	144	100.0	13	9.0
Monona	93	93	100.0	13	14.0	Van Buren	87	56	64.4	1	1.8
Monroe	94	86	91.5	1	1.2	Wapello	495	495	100.0	33	6.7
Montgomery	115	115	100.0	10	8.7	Warren	496	496	100.0	5	1.0
Muscatine	613	582	94.9	18	3.1	Washington	315	278	88.3	11	4.0
O'Brien	158	158	100.0	8	5.1	Wayne	73	73	100.0	11	15.1
Osceola	81	73	90.1	2	2.7	Webster	477	477	100.0	23	4.8
Page	166	166	100.0	19	11.4	Winnebago	108	108	100.0	3	2.8
Palo Alto	115	99	86.1	3	3.0	Winneshiek	180	180	100.0	4	2.2
Plymouth	306	302	98.7	11	3.6	Woodbury	1624	1484	91.4	86	5.8
Pocahontas	63	63	100.0	4	6.3	Worth	86	86	100.0	2	2.3
Polk	6371	6310	99.0	145	2.3	Wright	162	155	95.7	15	9.7
Pottawattamie	1257	1005	80.0	9	0.9	**TOTALS**	**38,139**	**36,210**	**94.9**	**1,434**	**4.0**

TABLE 16. COMMON NOTIFIABLE DISEASES BY COUNTY, 2009

	AIDS (diagnosis)	HIV (diagnoses*)	CAMPY	Chlamydia	CRYPTOSPOR	E.COLI SHGT	EHRLICH HME	GIARDIA	Gonorrhea	H UREMIC SY	HEP A	HEP B	HEP B CHRON	LEGION	LIST	LYME	MENINGO.INF	MUMPS	PERTUSSIS	RABIES A	RMSF	SALM	SHIG	Syphilis	TB	West Nine Virus
ADAIR	0	0	0	6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
ADAMS	0	0	1	6	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALLAMAKEE	0	0	7	38	0	2	0	1	1	0	0	0	0	0	0	2	0	3	1	0	0	3	0	0	0	0
APPANOOSE	0	0	1	12	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0
AUDUBON	0	0	1	7	2	1	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
BENTON	0	*	11	42	4	2	0	6	8	0	0	1	1	1	0	0	0	1	0	1	0	4	0	1	0	0
BLACK HAWK	*	4	16	958	0	2	0	13	231	0	2	0	18	5	1	1	0	1	10	0	0	16	0	3	2	0
BOONE	*	6	4	38	3	1	0	3	4	0	1	1	1	0	0	0	0	0	0	2	0	4	0	0	0	0
BREMER	0	*	2	40	2	1	0	0	2	0	0	0	1	0	0	0	1	0	0	2	0	3	0	1	0	0
BUCHANAN	*	*	6	58	1	0	0	3	3	0	0	0	2	0	0	0	0	0	17	1	1	2	0	0	0	0
BUENA VISTA	0	*	14	49	1	1	0	2	3	0	0	0	6	0	0	0	0	0	0	0	0	5	0	0	0	0
BUTLER	0	0	2	28	0	1	0	5	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
CALHOUN	0	0	3	19	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0
CARROLL	0	0	0	27	2	1	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
CASS	0	0	1	9	0	3	0	1	3	0	0	0	1	0	0	1	0	0	3	0	0	1	0	0	0	0
CEDAR	0	0	4	30	0	1	0	0	1	0	1	0	2	0	0	2	0	0	17	0	0	5	0	0	0	0
CERRO GORDO	0	0	10	134	2	2	0	2	14	0	0	0	2	0	0	0	1	0	6	1	0	4	0	0	1	0
CHEROKEE	0	0	0	7	0	2	0	0	0	0	1	0	5	0	0	0	0	0	0	0	0	4	0	0	0	0
CHICKASAW	0	0	2	20	4	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0
CLARKE	*	0	4	11	0	0	0	0	1	0	0	0	1	0	0	0	0	0	5	0	0	0	0	1	0	0
CLAY	*	0	4	48	2	0	0	3	3	0	0	0	1	0	1	0	0	0	0	1	0	1	0	0	0	0
CLAYTON	0	0	6	21	7	2	0	1	4	0	0	0	0	0	0	10	0	0	0	0	0	2	0	0	0	1
CLINTON	*	*	2	158	2	0	0	2	11	0	1	0	3	0	0	1	0	0	0	0	0	8	2	0	0	0
CRAWFORD	0	0	2	62	2	1	0	2	7	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0
DALLAS	*	*	9	49	7	1	1	5	1	0	0	1	6	0	0	3	0	1	25	0	0	10	2	0	0	0
DAVIS	0	0	0	10	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DECATUR	0	0	1	10	0	0	0	0	3	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0
DELAWARE	0	0	7	16	3	5	0	1	2	0	0	1	0	0	0	1	0	0	0	0	0	2	0	0	0	0
DES MOINES	*	*	6	234	4	0	0	3	8	0	0	0	1	0	0	1	1	0	3	0	0	4	0	1	1	0
DICKINSON	0	0	1	29	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
DUBUQUE	*	4	26	352	15	17	0	9	70	0	0	1	6	1	0	8	2	1	4	1	0	8	0	1	2	1
EMMET	0	0	3	24	1	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0
FAYETTE	*	*	7	32	1	1	0	0	4	0	0	1	1	0	0	2	0	0	4	0	0	1	0	0	0	0
FLOYD	0	*	3	31	1	1	0	2	6	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0

	AIDS (diagnosis)	HIV (diagnosis)	CAMPY	Chlamydia	CRYPTOSPOR	E.COLI SHGT	EHRLICH HME	GIARDIA	Gonorrhea	H UREMIC SY	HEP A	HEP B	HEP B CHRON	LEGION	LIST	LYME	MENINGO.INF	MUMPS	PERTUSSIS	RABIES A	RMSF	SALM	SHIG	Syphilis	TB	West Nine Virus
FRANKLIN	0	0	1	27	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FREMONT	0	0	4	8	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0
GREENE	*	*	2	13	1	0	0	1	2	0	0	1	0	0	0	0	0	0	1	1	0	2	0	1	0	0
GRUNDY	0	0	1	17	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
GUTHRIE	0	0	1	10	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
HAMILTON	*	*	1	19	1	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0
HANCOCK	0	0	2	9	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	1	0	1	1	0	0	0
HARDIN	0	0	2	33	0	1	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
HARRISON	0	0	4	22	0	1	0	1	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
HENRY	0	0	1	58	0	0	0	1	3	0	0	2	2	0	0	0	0	0	3	0	0	4	0	0	1	0
HOWARD	*	*	2	15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
HUMBOLDT	0	0	2	27	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IDA	0	0	2	11	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
IOWA	0	0	5	30	0	2	0	1	2	0	0	0	0	0	0	3	0	0	0	2	0	3	0	0	0	0
JACKSON	0	0	10	37	1	4	0	1	0	1	1	0	2	0	0	3	0	0	0	0	0	2	1	0	0	0
JASPER	*	*	7	48	13	5	0	5	4	0	0	0	2	0	0	1	0	0	1	2	0	7	1	0	0	0
JEFFERSON	0	0	1	10	3	0	0	9	0	0	0	0	1	0	0	0	2	0	1	0	0	0	0	0	8	0
JOHNSON	5	8	18	563	3	14	2	15	95	0	5	4	17	2	0	25	1	0	11	0	0	14	0	12	2	0
JONES	0	0	5	38	3	2	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
KEOKUK	0	*	1	13	1	0	0	2	4	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
KOSSUTH	0	0	3	10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4	0	0	0	0
LEE	*	0	3	107	2	0	0	4	11	0	1	0	0	2	0	2	0	0	6	0	0	5	0	0	0	0
LINN	6	7	27	763	12	6	1	20	283	1	2	4	14	0	0	8	3	1	7	1	0	37	3	5	3	0
LOUISA	0	*	0	28	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0
LUCAS	0	0	4	9	1	2	0	0	1	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	1
LYON	0	0	13	4	3	1	0	4	1	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
MADISON	*	*	4	18	2	0	0	2	4	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0
MAHASKA	0	0	2	61	1	1	0	0	8	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
MARION	*	*	1	50	2	1	0	5	9	0	0	1	2	1	0	0	1	1	0	0	0	1	1	1	1	0
MARSHALL	*	*	5	100	2	1	0	3	13	0	1	0	0	0	0	0	0	0	3	1	0	2	6	1	1	0
MILLS	0	0	5	22	1	1	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0
MITCHELL	0	0	2	6	3	2	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
MONONA	0	0	4	22	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
MONROE	0	0	3	11	4	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
MONTGOMERY	0	*	0	14	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

	* AIDS (diagnosis)	HIV (diagnosis)	CAMPY	Chlamydia	CRYPTOSPOR	E.COLI SHGT	EHRLICH HME	GIARDIA	Gonorrhea	H UREMIC SY	HEP A	HEP B	HEP B CHRON	LEGION	LIST	LYME	MENINGO.INF	MUMPS	PERTUSSIS	RABIES A	RMSF	SALM	SHIG	Syphilis	TB	West Nine Virus
MUSCATINE	*	0	4	122	0	0	0	0	14	0	0	0	1	1	0	4	0	0	4	2	0	3	0	1	2	0
O'BRIEN	*	*	9	8	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0
OSCEOLA	0	0	4	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
PAGE	0	0	4	23	0	0	1	1	0	0	0	0	4	0	0	0	0	0	2	0	0	2	0	0	0	0
PALO ALTO	0	*	1	20	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLYMOUTH	0	0	14	47	4	2	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	7	0	0	0	0
POCAHONTAS	0	0	2	17	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
POLK	29	40	43	1632	17	13	2	79	258	1	1	9	85	4	0	6	1	4	36	3	0	68	24	10	7	0
POTTAWATTAMIE	4	*	24	256	5	5	0	4	67	0	2	3	1	1	0	0	0	0	0	0	1	14	0	0	2	1
POWESHIEK	0	0	4	50	1	1	0	0	0	0	0	0	0	0	0	2	0	0	4	0	0	2	1	0	0	0
RINGGOLD	0	0	1	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
SAC	*	*	4	11	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SCOTT	8	12	15	1057	2	8	0	4	290	0	2	2	19	5	0	6	1	1	15	0	0	21	3	16	1	0
SHELBY	0	*	6	14	6	0	0	2	3	0	1	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0
SIOUX	*	*	18	24	24	4	0	5	0	2	2	0	0	0	0	0	0	0	1	1	0	11	0	0	2	0
STORY	0	*	16	259	11	3	0	9	28	0	1	0	16	0	0	2	0	1	1	1	0	6	0	0	1	0
TAMA	0	0	5	47	0	3	0	2	6	0	1	1	1	0	0	0	0	0	1	0	0	2	0	0	0	0
TAYLOR	0	0	2	5	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNION	0	0	0	28	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0
VAN BUREN	0	0	1	16	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAPELLO	*	*	6	105	3	1	0	6	4	0	1	1	8	0	0	0	0	0	0	0	0	6	2	1	0	0
WARREN	0	0	4	58	3	3	0	3	6	1	0	0	2	0	0	2	0	0	9	0	1	7	1	0	0	0
WASHINGTON	*	*	4	54	1	5	0	1	4	0	0	0	0	0	0	0	0	0	1	0	0	6	0	1	0	0
WAYNE	0	0	1	6	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
WEBSTER	*	0	3	170	1	0	0	2	44	0	5	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0
WINNEBAGO	0	0	2	20	0	0	0	1	9	0	0	0	1	0	0	0	0	0	7	0	0	0	0	0	0	0
WINNESHIEK	0	0	15	36	4	4	0	2	1	0	0	0	0	0	0	2	0	0	3	0	0	4	0	0	0	0
WOODBURY	*	5	23	437	10	7	0	9	50	0	1	0	9	0	1	0	0	0	9	2	1	19	1	5	5	0
WORTH	0	0	0	8	0	1	0	1	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0
WRIGHT	0	0	3	24	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Total	88	127	552	9406	232	163	8	291	1655	9	38	38	255	24	4	108	15	15	235	31	5	408	53	65	43	5

*in the 'HIV (diagnoses)' column indicates only 1-3 HIV diagnoses reported for that county

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