
Iowa Surveillance of Notifiable and Other Diseases

Annual Report 2008



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

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Purpose

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.

This 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.

Introduction

In 2008, the Division of Acute Disease Prevention and Emergency Response (ADPER), part of the Iowa Department of Public Health (IDPH) processed nearly **50,000 reports** of infectious disease. Specific disease conditions are reportable to the department per the Iowa Administrative Code 641, Chapter 1. The urgency tied to reporting varies by disease¹.

The Division of Environmental Health (EH) is responsible for numerous programs however for this report will highlight programs with quantifiable data available for multiple years. Programs included are lead and carbon monoxide.

Three bureaus within ADPER are responsible for infectious disease investigation- the Center for Acute Disease Epidemiology (CADE), the Bureau of Immunization and TB (BIT), and the Bureau of HIV, STD, and Hepatitis (BSHH).

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. BSHH includes the Sexually

Transmitted Diseases (STD) Program, the HIV/AIDS Program, and the Adult Viral Hepatitis Prevention Program.

The goals of ADPER surveillance programs are to monitor disease incidence and prevalence, detect and manage outbreaks, and develop prevention methods to reduce illness in Iowa.

All three bureaus within ADPER spend significant time working outbreaks of infectious disease and frequently collaborate with the Division of EH. Localized outbreaks are typically managed by county health agencies, and state involvement varies in every situation. Statewide outbreaks are coordinated by IDPH, but may also be managed by several local health agencies simultaneously.

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 floods of 2008 and the novel influenza outbreak in 2009.

Preparedness planning at both the state and local levels has greatly improved the way public health responds to large-scale disease outbreaks. Summaries of outbreaks worked in 2008 are found throughout the report.

This report provides a summary of disease investigations and represents only a fraction of work accomplished by ADPER and EH 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

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

	2005	2006	2007	3-yr average 2005-2007	2008	Percent change†
	Number of cases			Cases		
Campylobacter	534	449	524	502	591	17.7%
Chlamydia	7390	8399	8643	8144	9372	15.1%
Cryptosporidiosis	122	230	610	321	284	-11.4%
<i>E. coli</i> and other shiga-toxin producing	100	161	175	145	208	43.1%
Giardia	280	302	301	294	326	10.8%
Gonorrhea	1606	1981	1928	1838	1700	-7.5%
Hepatitis A	22	13	48	28	109	294.0%
Hepatitis B, acute	33	21	27	27	25	-7.4%
HIV (new infections)	117	113	128	119	108	-9.2%
Legionellosis	8	13	12	11	21	90.9%
Listeriosis	7	6	8	7	1	-85.7%
Lyme disease	91	97	124	104	109	4.8%
Menningococcal invasive disease	19	20	15	18	19	5.6%
Mumps	6	1963	27	665	24	-96.4%
Pertussis (whooping cough)	968	342	150	487	257	-47.2%
Salmonellosis	410	475	477	454	425	-6.4%
Shigellosis	103	134	109	115	214	85.5%
Syphilis	28	88	64	60	75	25.0%

†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.

Disease Control and Prevention (CDC), National Center for HIV, Viral Hepatitis, STDs and TB Prevention.

Shigellosis cases also increased compared to the past three years due to localized outbreaks in several counties.

SUMMARY AND HIGHLIGHTS

Last year, Iowa saw a significant increase in the number of hepatitis A cases. Extensive investigation revealed no common source of infection. Cases reported contact with inmates, were sometimes homeless, or had no known exposure. Hepatitis A can be a cyclical disease causing spikes in infection rates approximately every ten years. The last major outbreak of hepatitis A was in 1997 among methamphetamine users.

Despite a national outbreak in 2006 mumps cases continued to decline indicating that endemic transmission may have ceased.

Rates of *Chlamydia* rose 15% while gonorrhea diagnoses declined slightly. The increase in *Chlamydia* cases mirrors an increase in cases nationally. Part of this increase may be attributed to better availability of screening at STD clinics and to more routine testing at annual gynecological exams.

In 2007, more cases of newly diagnosed HIV infection, 128, were reported than for any year since reporting began in 1998. That number declined to 108 new cases in 2008.

METHODS

Disease reports are submitted to 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 a DOS-based surveillance system called NETSS (National Electronic Telecommunication System for Surveillance) that enables direct transfer of de-identified disease activity information to CDC. Some diseases within CADE are reported using ArboNET and include diseases like West Nile virus.

In October 2008, the Iowa Disease Surveillance System (IDSS) was implemented. IDSS replaced NETSS and the system enables local public health, hospitals, laboratories, and IDPH to report electronically. For data completeness, NETSS was used until the end of 2008.

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

Rates were calculated using the 2008 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 taking the three-year moving average and adding two standard deviations to the average. Outbreak cases were removed when calculating the three-year averages and outbreak cases were kept in 2007 case counts.

Calculations were performed with SPSS 16[®] 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. The outbreak definition was used to classify cases of pertussis in 2006. 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 definition 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 attained from the National Electronic Telecommunications System for Surveillance (NETSS) maintained within CADE. The specific file used for this report was created in April 2009. Case reports or additional case information that was received after this date was excluded from this report.

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 weekly to monthly.

The STD program currently uses a CDC database called STD*MIS or the STD Management Information System. EpiInfo is used by this program 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 updates².

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 Microsoft® Excel and PowerPoint.

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.

The Division of Environmental Health has three Bureaus: the Bureau of Radiological Health, Bureau of Lead Poisoning and 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 the Iowa Department of Public Health 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 Occupational Health surveillance program.

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 2008, two *Haemophilus influenzae* type B cases were reported to IDPH. Both were male adults.

HEPATITIS A

See Summary Enteric Disease Section.

HEPATITIS B (ACUTE AND CHRONIC)

A total of 25 cases or 0.83 cases of acute hepatitis B for every 100,000 persons reported to CADE in 2007. Seventy-five percent of these 25 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 13,000 new hepatitis B infections in the U.S. in 2007. CDC estimates that nationally there are between 800,000 and 1.4 people living with chronic hepatitis B disease.

There were 186 confirmed or probable chronic hepatitis B cases reported in 2008.

INFLUENZA

The Iowa Influenza Surveillance Network (IISN) tracks influenza activity, age groups impacted, outbreaks, virus type and strain, and severity of seasonal influenza. In the 2008-2009 season, the network had more than 250 reporting sites that included physicians, clinics, hospitals, schools, long-term care facilities, and sentinel laboratories. Other non-network reporters who contributed influenza data included medical clinics, hospitals, laboratories, local public health departments and neighboring state health departments.

Overall, the 2008-2009 influenza season was relatively mild. There were 70% fewer hospitalizations this season compared to 2007-2008. A new individual case reporting system was created to capture case-level data on influenza-associated hospitalizations. From data received through this system, IDPH determined the mean age at hospitalization was 31.6 years, with a range of 2 months to 82 years. The mean number of days hospitalized for cases with influenza was 2.45 with a range of zero to 15. IDPH received individual case data on 68% of all hospitalized cases reported from 19 sentinel hospital sites.

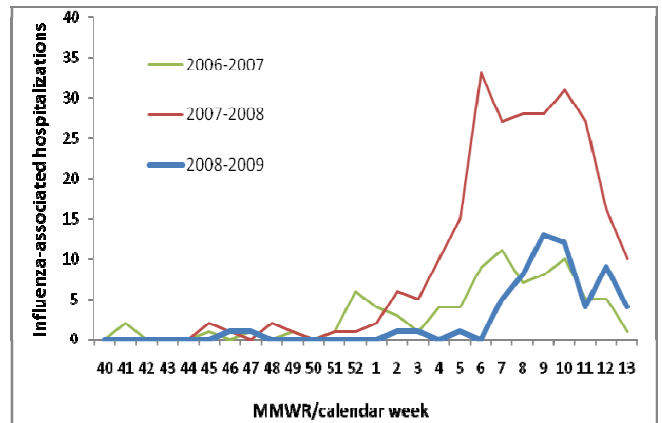


Figure 1. Influenza-associated hospitalizations from IISN surveillance sites, all strains of influenza, 2006-2009

Sentinel provider or ILINet surveillance included data from approximately 15 health care providers this season. The percent of patients seen with influenza-like illness (defined as fever ≥100°F and cough and/or sore throat without other apparent cause) only met or exceeded the threshold three non-consecutive weeks.

Absence due to illness was reported higher than the threshold for six weeks slightly before, during and after the peak weeks of influenza.

There were no known influenza-associated pediatric deaths in Iowa in 2008-2009.

IDPH also investigated a case of AH1N1 swine influenza. Iowa has periodic human cases of this type of influenza that typically infects swine.

The case was a young child who had direct contact with swine.

The dominant influenza strains circulating in Iowa were influenza AH1N1 and influenza B/Victoria. Influenza AH3N2 was reported at low levels.

MEASLES

No cases of measles were reported in Iowa in 2008. Outbreaks reported in Europe, India, and Israel have resulted in U.S. cases in 2008.

MENINGOCOCCAL INVASIVE DISEASE

In 2008, there were 19 confirmed cases or 0.6 cases for every 100,000 persons in Iowa. The age of case patients ranged from 1 to 94 years old with the median age of 25 years. Nationally, there are 0.36 cases for every 100,000 persons.

Of the confirmed cases, eight were group Y, six were group B, four were group W135, and one was undetermined (Table 2). There were no serogroup C cases this year compared to six in 2007.

Table 2. Cases of Meningococcal disease by serogroup

Meningococcal Serogroups reported, 2008					
A	B*	C	W135	Y	Unk
0	6	0	4	8	1

*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 population³. There were no instances of this in Iowa in 2008.

Meningococcal invasive disease is fatal in 10-14 percent of cases. Four Iowa cases (21%) were fatal in 2008. 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 years⁴.

MUMPS

There were only 24 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 2008 ranged from 2 to 64 years with a median of 32 years old. Two thirds of the cases were female and one third were male.

PERTUSSIS (WHOOPIING 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 257 confirmed and probable cases reported to IDPH in 2008 or 8.6 cases for every 100,000 persons in Iowa.

The highest numbers of cases were reported in Clarke, Scott, Pottawattamie, Polk, and Decatur counties.

The 2008 incidence is an approximate 42 percent increase in cases compared to 2007.

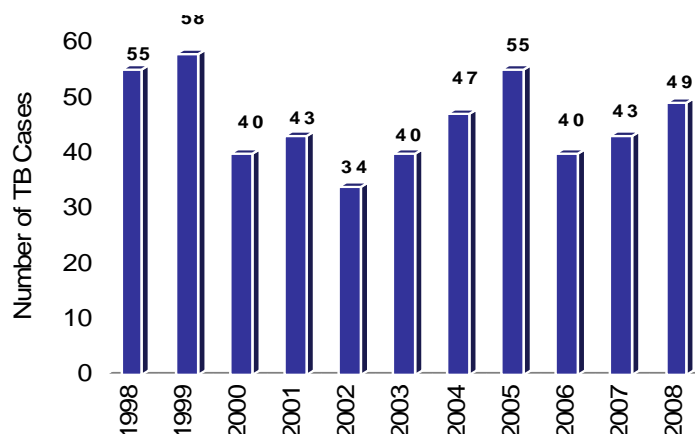
TETANUS

No cases of tetanus were reported in Iowa in 2008.

TUBERCULOSIS

In 2008, a total of 49 tuberculosis (TB) cases were reported in Iowa (Figure 2). Cases have increased slightly over the past three years.

Figure 2. Tuberculosis cases by year, 1998-2007



There were approximately 255 contacts assessed for the 49 confirmed cases. Overall there were 150 suspected cases investigated.

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 (Figure 3. Latent Tuberculosis infections, 1998-2008). By completing 6 – 9 months of therapy, patients reduce their risk of developing TB disease by 70 – 90%. Approximately 87% of patients with LTBI have completed therapy in both 2006 and 2007.

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



Figure 3. Latent Tuberculosis infections, 1998-2008

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

HIV AND AIDS

On December 31, 2008, there were 1,616 persons living with HIV or AIDS who were Iowa residents at the time of diagnosis, for a prevalence of 54 per 100,000 population. Taking into account the Centers for Disease Control and Prevention’s estimate that at least 25% of persons infected with HIV nationwide are as yet undiagnosed, and applying a slight correction for under-reporting, there may have been as many as 2,217 Iowans living with HIV or AIDS at the end of 2008 (Figure 6).

In 2007, there were 128 HIV diagnoses, up from 113 in 2006 and the previous high of 117 in 2005. There were 108 cases reported in 2008. The 108 diagnoses equate to 3.6 HIV diagnoses per 100,000 population (Figure 5).

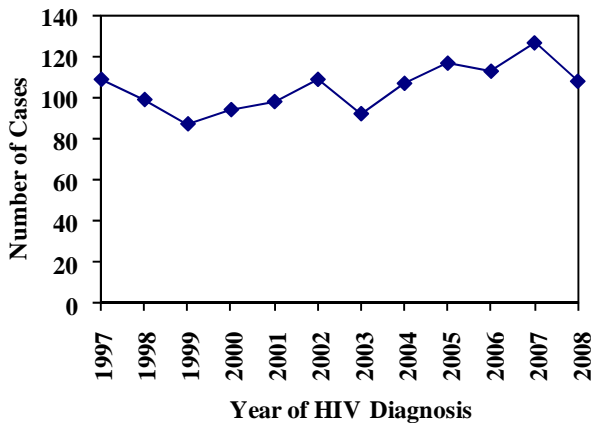


Figure 5. Number of HIV cases by year of HIV diagnosis

Males accounted for 82 percent of the new HIV diagnoses in 2007. The increase in diagnoses since 2002 has been almost exclusively among males. The increase among females through 2003 was among foreign-born females only. Having sex with men (MSM) remains the number one risk factor for the transmission of HIV infection in Iowa. MSM accounted for 59% of all new HIV cases, up from 54% in 2007.

The largest proportion of HIV diagnoses remains among those 25-44 years of age, but since 2002, the number of diagnoses among those 45 years and older has increased markedly. The median age at diagnosis in 2007 was 40 years of age – slightly higher for males and a bit lower for females. There were no pediatric HIV diagnoses in 2007.

In 2002, it seemed that the focus of the epidemic in Iowa was shifting to foreign-born persons (Error! Reference source not found.). Since that time, however, Iowa diagnoses have increased substantially among U.S.-born persons while they have decreased among foreign-born persons. In 2008, 86 percent of HIV diagnoses were among U.S.-born persons, compared to only 72 percent in 2002. Diagnoses among black, non-Hispanic persons continue to be markedly disproportionate to the size of the population. African Americans make up 2.5 percent of Iowa’s population, but accounted for 16 percent of the new HIV

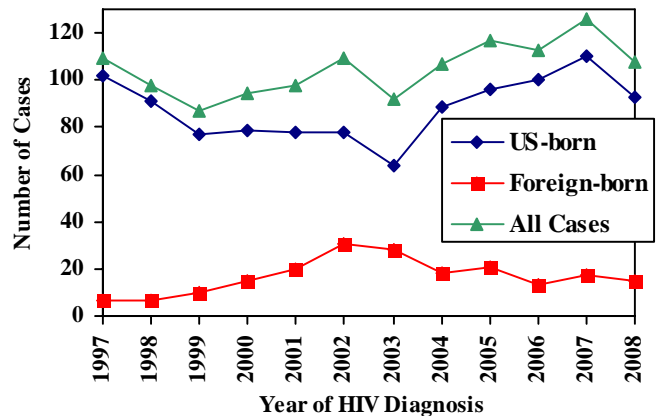
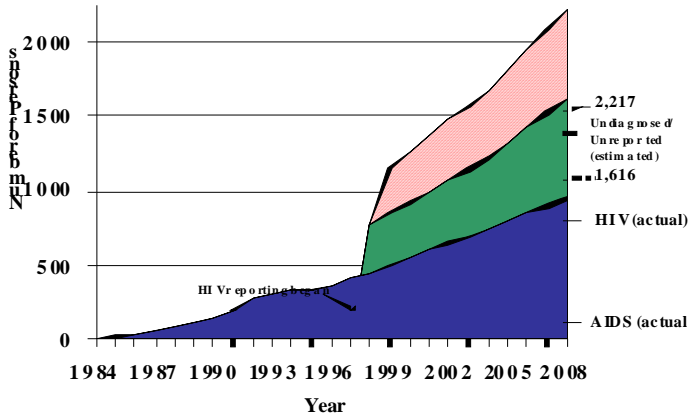


Figure 4. Number of U.S. versus foreign-born cases of HIV diagnosed in Iowa, 1997-2008

diagnoses in 2008. Hispanic persons make up 4.0 percent of Iowa’s population, but accounted for 9.3 percent of new HIV diagnoses. Despite these disparities, white, non-Hispanic, U.S.-born persons accounted for 71 percent of diagnosed

Figure 6. Estimated Number of Persons Living with HIV or AIDS in Iowa on December 31 of Each Year



cases.

AIDS diagnoses continue to decline, with 65 persons diagnosed in 2008, down from 67 in 2007 and 79 in 2006.

HEPATITIS C

There were an estimated 4.1 million cases of hepatitis C in the United States; up to 85 percent of these cases are chronic. According to the 2008 census population estimate for Iowa, there were 3,002,555 people residing in the state. The Centers for Disease Control and Prevention (CDC) estimate that 1.8 percent of the state’s population, or 54,046 Iowans, have potentially 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 *Chlamydia*, gonorrhea, and syphilis.

In addition to surveillance, IDPH supports targeted voluntary screening at 72 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 72 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 or public health professionals to give medications or prescriptions to their patients to pass along to their exposed partners.

CDC estimates that about 40% of *Chlamydia* infections and 50 percent of gonorrhea infections remain undiagnosed and untreated each year. This means that in 2008, an estimated 10,135 infections went undiagnosed and untreated in Iowa.

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

CHLAMYDIA

There were 9,372 cases of *Chlamydia* reported to IDPH in 2007, which equates to 314 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 370 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 *Chlamydia* cases are among African Americans. The CDC estimates that 40% of chlamydial infections remain undiagnosed each year. In addition, improved partner services may be finding more cases while trying to prevent the spread of disease.

GONORRHEA

In 2008, 1,700 cases of gonorrhea were reported to IDPH. This is a rate of 57 for every 100,000 people. Like *Chlamydia*, gonorrhea also most strongly impacts those 15-24 years of age. Sixty-two percent of gonorrhea cases are among youth of this age. Disparities among African Americans are even more pronounced, however, with 45% 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 75 total cases of syphilis reported in 2007, or 3 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 25-55, often among men who have sex with men. The rate of infection was highest among African Americans. Clusters of syphilis are common, especially in early stages of infection and in urban areas.

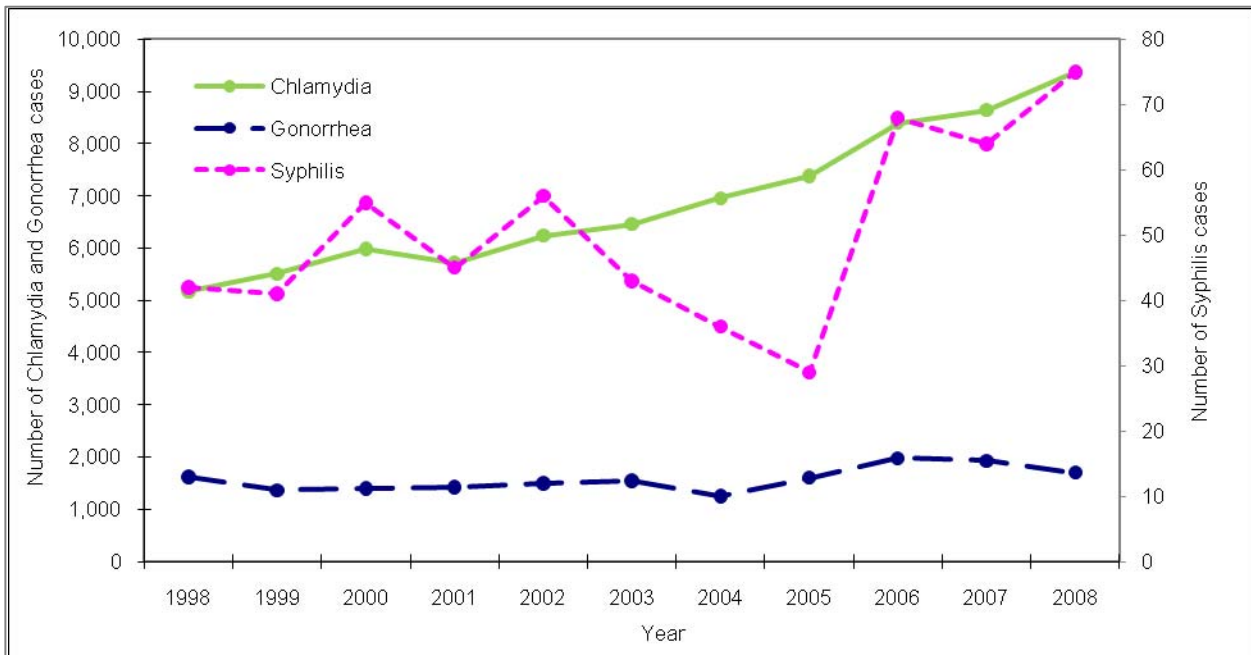


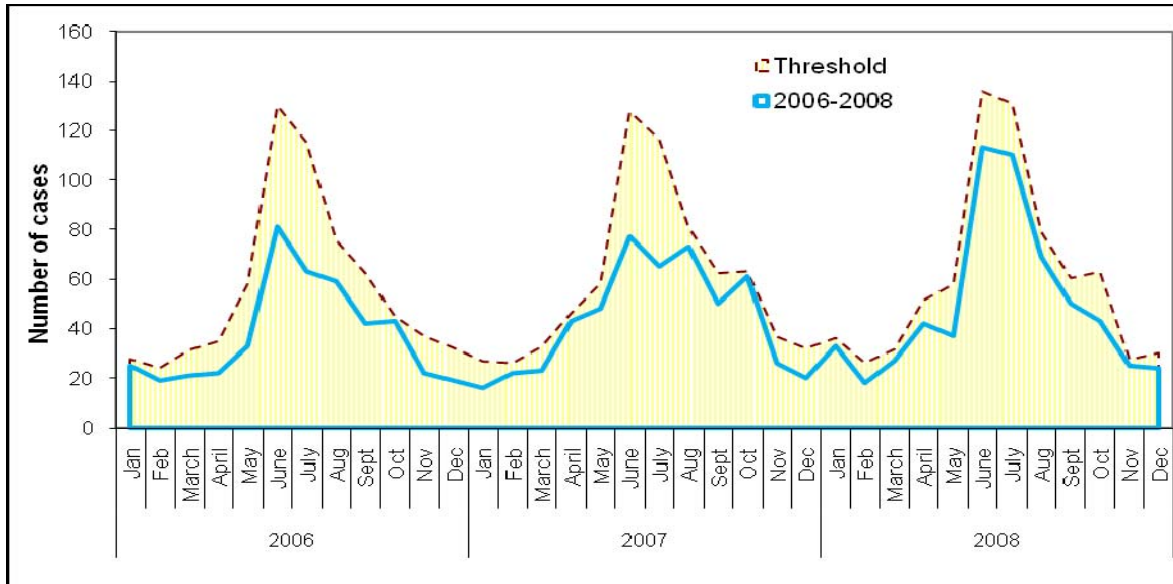
Figure 7. Number of cases of *Chlamydia*, gonorrhea, and syphilis by year, 1998-2008

SUMMARY OF ENTERIC DISEASES

CAMPYLOBACTERIOSIS

The total number of campylobacteriosis cases reported in 2008 was higher than last year (Figure 8). The average number of cases reported for 2005-2007 was 513.7; 524 cases were reported in 2008. Campylobacteriosis incidence was 17.5 cases for every 100,000 people in 2008.

Figure 8. Campylobacteriosis cases versus maximum expected cases or threshold by month, 2006-2008

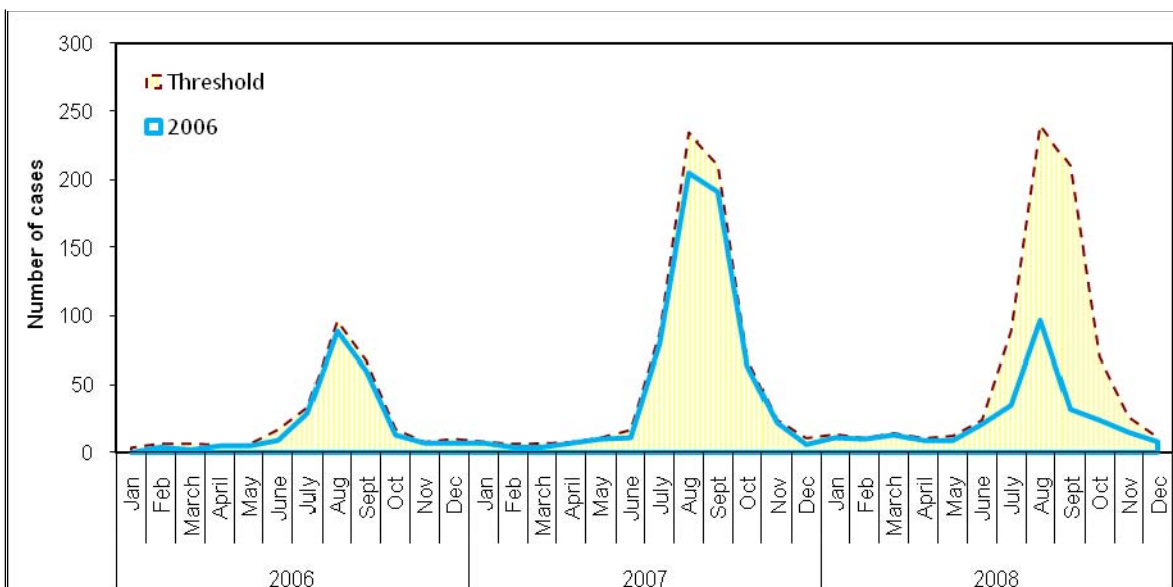


Campylobacteriosis activity typically peaks in early summer. Consumption of raw, undercooked meat, raw milk, contact with infected animals, and contaminated water are common sources of campylobacter infection.

CRYPTOSPORIDIOSIS

Cryptosporidiosis activity in 2008 was lower overall than in 2007 but still exceeded the average of 235 cases for the past five years.

Figure 9. Cryptosporidiosis cases verses maximum expected cases or threshold by month, 2006-2008

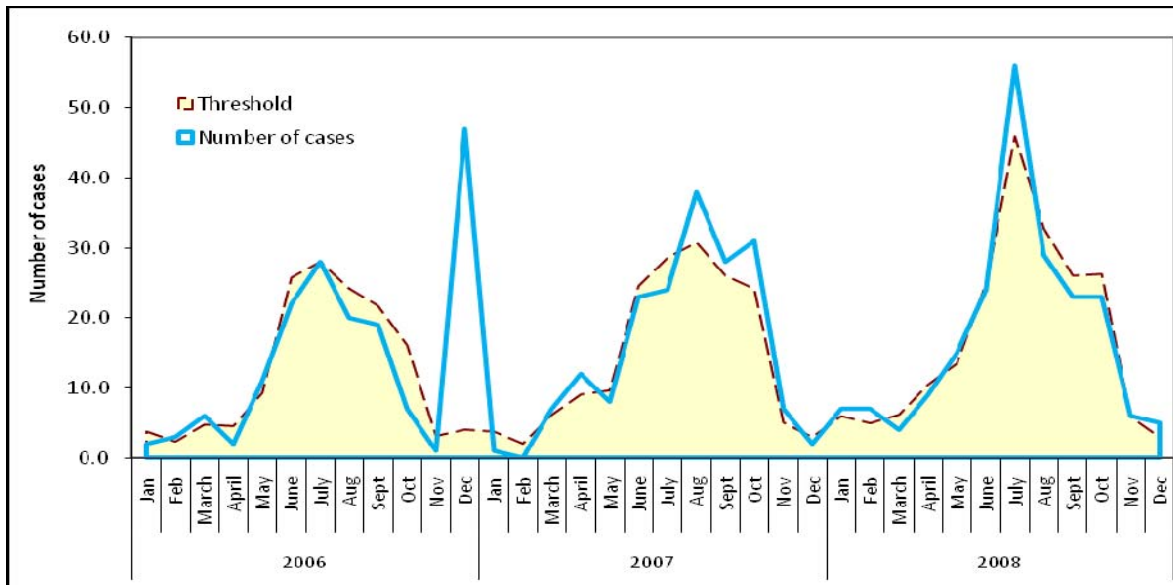


There were 9.5 cases for every 100,000 lowans in 2008 compared to 20.8 in 2007. Cases had similar clinical presentations and most reported either child care or recreational water exposure. The CDC case definition for cryptosporidiosis cases in 2009 includes epidemiologically linked cases. Those cases are currently being tracked and reported.

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

The incidence of *E. coli* shiga-toxin cases in Iowa rose to 6.9 cases/100,000 persons in 2008 from 6.0 cases/100,000 persons in 2007. One outbreak that involved several child care centers resulted in high case counts the months of September and October 2006. Figure 10 shows the increase in cases in December 2006 and the yearly seasonal cyclic trend of cases which peaks in the summer months. There were a total of 208 cases reported in 2008.

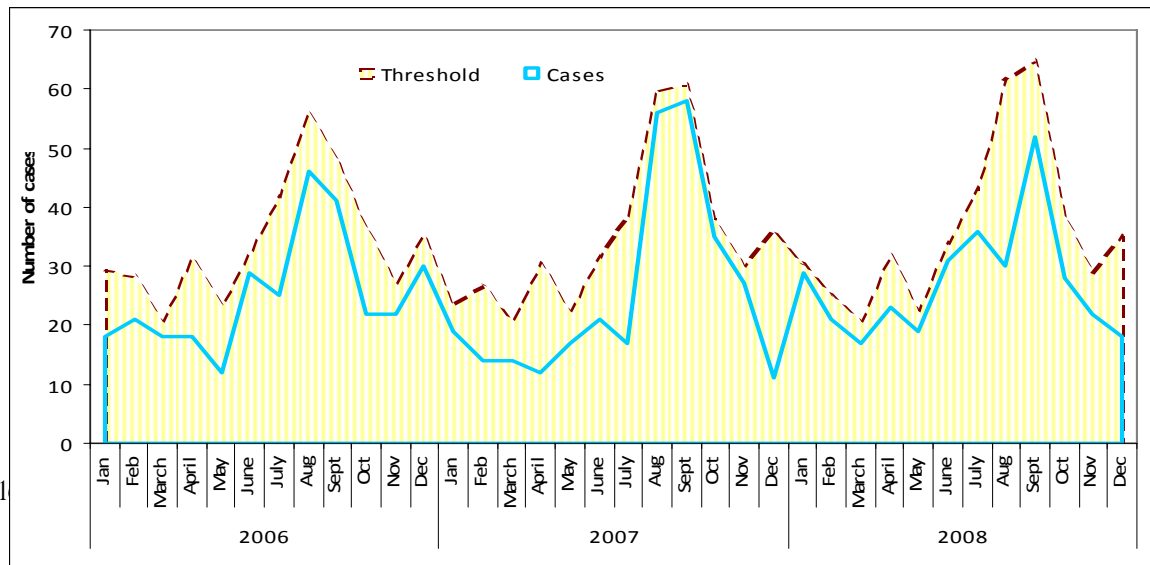
Figure 10. E. coli O157:H7 and other STX-producing strains cases versus maximum expected cases or threshold by month, 2006-2008



GIARDIASIS

Giardiasis is one of the leading waterborne diseases that typically peaks in late summer or early fall (Figure 11). In 2008, there were 326 cases in Iowa. Diapered children and those in childcare are likely to become infected with Giardia. Twenty-five percent of cases were age 5 and under. Over half of the cases were male. There were 10.9 cases for every 100,000 lowans compared to 10.3/100,000 in the previous year.

Figure 11. Giardiasis cases versus maximum expected cases or threshold by month, 2006-2008



HEPATITIS A

In 2006, Iowa had only 13 cases of hepatitis A reported with an incidence of 0.4 cases per 100,000 Iowans. This was the lowest incidence of hepatitis A that Iowa has reported in 15 years. In 2007, cases began to rise again with only 7 of the 48 reported cases occurring in persons less than 18 years of age. In 2008, there were 109 cases of Hepatitis A in Iowa. This represented a 215 percent increase over the past three years. Ages of the cases ranged from 5 to 88 with only 16 cases younger than 20. In July, a cluster of Hepatitis A cases was associated with a restaurant worker in Southeast Iowa.

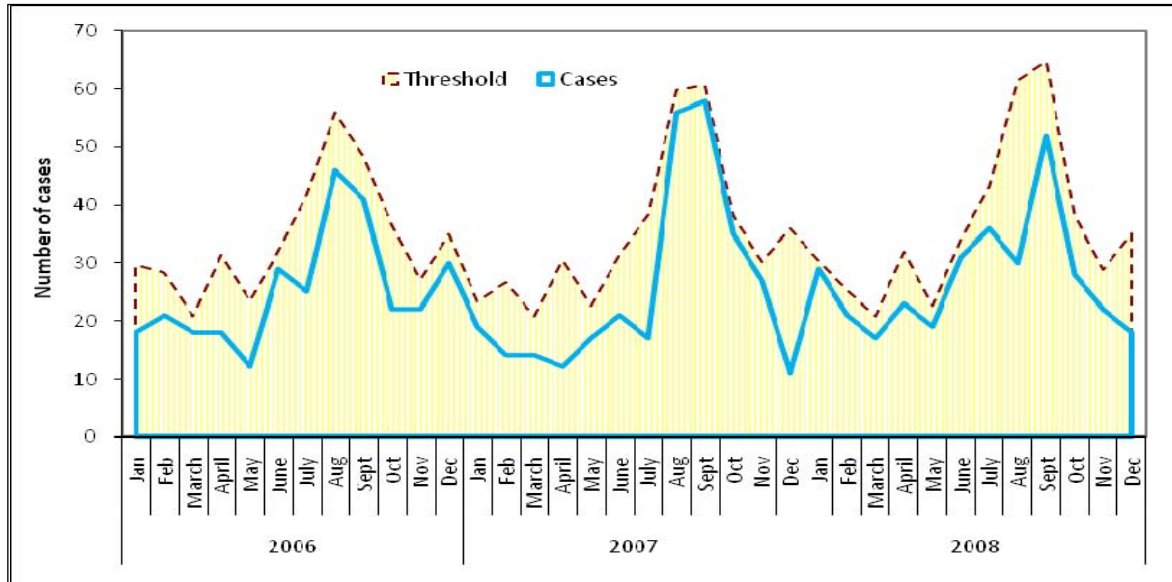


Figure 12. Hepatitis A cases versus maximum expected cases or threshold by month, 2006-2008

LISTERIOSIS

There was one case of *Listeria montocytogenes* infection reported in 2008. This case was not associated with any known *Listeria* outbreaks.

SALMONELLOSIS

Salmonellosis incidence in 2008 decreased to 14.2 cases per 100,000 persons from 16.2 cases per 100,000 persons in 2007. The total number of cases reported was 425. The graph below shows the

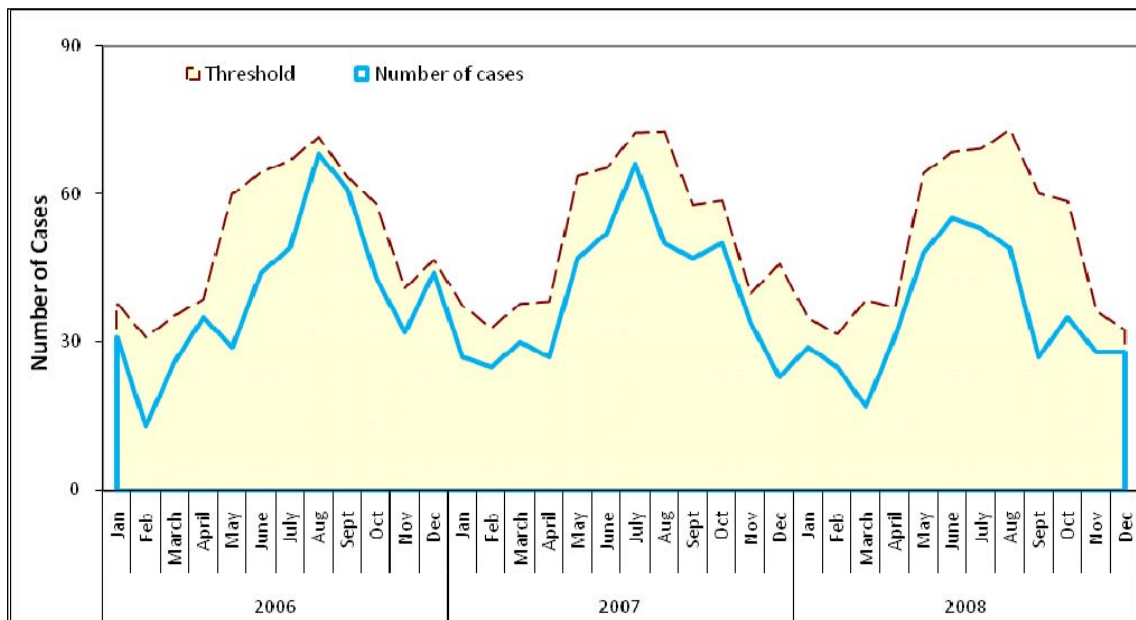
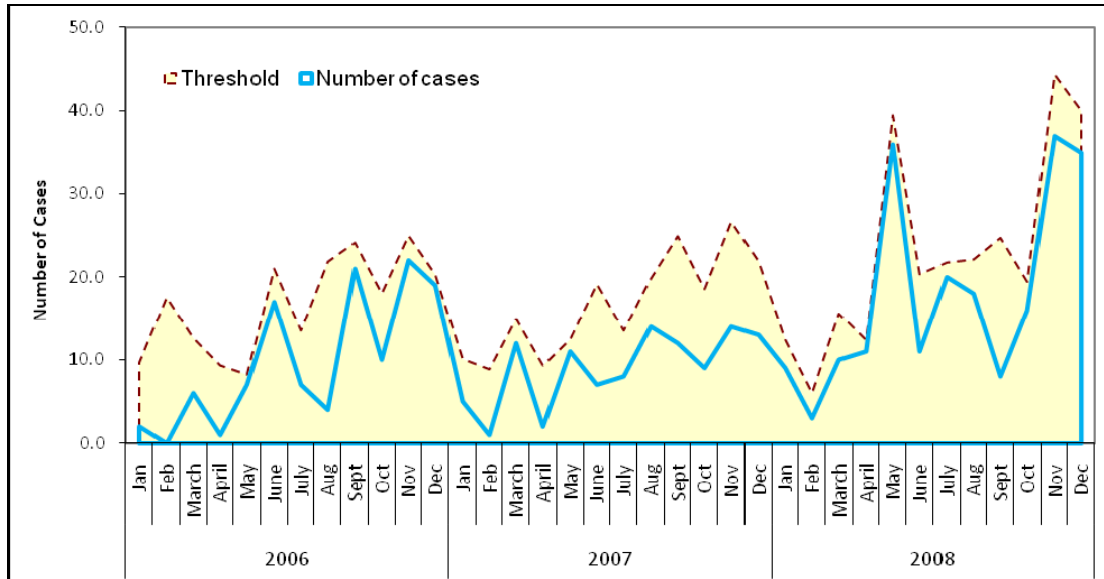


Figure 13. Salmonellosis cases versus maximum expected cases or threshold by month, 2006-2008

number of salmonellosis cases reported for the past three years along with the calculated threshold for each month. *Salmonella* cases were also linked to two multi-state clusters/outbreaks including *Salmonella* Saintpaul and ground beef and *Salmonella typhimurium* linked to contaminated peanut butter.

SHIGELLOSIS

Figure 14. Shigellosis cases versus maximum expected cases or threshold by month, 2006-2008



In 2008, there were 214 cases of *Shigella* in Iowa. This was an approximately a 70 percent increase over the average number of cases for the past three years. *Shigella* infections were reported in all areas of the state, including outbreaks in Northern and Eastern Iowa. Cases were evenly distributed across several age groups including 0-5, 6-18, and persons aged 24-64 years. A few cases were reported in persons aged 18-24 years and over 64. This corresponds to children and their parents/caretakers being at most risk.

SUMMARY OF ZOO NOTIC DISEASES

BRUCELLOSIS

There were two cases of human infection reported to the IDPH in 2008. Median age of cases was 30.5 years.

Brucellosis is an infectious disease caused by the bacteria of the genus *Brucella*. Various *Brucella* species affect sheep, goats, cattle, deer, elk, pigs, dogs, and several other animals. Humans become infected by coming in contact with animals or animal products that are contaminated with these bacteria. In humans, brucellosis can cause a range of symptoms that are similar to the flu and may include fever, sweats, headaches, back pains, and physical weakness. Severe infections of the central nervous systems or lining of the heart may occur. Brucellosis can also cause long-lasting or chronic symptoms that include recurrent fevers, joint pain, and fatigue.

DENGUE FEVER

In late February 2008, five Dengue cases were reported to IDPH. Since it was unusual to receive five positive cases in that short of time frame, serum samples from the cases were submitted to CDC for confirmation by PRNT testing to rule out that there were no problems with commercial laboratory tests. All five cases were confirmed. All of the cases had become ill after returning from the Dominican Republic on a mission trip rebuilding hurricane damaged areas. All cases reported being exposed to mosquitoes but not wearing a mosquito repellent. None of the cases were aware that the Dominican Republic was a Dengue endemic area. The CDC's Dengue Branch, Division of Vector-Borne Infectious Diseases, in San Juan, Puerto Rico developed interest in the cluster of cases and began working with the missionary group to provide information to volunteers to prevent Dengue and other mosquito-borne illnesses.

EHRlichiosis/ANAPLASMOSIS

There are at least three species of bacteria, all intracellular, responsible for ehrlichiosis/

anaplasmosis in the United States: *Ehrlichia chaffeensis*, found primarily in monocytes, and *Anaplasma phagocytophilum* and *Ehrlichia ewingii*, found primarily in granulocytes. The clinical signs of disease that result from infection with these agents are similar, and the range distributions of the agents overlap, so testing for one or more species may be indicated. Serologic cross-reactions may occur among tests for these etiologic agents.

Four sub-categories of confirmed or probable ehrlichiosis/anaplasmosis should be reported: 1) human ehrlichiosis caused by *Ehrlichia chaffeensis*, 2) human ehrlichiosis caused by *E. ewingii*, 3) human anaplasmosis caused by *Anaplasma phagocytophilum*, or 4) human ehrlichiosis/anaplasmosis - undetermined. Cases reported in the fourth sub-category can only be reported as "probable" because the cases are only weakly supported by ambiguous laboratory test results.

HANTAVIRUS

There was one fatal Hantavirus Pulmonary Syndrome (HPS) case in Iowa in 2008. This is the seventh case of HPS in Iowa since the disease was first identified in 1993 in the four corners area of the United States. The first Iowa case was reported in 1997. All seven cases have been male, ranging in age from 12 to 47 years; three have died. Substantial rodent exposure was identified in most cases, including the recent 2008 case.

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. If this disease is left untreated further complications can arise such as infections spreading to the joints, the heart, and nervous system. Lyme disease is diagnosed based on symptoms, physical findings (e.g., rash), and exposure history. Laboratory testing is helpful in the later stages of the disease. Most cases of Lyme disease can be treated with a few weeks of antibiotics.

There were 109 cases of Lyme disease reported to the IDPH in 2008. The 2008 Iowa case rate for

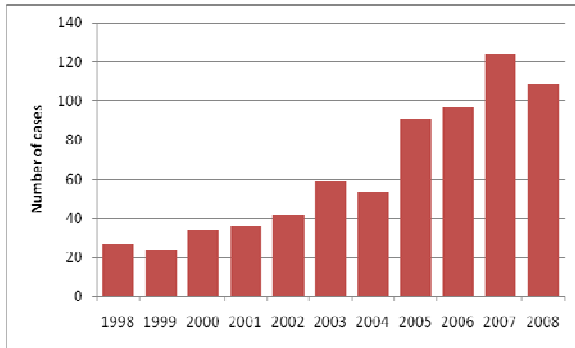


Figure 15. Confirmed and probable cases of Lyme disease reported to IDPH, 1998-2008

Lyme disease was 3.7 per 100,000*. Cases ranged from age three to 85 with a median age of 38.7 years. The total number of Lyme disease cases has steadily increased in the past 10 years.

MALARIA

Twelve cases of malaria were identified in Iowa in 2008. Eleven cases had recently immigrated to the United States. The twelfth had recently traveled to Afghanistan. Six cases were determined to have *Plasmodium vivax* infection and six cases had *Plasmodium falciparum* infections.

RABIES, ANIMAL

A total of 29 of animal rabies were reported in Iowa during 2008. Eighteen reported animal cases were wildlife species including 11 bats and 7 skunks. The remaining 11 were other animal species including cats, dogs, and horses. These data reflect tested animals that might

have exposed humans or other domestic animals to rabies, and do not represent all rabid animals in Iowa.

In 2008, 29 cases of animal rabies were reported in Iowa, which is comparable to the number reported last year, but is significantly less than previous years (Table 3. Positive Rabies Cases by Species 2001-2008 Table 3, Figure 16). Rabies was identified most frequently in wildlife species including 11 bats and 7 skunks. Ten cases were diagnosed in domestic species including 9 cats and 1 dog. One cow tested positive as well.

During 2008, 1,721 animals in Iowa were tested for rabies and 29 were confirmed positive (1.63%). Iowa's most recent human rabies case occurred in 2002 and the virus was identified as a bat strain, and prior to that the last case was in 1951.

Table 4. Non-human rabies tests performed including percent positive

Species	Positive	Total Tested	% Positive
Dogs	1	381	0.26%
Cows	1	64	1.56%
Cats	9	523	1.72%
Bats	11	555	1.98%
Skunks	7	13	53.85%

It is important to note that these data are greatly influenced by the numbers of animals tested. Many animals are tested because they are exhibiting unusual behavior or clinical signs which make them more likely to be infected with rabies. For these reasons, the percentages

Table 3. Positive Rabies Cases by Species 2001-2008

Species	2001	2002	2003	2004	2005	2006	2007	2008	Total
Bat	31	27	47	47	60	28	13	11	264
Skunk	28	27	38	28	33	13	5	7	179
Cat	10	7	8	11	5	7	7	9	64
Cow	10	12	3	10	7	4	0	1	47
Dog	2	3	6	3	2	2	5	1	24
Horse	3	2	3	0	1	3	1	0	13
Fox	1	0	0	1	0	0	0	0	2
Badger	0	0	1	0	0	0	0	0	1
Total	85	78	106	100	108	57	31	29	594

should not be considered representative of the

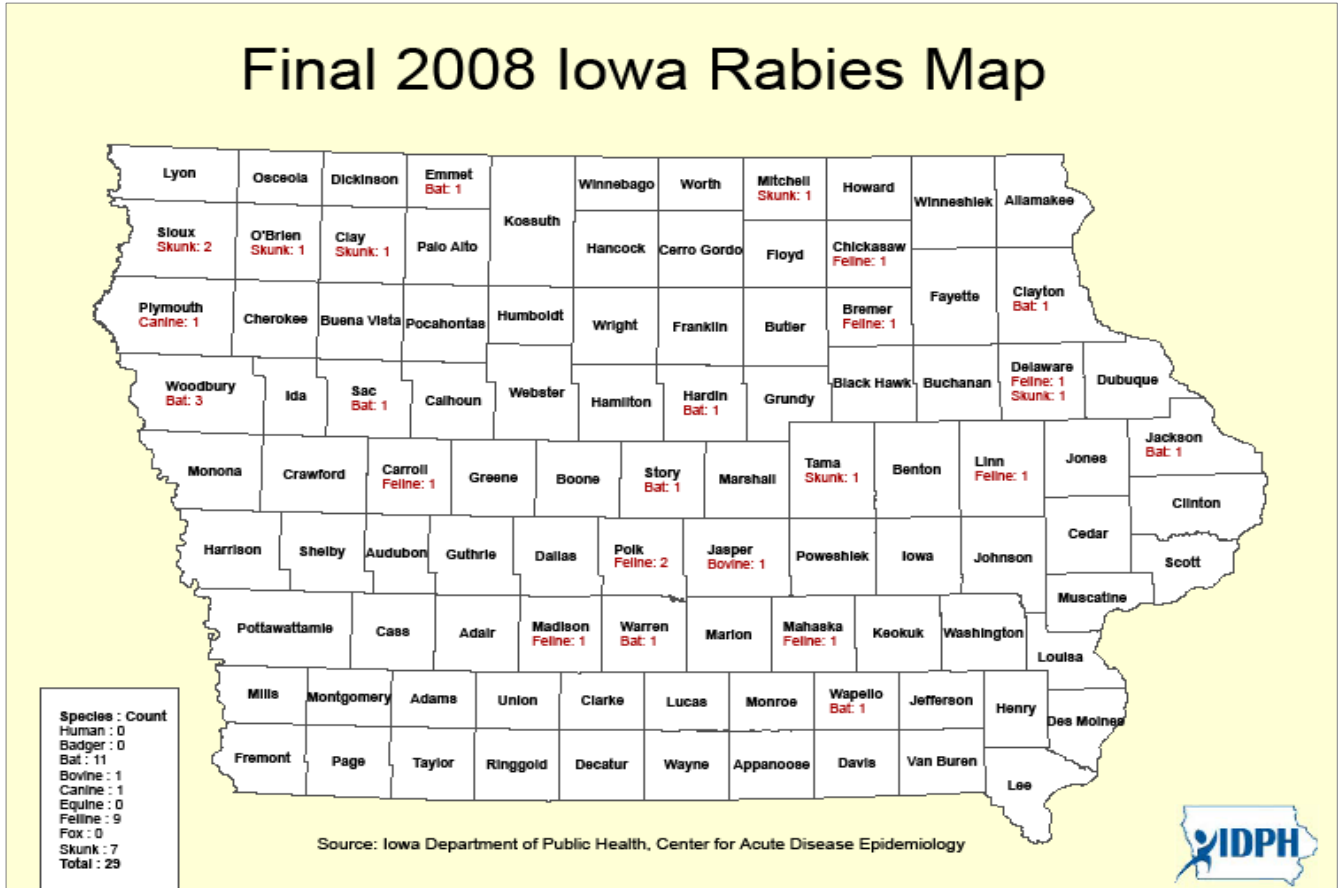


Figure 16

true distribution of disease within the animal population in Iowa.

ROCKY MOUNTAIN SPOTTED FEVER (RMSF)

In 2008, there were 8 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 August⁵. Iowa RMSF cases in 2008 had symptom onset dates from May to September. Cases ranged from age 26 to 65 with a median age of 52.

WEST NILE VIRUS

There were five human cases of West Nile virus reported to the IDPH in 2008. Three of the five cases were neuroinvasive, three patients were hospitalized, and one patient died (Figure 17).

Figure 17

Final 2008 Iowa West Nile Virus Surveillance



Iowa Department of Public Health, Center for Acute Disease Epidemiology
 Surveillance conducted with UHL, IDALS, ISU Dept of Entomology, and Local Health Departments

Updated 1/6/09

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. The Iowa Department of Public Health 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 percent 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 2008 there were 12 reported deaths (2 intentional) from CO exposure in Iowa. Other statistics are not available for this year.

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 ($\mu\text{g}/\text{dL}$), children's intelligence, hearing, and growth are affected. This damage can be stopped 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 $\mu\text{g}/\text{dL}$.

In 2002, researchers estimated that the average decrease in lifetime earnings of a child with a blood lead level of 10 $\mu\text{g}/\text{dL}$ would be at least \$40,000 and that the average decrease for a child with a blood lead level of 10 $\mu\text{g}/\text{dL}$ would be at least \$80,000. (Environmental Pollutants and Disease in American Children: Estimates of Morbidity, Mortality, and Costs for Lead Poisoning, Asthma, Cancer, and Developmental Disabilities. PJ Landrigan, DB Schechter, JM Lipton, MC Fahs, and J Schwartz. Environmental Health Perspectives, Volume 110, Number 7: 721-728.)

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 testing 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 2002. During that time, the percentage of children tested for lead poisoning has increased from 26 percent to 80 percent. Even though the data are not complete, nearly 90 percent of the children born in 2003 have already been tested for lead poisoning.

In Iowa, the prevalence of lead poisoning among children under the age of six years is 7 percent (combined 1009-2000 birth cohorts). This is more than four times the national

average of 1.6 percent. Data collected by the Lead Program include the number and percentage of children born in 2002 who were tested for lead poisoning, the number and percentage of children tested who were identified as lead-poisoned by type of insurance coverage.

TABLE 5. IOWA CHILDREN BORN IN 2002 AND TESTED FOR BLOOD LEAD LEVELS BEFORE THE AGE OF 6 YEARS (AS OF 12/31/2008)

COUNTY	2002 BIRTHS	TESTED	% TESTED	>=10 µG/dl	%>=10 µG/dl	COUNTY	2002 BIRTHS	TESTED	% TESTED	>=10 µG/dl	%>=10 µG/dl
Adair	74	55	74.3	3	5.5	Guthrie	148	112	75.7	8	7.1
Adams	49	35	71.4	1	2.9	Hamilton	179	162	90.5	13	8.0
Allamakee	186	181	97.3	12	6.6	Hancock	111	111	100.0	5	4.5
Appanoose	154	96	62.3	7	7.3	Hardin	190	190	100.0	18	9.5
Audubon	48	45	93.8	5	11.1	Harrison	171	98	57.3	2	2.0
Benton	303	238	78.5	20	8.4	Henry	240	211	87.9	14	6.6
Black Hawk	1602	1487	92.8	99	6.7	Howard	111	91	82.0	8	8.8
Boone	290	263	90.7	16	6.1	Humboldt	108	94	87.0	2	2.1
Bremer	255	244	95.7	9	3.7	Ida	96	75	78.1	15	20.0
Buchanan	304	235	77.3	13	5.5	Iowa	179	141	78.8	11	7.8
Buena Vista	255	193	75.7	6	3.1	Jackson	212	209	98.6	14	6.7
Butler	160	135	84.4	6	4.4	Jasper	458	298	65.1	11	3.7
Calhoun	99	96	97.0	1	1.0	Jefferson	147	99	67.3	2	2.0
Carroll	240	179	74.6	10	5.6	Johnson	1443	947	65.6	19	2.0
Cass	146	118	80.8	5	4.2	Jones	207	159	76.8	5	3.1
Cedar	184	164	89.1	7	4.3	Keokuk	143	92	64.3	4	4.3
Cerro Gordo	503	484	96.2	14	2.9	Kossuth	168	142	84.5	1	0.7
Cherokee	115	94	81.7	12	12.8	Lee	404	304	75.2	19	6.3
Chickasaw	134	117	87.3	6	5.1	Linn	2751	2128	77.4	93	4.4
Clarke	110	95	86.4	7	7.4	Louisa	200	153	76.5	3	2.0
Clay	189	164	86.8	4	2.4	Lucas	107	90	84.1	7	7.8
Clayton	176	146	83.0	4	2.7	Lyon	157	107	68.2	6	5.6
Clinton	593	583	98.3	29	5.0	Madison	208	149	71.6	4	2.7
Crawford	218	193	88.5	11	5.7	Mahaska	251	251	100.0	24	9.6
Dallas	604	604	100.0	22	3.6	Marion	423	402	95.0	11	2.7
Davis	114	50	43.9	2	4.0	Marshall	539	539	100.0	62	11.5
Decatur	85	64	75.3	5	7.8	Mills	163	144	88.3	7	4.9
Delaware	212	149	70.3	6	4.0	Mitchell	127	70	55.1	6	8.6
Des Moines	497	497	100.0	51	10.3	Monona	107	75	70.1	11	14.7
Dickinson	170	65	38.2	0	0.0	Monroe	81	81	100.0	5	6.2
Dubuque	1151	789	68.5	28	3.5	Montgomery	139	139	100.0	8	5.8
Emmet	130	83	63.8	5	6.0	Muscatine	631	592	93.8	29	4.9
Fayette	201	201	100.0	14	7.0	O'Brien	169	103	60.9	13	12.6
Floyd	175	148	84.6	13	8.8	Osceola	73	44	60.3	0	0.0
Franklin	120	120	100.0	11	9.2	Page	171	158	92.4	23	14.6
Fremont	74	72	97.3	3	4.2	Palo Alto	110	86	78.2	2	2.3
Greene	94	94	100.0	11	11.7	Plymouth	302	243	80.5	9	3.7
Grundy	127	127	100.0	4	3.1	Pocahontas	80	54	67.5	3	5.6
TOTALS	37555	30210	80.4	1540	5.1	TOTALS	37555	30210	80.4	1540	5.1

TABLE 5 CONTINUED

COUNTY	2002 BIRTHS	TESTED	% TESTED	>=10 µG/dl	%>=10 µG/dl
Polk	6140	4612	75.1	121	2.6
Pottawattamie	1180	612	51.9	15	2.5
Poweshiek	193	171	88.6	10	5.8
Ringgold	54	46	85.2	1	2.2
Sac	90	82	91.1	5	6.1
Scott	2275	1952	85.8	90	4.6
Shelby	157	140	89.2	6	4.3
Sioux	462	344	74.5	17	4.9
Story	922	750	81.3	24	3.2
Tama	220	216	98.2	21	9.7
Taylor	73	73	100.0	10	13.7
Union	138	121	87.7	15	12.4
Van Buren	82	46	56.1	2	4.3
Wapello	441	441	100.0	32	7.3
Warren	489	335	68.5	3	0.9
Washington	308	213	69.2	8	3.8
Wayne	84	84	100.0	15	17.9
Webster	471	445	94.5	27	6.1
Winnebago	114	100	87.7	3	3.0
Winneshiek	196	174	88.8	14	8.0
Woodbury	1592	1185	74.4	102	8.6
Worth	67	67	100.0	5	7.5
Wright	162	155	95.7	15	9.7
TOTALS	37555	30210	80.4	1540	5.1

SUMMARY OF RARE AND UNUSUAL DISEASES

BOTULISM

There was one case of infant botulism reported in a two month old infant. The toxin type was not identified in the infant's stool. The infant had outdoor exposure to a garden.

HANSEN'S DISEASE (LEPROSY)

In 2008, one case of Hansen's disease was reported in Iowa. The case was an immigrant from Micronesia who had been in the United States for many years.

HEPATITIS E

Hepatitis E virus (HEV) infection is a major cause of epidemic and acute sporadic hepatitis in many areas of Asia, Africa, and Mexico where it is considered endemic. HEV infection should be considered in any person who has traveled abroad but is negative for serologic markers for hepatitis A, B, or C--even though seroconversion to anti-HCV may not be detected until 6 months after onset of symptoms. Iowa had one confirmed case in 2008 from a recent immigrant from central Asia.

LEGIONELLOSIS

The average number of *Legionella* cases for the past five years is 10.6 cases. There were 21 cases of legionellosis reported to IDPH in 2008. The cause of the increase is unknown and none of the cases were outbreak-related. The age range of the 2008 cases was 45 to 90 years old with a median age of 67 years. Seventy one percent of the cases were male and all 21 were Caucasian.

TOXIC SHOCK SYNDROME

There was one probable case of menstruation-associated Toxic Shock Syndrome occurring in a teenager reported in 2008.

VIBRIO ALGINOLYTICUS

One case of *Vibrio alginolyticus* was reported to IDPH in 2008. *V. alginolyticus* is a gram-negative bacterium that is part of normal marine flora. It is one of 12 recognized marine *Vibrio* species that have been identified as being pathogenic

for humans. It has been associated with wound infections, ear infections, but also with gastroenteritis and bacteremia in immunocompromised patients after consumption of raw shellfish. The Iowa case had recently traveled to Canada and did report the consumption of both raw oysters and raw tuna but was not immunocompromised.

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

HEPATITIS D

PSITTACOSIS

OUTBREAK SUMMARIES

TABLE 6. FOODBORNE OUTBREAKS, 2008

Type	Nature of Episode	Event	Location of Food Preparation	Location of Food Consumption	County	Month	Number Affected	Food Vehicle of Transmission	Agent Involved
Foodborne	Diarrhea	Restaurant	Restaurant	Restaurant	Polk	April	12	Tomatoes	<i>Salmonella</i> Braenderup
Foodborne	Diarrhea	Multi-State	Home	Home	Multi-County	May	3	Turkey	<i>Salmonella</i> Hadar
Foodborne	Diarrhea, Blood Stool	Statewide	Multi-County	Multi-County	Multi-County	May-July	3	Ground Beef	<i>Salmonella</i> <i>Saintpaul</i>
Foodborne	Diarrhea, Vomiting	Employee Luncheon	Caterer	Workplace Meeting Room	Ida	August	61	Unknown	<i>C. perfringens</i> suspect
Foodborne	Diarrhea, Vomiting	Multi-State	Home	Home	Multi-County	Sept 2008- Jan 2009	3	Peanut Butter	<i>Salmonella</i> <i>Typhimurium</i>
Foodborne	Diarrhea, HUS*	Pumpkin Patch	Pumpkin Patch	Pumpkin Patch	Lee, Des Moines	October	7	Unpasteurized Apple Cider	<i>E.coli</i> O157:H7

*Hemolytic uremic syndrome (HUS)

TABLE 7. NON-FOODBORNE OR UNKNOWN CAUSE OUTBREAKS, 2008

Type	Nature of Episode	Event/Place	County	Month	Number Affected	Vehicle of Transmission	Agent Involved
Person-to-Person	Diarrhea, Vomiting	Long-term Care Facility	Clinton	January	59/93	Person-to-Person	Norovirus 2 of 4+
Person-to-Person	Diarrhea, vomiting	Long-term Care Facility	Winneshiek	January	40/83	Person-to-Person	Norovirus suspect 1+
Person-to-Person	Diarrhea, abdominal cramps	Funeral event	Woodbury	February	31	Person-to-Person	Norovirus suspect
Person-to-Person	Diarrhea, vomiting	Long-term care facility	Muscatine	March	29	Person-to-Person	Norovirus suspect
Waterborne	Diarrhea, Cramps	Municipal Pool	Des Moines	July/August	24	Recreational Water	<i>Cryptosporidium</i> confirmed
Person-to-Person	Diarrhea, vomiting	School	Fremont	October	33	Person-to Person	Noroviurs 2+
Person-to-Person	Diarrhea	Wedding	Polk	October	8	Unknown	Unknown
Person-to-Person	Diarrhea	Birthday Party	Muscatine	October	14	Unknown	Unknown
Waterborne	Diarrhea, vomiting	Motel	Marion	November	10	Motel Pool	Fecal Coliforms
Person-to-Person	Diarrhea	Style Show	Linn	November	51	Unknown	Unknown
Person-to-Person	Diarrhea, Vomiting	Restaurant	Cass	November	30	Unknown	Unknown
Person-to-Person	Nausea, vomiting diarrhea	Pizza Party	Buena Vista	December	18	Person-to-Person	Norovirus
Person-to-Person	Diarrhea, vomiting	Assisted Living Facility	Linn	December	20/79	Person-to-Person	Norovirus suspect
Person-to-Person	Diarrhea, vomiting	Long Term Care Facility	Boone	December	50/113	Person-to-Person	Norovirus
Person-to-Person	Diarrhea, Vomiting	Business X Catered Dinner	Linn	December	31/60	Person-to-Person	Norovirus susp.
Person-to-Person	Diarrhea, Vomiting	Business Y Catered Dinner	Linn	December	35/250	Person-to-Person	Norovirus susp.

TABLE 8. CASES AND RATES PER 100,000 POPULATION IN 2008- ALL DISEASES

Event (Disease)	Cases	Rate
AIDS (diagnosis)	65	2.2
Anthrax	0	0
Botulism, Infant	1	0
Brucellosis (Undulant Fever)	2	0.1
Campylobacteriosis	591	19.7
Chlamydia	9372	312.1
Cholera	0	0
Cryptosporidiosis	284	9.5
Cyclospora	0	0
Dengue Fever	5	0.2
Diphtheria	0	0.0
Ehrlichiosis / Anaplasmosis	7	0.2
Encephalitis (arboviral except WNV)	0	0
<i>Escherichia coli</i> 0157:H7 (includes HUS & Shiga-toxin producing)	208	6.9
Giardiasis	326	10.9
Gonorrhea	1700	56.6
Hansen's Disease (Leprosy)	1	0
Hantavirus Syndromes	1	0
Hepatitis A (Viral, infectious)	109	3.6
Hepatitis B Acute	25	0.8
Hepatitis B Chronic*	226	7.5
Hepatitis E	1	0.0
<i>Haemophilus Influenzae</i> Type B Inv Disease	2	0.1
HIV (Diagnosis)	108	3.6
Legionellosis	21	0.7
<i>Listeria Monocytogenes</i> Inv. Dis	1	.0
Lyme Disease	109	3.6
Malaria	12	.4
Measles (Rubeola)	0	0
Meningococcal Inv. Disease	19	.6
Mumps	24	.8
Pertussis (Whooping Cough)	257	8.6
Plague	0	0
Poliomyelitis	0	0
Psittacosis	0	0
Rabies (Animal)	29	1.0
Rabies (Human)	0	0
Rocky Mountain Spotted Fever	8	.3
Rubella (German Measles)	0	0
Salmonellosis	425	14.2
Shigellosis	214	7.1
Syphilis	75	2.5
Tetanus	0	0
Toxic Shock Syndrome	1	0
Trichinosis	0	0
Tuberculosis	46	1.5
Typhoid Fever	6	.2
West Nile Virus	5	.2
Yellow Fever	0	0

*Hepatitis B, chronic represents new chronic cases reported to IDPH in 2008. It does not represent the prevalence of chronic hepatitis B in Iowa.

TABLE 9. PFGE (PULSE-FIELD GEL ELECTROPHORESIS) CLUSTERS, 2008

Type	Nature of Episode	Event/Place	County	Month	Number Affected	Vehicle of Transmission	Agent Involved
Foodborne	Diarrhea, Blood Stool	Statewide	Multi-County	May-July	3	Ground Beef	<i>Salmonella</i> Saintpaul
Foodborne	Diarrhea, HUS*	Pumpkin Patch	Multi-County	October	7	Unpasteurized Apple Cider	<i>E.coli</i> 0157:H7
Foodborne	Diarrhea, Vomiting	Multi-State	Multi-County	Sept 2008-Jan 2009	3	Peanut Butter	<i>Salmonella</i> Typhimurium

*Hemolytic uremic syndrome (HUS)

TABLE 10. CASES AND RATES PER 100,000 POPULATION FOR 2008 BY AGE GROUP

Disease	0 to 4		5 to 19		20 to 29		30 to 39		40 to 64		>64		Unk	Total	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Cases	Rate
AIDS (diagnosis)	0	-	0	-	0	0.0	0	0.0	0	0.0	0	0.0	0	65	2.2
BOT INFANT	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	1	0.0
CAMPY	52	1.7	117	19.4	99	24.1	73	20.3	186	18.9	62	13.9	2	591	19.7
CHLAMYDIA	7	0.2	3225	107.5	5158	171.9	801	26.7	171	5.7	0	0.0	10	9372	312.4
CRYPTOSPOR	61	2.0	98	16.3	50	12.2	32	8.9	29	2.9	14	3.1	0	284	9.5
DENGUE FEVER	0	0.0	1	0.2	0	0.0	0	0.0	4	0.4	0	0.0	0	5	0.2
E.COLI SHGT	51	1.7	80	13.3	34	8.3	14	3.9	17	1.7	10	2.2	2	208	6.9
EHRlichiosis / ANAPLASMOSIS	1	0.0	0	0.0	0	0.0	1	0.3	2	0.2	3	0.7	0	7	0.2
GIARDIA	72	2.4	78	13.0	46	11.2	38	10.6	70	7.1	20	4.5	2	326	10.9
GONORRHEA	1	0.0	509	17.0	859	28.6	242	8.1	87	2.9	0	0.0	2	1700	56.7
H UREMIC SY	8	0.3	7	1.2	1	0.2	0	0.0	0	0.0	0	0.0	0	16	0.5
HEP A	0	0.0	16	2.7	19	4.6	13	3.6	44	4.5	17	3.8	0	109	3.6
HEP B	0	0.0	1	0.2	3	0.7	8	2.2	13	1.3	0	0.0	0	25	0.8
HEP B CHRON	2	0.1	22	3.7	55	13.4	65	18.1	74	7.5	8	1.8	0	226	7.5
LEGION	0	0.0	0	0.0	0	0.0	0	0.0	10	1.0	11	2.5	0	21	0.7
LYME	1	0.0	30	5.0	14	3.4	7	1.9	44	4.5	13	2.9	0	109	3.6
MALARIA	0	0.0	2	0.3	6	1.5	3	0.8	1	0.1	0	0.0	0	12	0.4
MENINGO.INF	2	0.1	6	1.0	2	0.5	1	0.3	1	0.1	7	1.6	0	19	0.6
MUMPS	2	0.1	4	0.7	5	1.2	4	1.1	9	0.9	0	0.0	0	24	0.8
PERTUSSIS	32	1.1	156	25.9	20	4.9	17	4.7	27	2.7	4	0.9	1	257	8.6
Q FEVER,ACU	0	0.0	2	0.3	0	0.0	2	0.6	4	0.4	0	0.0	0	8	0.3
RABIES A	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	29	29	1.0
RMSF	0	0.0	0	0.0	1	0.2	2	0.6	4	0.4	1	0.2	0	8	0.3
SALM	45	1.5	92	15.3	57	13.9	39	10.8	127	12.9	65	14.6	0	425	14.2
SHIG	50	1.7	73	12.1	24	5.9	22	6.1	29	2.9	11	2.5	5	214	7.1
SYPHILIS	0	0.0	1	0.0	7	0.2	9	0.3	10	0.3	0	0.0	0	27	0.9
TB	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	46	46	1.5
TYPH FEV	0	0.0	4	0.7	1	0.2	1	0.3	0	0.0	0	0.0	0	6	0.2
WEST NILE VIRUS	0	0.0	0	0.0	0	0.0	0	0.0	2	0.2	3	0.7	0	5	0.2

TABLE 11. CASES AND RATES PER 100,000 POPULATION FOR 2008 BY GENDER

Disease	Gender						
	Female		Male		Unk	Total	
	Cases	Rate	Cases	Rate	Cases	Cases	Rate
Campylobacteriosis	240	15.8	351	23.7	0	591	19.7
Chlamydia	6882	452.9	2490	167.9	0	9372	312.1
Cryptosporidiosis	140	9.2	144	9.7	0	284	9.5
Dengue Fever	2	0.1	3	0.2	0	5	0.2
E. coli and other shiga-toxin producing	112	7.4	96	6.5	0	208	6.9
Erhlichiosis/Anaplasmosis	0	0.0	7	0.5	0	7	0.2
Giardia	136	8.9	189	12.7	1	326	10.9
Gonorrhea	1024	67.4	676	45.6	0	1700	56.6
Hemolytic uremic syndrome	8	0.5	8	0.5	0	16	0.5
Hepatitis A	61	4.0	48	3.2	0	109	3.6
Hepatitis B, acute	5	0.3	20	1.3	0	25	0.8
Hepatitis B, chronic***	91	6.0	135	9.1	0	226	7.5
Legionellosis	6	0.4	15	1.0	0	21	0.7
Listeriosis	0	0.0	1	0.1	0	1	0.0
Lyme disease	38	2.5	71	4.8	0	109	3.6
Malaria	4	0.3	8	0.5	0	12	0.4
Menningococcal invasive disease	10	0.7	9	0.6	0	19	0.6
Mumps	16	1.1	8	0.5	0	24	0.8
Rocky Mountain Spotted Fever	3	0.2	5	0.3	0	8	0.3
Salmonellosis	225	14.8	199	13.4	0	425	14.2
Shigellosis	121	8.0	93	6.3	0	214	7.1
Syphilis	49	3.2	26	1.8	0	75	2.5
West Nile Virus	3	0.2	2	0.1	0	5	0.2

*** Hepatitis B, chronic represents new chronic cases reported to IDPH in 2008 it does not represent the prevalence of chronic hepatitis B in Iowa.

TABLE 12. NOTIFIABLE DISEASES BY YEAR, 1991-2008*

NOTIFIABLE DISEASES	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
AIDS (diagnosis)	76	117	156	104	110	104	97	75	60	77	80	80	75	75	70	79	80	66	65
Anthrax																			
Botulism										1					1		1	1	1
Brucellosis (Undulant Fever)	3	1	1	2	1	2	4	4	1	6		2	1			1	2	0	2
Campylobacteriosis	388	333	260	292	280	274	339	425	455	467	499	467	427	458	559	537	449	524	591
Cholera					1					1									
Cryptosporidiosis					71	21	75	71	66	56	77	82	49	122	90	122	230	610	284
Cyclospora							3	1	3			1							
Dengue Fever																1	1	6	5
Diphtheria																			
Ehrlichiosis/Anaplasmosis													1	1		4	7	7	7
Encephalitis (arboviral except WNV)	7	4	3	4	1	13	19	3	3	3	4	3	3		2		1	1	
Escherichia coli O157: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
Giardiasis	435	422	351	340	339	391	410	358	429	377	420	345	315	277	301	280	302	301	326
Haemophilus Influenzae Type B Disease	23	15	7	5	6	3	4	6	5	2					1		2	1	2
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
Hepatitis B (Serum) Acute / Chronic	54	42	33	36	27	46	74	44	54	44	38	24	20	27	17	32	21/35	26/256	25/226
Hepatitis B (Perinatal)																	1		1
Hepatitis C or unspecified	17	14	12	12	25	1	43						1	1					
Hepatitis E																1			1
HIV (diagnosis)									98	87	94	98	109	92	107	117	113	127	108
Legionellosis	4	12	18	19	34	21	11	12	11	17	15	8	13	12	8	8	13	12	21
Listeria Monocytogenes Inv. Dis	6						1		2	6	2	3	5		3	7	6	8	1
Lyme Disease	16	22	33	8	17	16	19	8	27	24	34	36	42	58	56	91	97	124	109
Malaria	2	7	5	5	5	3	3	10	8	11	2	9	4	6	5	9	2	3	12
Measles (Rubeola)	26	17	1		7		1								3				
Meningococcal Inv. Disease	7	15	18	28	25	31	56	47	46	42	37	32	29	28	17	19	20	15	19
Mumps	22	23	13	11	16	11	3	10	11	8	8	1	1	2	2	6	1,963	27	24
Pertussis (Whooping Cough)	20	26	11	38	23	11	32	207	78	111	67	167	230	182	1066	1106	342	150	257
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
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

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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
Shigellosis	51	33	46	68	338	351	151	90	69	74	569	367	122	93	64	103	134	109	214
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
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	43	46
Tularemia																			
Typhoid Fever	1		1				1	1		1				2	1	1		1	6
West Nile Virus													52	147	23	37	37	30	5
Yellow Fever																			

*Table excludes sexually-transmitted diseases.

**Hepatitis B, chronic represents new chronic cases reported to IDPH in 2008. It does not represent the prevalence of chronic hepatitis B in Iowa.

TABLE 13. SALMONELLA SEROTYPES REPORTED 2008

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

TABLE 14. SHIGELLA SEROGROUPS 1991-2008

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

TABLE 15. COMMON NOTIFIABLE DISEASES BY COUNTY, 2008*

	AIDS (diagnosis)*	HIV (diagnosis)*	CAMPYLOBACTER	CHLAMYDIA	CRYPTOSPORIDIUM	E. COLI SHGT	GIARDIA	GONORRHEA	HUS	HEP A	HEP B	HEP B CHRONIC**	HEP E	LEGIONELLA	LISTERIA	LYME DISEASE	MENINGO. INF	MUMPS	PERTUSSIS	RABIES ANIMAL	RMSF	SALMONELLA	SHIGELLA	SYPHILIS	TB	WEST NILE VIRUS	Total
ADAIR	0	0	0	9	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
ADAMS	0	0	3	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
ALLAMAKEY	0	0	13	43	2	2	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	1	0	0	0	0	66
APPANOOSE	0	0	2	18	2	0	1	0	0	1	2	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	29
AUDUBON	0	0	3	2	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	11
BENTON	0	0	9	33	3	1	1	2	0	1	0	1	0	0	0	1	0	0	6	0	0	3	0	0	0	0	61
BLACK HAWK	0	5	29	818	0	1	4	213	0	7	1	11	0	0	0	2	1	1	2	0	0	13	1	1	6	0	1116
BOONE	0	0	4	62	3	0	1	3	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	78
BREMER	0	0	9	31	0	2	0	1	0	0	0	0	0	0	0	1	1	1	0	1	0	1	4	1	0	0	53
BUCHANAN	0	0	11	48	1	3	0	3	0	0	0	2	0	0	0	2	2	0	0	0	0	2	0	0	0	0	74
BUENA VISTA	0	0	8	42	2	1	1	6	0	0	0	2	0	0	0	0	0	0	1	0	0	10	2	1	0	0	76
BUTLER	0	0	8	12	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	24
CALHOUN	0	0	1	12	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	19
CARROLL	0	0	3	29	4	5	3	2	1	0	0	0	0	0	0	0	0	0	0	1	0	3	0	1	0	1	53
CASS	0	0	0	36	0	1	0	3	0	2	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	46
CEDAR	0	0	7	22	2	0	1	2	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	38
CERRO GORDO	0	0	8	109	3	1	3	8	0	1	0	1	0	0	0	0	1	0	6	0	0	4	0	1	1	0	147
CHEROKEE	0	0	0	11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	15
CHICKASAW	0	0	2	18	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	28
CLARKE	0	0	0	9	0	0	0	2	1	0	0	0	0	0	0	0	0	0	37	0	0	0	0	0	0	0	49
CLAY	0	0	2	54	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	62
CLAYTON	0	0	9	13	2	2	1	1	0	0	0	0	0	0	0	10	0	0	0	1	0	3	0	0	0	0	42
CLINTON	0	0	8	208	1	2	3	14	0	1	0	4	0	1	0	5	0	1	1	0	0	6	4	2	0	0	261
CRAWFORD	0	0	11	63	1	1	3	6	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0	89
DALLAS	0	0	3	79	4	4	10	8	0	1	2	1	0	1	0	1	1	0	5	0	0	9	4	0	0	0	133
DAVIS	0	0	3	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	2	2	0	0	0	0	24
DECATUR	0	0	0	16	0	1	1	3	0	2	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	43
DELAWARE	0	0	9	11	10	6	10	1	0	1	1	0	0	0	0	2	0	0	0	2	0	10	0	0	0	0	63
DES MOINES	0	0	8	212	56	3	6	30	0	7	0	3	0	0	0	0	1	0	0	0	0	8	3	0	0	0	337
DICKINSON	0	0	1	23	0	0	2	1	0	0	1	1	0	0	0	0	0	1	0	0	0	2	0	0	0	0	32
DUBUQUE	0	0	32	290	11	9	21	66	0	2	0	7	0	0	0	7	1	2	0	0	0	30	11	1	0	0	490
EMMET	0	0	3	17	0	0	2	1	0	0	0	0	0	0	0	0	0	1	0	1	0	2	22	0	0	0	49
FAYETTE	0	0	3	44	1	1	1	4	0	0	0	0	0	0	0	1	0	0	2	0	0	2	0	0	0	0	59
FLOYD	0	0	3	22	0	0	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	10	1	0	1	0	41
FRANKLIN	0	0	4	10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	17
FREMONT	0	0	4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	12
GREENE	0	0	1	11	2	2	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	2	0	0	0	0	21
GRUNDY	0	0	2	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	18
GUTHRIE	0	0	3	9	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14

IOWA DEPARTMENT OF PUBLIC HEALTH

	AIDS (diagnosis)*	HIV (diagnosis)*	CAMPYLOBACTER	CHLAMYDIA	CRYPTOSPORIDIUM	E. COLI SHGT	GIARDIA	GONORRHEA	HUS	HEP A	HEP B	HEP B CHRONIC**	HEP E	LEGIONELLA	LISTERIA	LYME DISEASE	MENINGO.INF	MUMPS	PERTUSSIS	RABIES ANIMAL	RMSF	SALMONELLA	SHIGELLA	SYPHILIS	TB	WEST NILE VIRUS	Total
HAMILTON	0	0	5	17	0	2	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	4	0	1	1	0	34
HANCOCK	0	0	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	7
HARDIN	0	0	2	27	0	0	1	1	0	1	0	0	0	0	0	1	0	1	0	1	0	2	0	0	0	0	37
HARRISON	0	0	3	10	0	1	1	0	1	1	0	1	0	0	0	0	0	0	1	0	0	4	0	0	0	0	23
HENRY	0	0	1	43	3	1	0	3	0	2	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	56
HOWARD	0	0	5	22	0	0	2	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	33
HUMBOLDT	0	0	3	21	0	2	1	3	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	35
IDA	0	0	0	10	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	12
IOWA	0	0	6	19	0	1	2	5	0	0	0	0	0	0	0	6	0	0	0	0	0	1	1	0	0	0	41
JACKSON	0	0	18	40	4	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	67
JASPER	0	0	7	56	0	9	1	6	0	0	0	1	0	0	0	0	0	0	0	1	0	8	0	0	1	0	90
JEFFERSON	0	0	1	15	0	1	3	0	0	2	0	1	1	0	0	0	0	0	1	0	0	0	0	0	6	0	31
JOHNSON	4	8	26	636	16	17	13	97	1	8	0	23	0	3	0	16	0	3	13	0	0	13	3	11	4	0	915
JONES	0	0	10	38	2	2	2	4	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	62
KEOKUK	0	0	9	15	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	31
KOSSUTH	0	0	1	14	1	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	23
LEE	0	0	2	101	0	4	4	8	0	1	0	1	0	0	0	2	0	2	2	0	1	3	3	1	0	0	135
LINN	4	0	35	687	14	2	9	284	0	9	0	12	0	0	0	5	0	1	12	1	1	26	13	5	2	0	1122
LOUISA	0	0	3	31	2	0	0	1	0	1	0	0	0	1	0	3	0	0	0	0	0	1	0	0	2	0	45
LUCAS	0	0	1	7	0	0	2	2	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	16
LYON	0	0	6	3	4	2	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	29
MADISON	0	0	1	23	1	2	0	2	0	0	1	0	0	0	0	0	1	0	0	1	0	4	1	0	0	0	37
MAHASKA	0	0	1	62	0	4	0	6	0	2	0	1	0	0	0	1	0	0	9	1	0	0	0	1	1	0	89
MARION	0	0	4	49	2	13	3	5	1	1	1	1	0	0	0	0	0	0	1	0	0	16	1	0	0	0	98
MARSHALL	0	4	5	109	1	2	5	12	0	6	1	3	0	0	0	1	0	0	0	0	0	5	0	1	1	0	156
MILLS	0	0	2	16	0	0	0	4	0	0	0	2	0	0	0	0	1	0	0	0	0	3	0	0	0	0	28
MITCHELL	0	0	5	9	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	17
MONONA	0	0	2	11	0	0	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	23
MONROE	0	0	2	16	3	0	3	0	0	1	0	2	0	1	0	0	0	0	5	0	0	1	0	0	0	0	34
MONTGOMERY	0	0	2	18	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	26
MUSCATINE	0	0	4	161	1	2	3	5	0	1	0	4	0	2	0	5	0	0	0	0	0	4	8	2	1	0	203
O'BRIEN	0	0	3	11	0	2	4	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	23
OSCEOLA	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	7
PAGE	0	0	4	14	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	24
PALO ALTO	0	0	2	8	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
PLYMOUTH	0	0	5	30	3	4	2	2	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	1	0	0	53
POCAHONTAS	0	0	0	9	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
POLK	22	33	37	1976	23	28	111	375	2	15	3	83	0	3	0	7	1	3	23	2	0	49	30	13	6	0	2845
POTTAWATTAMIE	0	0	17	211	5	9	8	53	1	3	4	4	0	2	0	1	1	0	6	0	1	10	3	3	2	1	345
POWESHIEK	0	0	5	37	0	0	1	1	0	4	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	52

DIVISIONS OF ACUTE DISEASE PREVENTION AND EMERGENCY RESPONSE & ENVIRONMENTAL HEALTH

	AIDS (diagnosis)*	HIV (diagnosis)*	CAMPYLOBACTER	CHLAMYDIA	CRYPTOSPORIDIUM	E. COLI SHGT	GIARDIA	GONORRHEA	HUS	HEP A	HEP B	HEP B CHRONIC**	HEP E	LEGIONELLA	LISTERIA	LYME DISEASE	MENINGO INF	MUMPS	PERTUSSIS	RABIES ANIMAL	RMSF	SALMONELLA	SHIGELLA	SYPHILIS	TB	WEST NILE VIRUS	Total
RINGGOLD	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	6
SAC	0	0	6	14	1	5	0	0	1	2	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	32
SCOTT	7	10	33	941	1	5	4	272	0	4	1	13	0	2	0	7	3	3	57	0	0	19	75	15	4	0	1476
SHELBY	0	0	4	13	7	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	28
SIOUX	0	0	9	29	26	6	5	2	2	0	1	1	0	0	0	1	0	0	0	2	0	11	1	0	0	0	96
STORY	0	0	10	314	8	7	9	22	1	1	0	14	0	0	0	1	0	1	5	1	0	10	2	1	1	0	408
TAMA	0	0	2	51	3	0	0	4	0	0	0	0	0	0	0	0	1	1	1	1	0	2	0	0	0	0	66
TAYLOR	0	0	1	7	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	14
UNION	0	0	0	25	0	1	0	9	0	1	0	0	0	0	0	0	0	0	2	0	0	4	0	0	0	0	42
VAN BUREN	0	0	0	6	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	2	0	1	0	0	13
WAPELLO	0	0	6	97	10	0	4	6	0	1	2	1	0	0	0	0	0	0	3	1	1	3	1	0	1	0	137
WARREN	0	0	4	53	2	3	5	7	0	0	0	3	0	2	0	1	0	1	2	1	0	10	3	0	0	0	97
WASHINGTON	0	0	2	41	1	2	1	4	0	0	0	1	0	0	0	0	0	0	8	0	0	3	1	0	0	0	64
WAYNE	0	0	1	13	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
WEBSTER	0	0	5	155	1	1	2	31	0	2	1	2	0	0	0	0	0	0	0	0	0	2	1	0	1	0	204
WINNEBAGO	0	0	2	18	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	22
WINNESHIEK	0	0	13	37	4	2	0	4	2	0	0	1	0	0	0	7	0	0	0	0	0	5	0	0	0	0	75
WOODBURY	0	4	11	464	14	4	15	59	1	2	0	5	0	0	0	0	0	0	4	3	0	16	5	6	1	0	614
WORTH	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	11
WRIGHT	0	0	3	19	1	1	1	0	0	0	0	2	0	0	0	2	0	0	0	0	0	1	0	0	0	0	30
Grand Total	66	108	591	9372	284	208	326	1700	16	109	25	226	1	21	1	109	19	24	257	29	8	425	214	75	46	5	14265

*Counties with fewer than three cases of HIV/AIDS were not listed in this table

**Hepatitis B, chronic represents new chronic cases reported to IDPH in 2008. It does not represent the prevalence of chronic hepatitis B in Iowa.

REFERENCES

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- ¹² Schets FM, van den Berg HH, Demeulmeester AA, van Dijk E, Rutjes SA, van Hooijdonk HJ, de Roda Husman AM. *Vibrio alginolyticus* infections in the Netherlands after swimming in the North Sea. Euro Surveill. 2006;11(45):pii=3077.