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 2011

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

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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 2011, there were more than 60,000 laboratory results of infectious diseases and conditions submitted to IDPH disease surveillance programs. IDPH also investigates non-infectious conditions related to lead, occupational, and environmental hazards like carbon monoxide. Approximately 92,000 blood lead test results were reported to IDPH in 2011.

Crucial partners contributing to the surveillance and reduction of disease include the State Hygienic Laboratory (SHL) at the University of Iowa, city and county public health agencies, and health professionals.

In 2011, the number of the vaccine-preventable diseases decreased when compared to the previous three year average (2008-2010).

Enteric diseases like campylobacteriosis, cryptosporidiosis, listeriosis, *E. coli* and other shiga-toxin-producing strains showed increases when compared to the previous three year average, while giardiasis, salmonellosis, and shigellosis showed decreases.

Diseases spread via insects and other vectors continue to impact Iowans. In 2011, there was a notable number of these diseases that were detected and reported to IDPH including Dengue fever, ehrlichiosis/anaplasmosis, Lyme disease, malaria, Rocky Mountain spotted fever, and West Nile virus.

While the number of gonorrhea and syphilis diagnoses remains relatively stable, diagnoses of chlamydial infections continue to increase. The number of newly diagnosed Human immunodeficiency virus (HIV) cases increased when compared to the average number of diagnoses for the previous five years. The increase in HIV diagnoses is primarily among males, who have accounted for 83 percent of all diagnoses since 2007. Half of new HIV diagnoses occur in persons ages 25 through 44 years. However, it is important to note that diagnoses among persons 15 to 24 years of age rose to 28 in 2011, seven more than in 2010, and four times the number reported in 2003. The data also continue to show a disproportionate number of diagnoses among non-Hispanic African Americans and Hispanics. Non-Hispanic African Americans were about three percent of Iowa's general population, but accounted for 20 percent of new HIV diagnoses. While making up five percent of Iowa's general population, Hispanics accounted for 13 percent of new HIV diagnoses.

Great strides were made in improving surveillance for carbon monoxide poisoning and for lead exposure in young children. These data have already begun to help shape new policies including a legislative requirement for children to have completed lead screening prior to kindergarten entry.

There were also 40 outbreaks with 526 people affected that were reported and investigated in 2011. The most common pathogen implicated was norovirus and the common places where the outbreaks occurred include restaurants, long-term care/assisted living facilities, schools, and homes.

Approximately 600 health workers reported diseases through the Iowa Disease Surveillance System; a system that is now capable of receiving electronic laboratory results on a daily basis. Iowa's surveillance systems are becoming increasingly streamlined, electronically and web-based, and interconnected. As progress in assessing disease improves every year, IDPH and its partners will keep moving forward in promoting and protecting the health of Iowans.

Table 1. Summary of common, notifiable diseases, 2008-2011 and percent change in number of cases reported compared to a three-year average

	2008	2009	2010	3-yr average 2008-2010	2011	Percent change†
	Number of cases ǂ					
Campylobacteriosis	591	552	751	631	747	18.3%
Chlamydia	9372	9406	10542	9773	10928	11.8%
Cryptosporidiosis	284	232	397	304	364	19.6%
E. coli and other shiga-toxin producing	208	163	173	181	189	4.2%
Giardiasis	326	291	284	300	271	-9.8%
Gonorrhea	1700	1658	1804	1721	1966	14.3%
Hepatitis A	109	38	11	53	8	-84.8%
Hepatitis B, acute	25	38	15	26	15	-42.3%
HIV (new diagnoses)	101	126	114	114	120	5.6%
lead poisoning (adult)	883	694	736	771	832	7.9%
Legionellosis	21	24	16	20	11	-45.9%
Lyme disease	109	108	87	101	100	-1.3%
Meningococcal invasive disease	19	16	10	15	14	-6.7%
Mumps	24	15	38	26	8	-68.8%
Pertussis (whooping cough)	257	235	705	399	232	-41.9%
Salmonellosis	425	408	530	454	448	-1.4%
Shigellosis	214	53	57	108	18	-83.3%
Syphilis	75	65	68	69	70	1.0%

†The percent change is calculated by subtracting the 3-year average from the total cases for 2011 and dividing by the absolute value of the 3-year average.

ǂ Table includes all confirmed and probable cases.

The Iowa Department of Public would like to take this opportunity to thank all of its partners including local public health agencies, clinical laboratories, hospitals, clinics, healthcare providers, infection preventionists, long-term health care facilities, schools, and other health professionals for their continued support of the Iowa disease surveillance.

Introduction

The purpose of this report is to provide an overall snapshot of the types and trends of notifiable and other 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 public, media, public health, and health care use at all levels.

The report is divided into the following sections: respiratory and vaccine-preventable diseases, sexually-transmitted diseases, Human immunodeficiency virus (HIV)/Acquired immunodeficiency syndrome (AIDS), hepatitis C, enteric diseases, zoonotic diseases, rare and unusual diseases, and environmental health conditions.

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 Tuberculosis (BIT).

CADE conducts surveillance for common and emerging infectious diseases, agents of bioterrorism, disease outbreaks, and occurrence of rare and unusual acute diseases. BIT conducts surveillance of tuberculosis and perinatal hepatitis B, as well as 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 641, Chapter 1. The content in this report includes data from BEHS, which includes disease/outbreak surveillance with the EHS-Net program and surveillance on carbon monoxide poisoning and methemoglobinemia. Data from the BLPP includes all reports of childhood and adult blood lead levels, reports of other heavy metal poisonings, pesticide poisonings, and reports of fatal work-related injuries.

The Division of Behavioral Health includes the Bureau of HIV, Sexually Transmitted Disease (STD), and Hepatitis. This bureau prevents, identifies, monitors, and supports persons with HIV/AIDS, STDs, or viral hepatitis. Disease reporting and tracking are a large component of the work accomplished by this bureau, as is locating, counseling, and testing partners of persons with sexually transmitted diseases.

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 and assisting 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) and the National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention.

Methods

Disease reports are submitted to IDPH via phone, fax, mail, or a secure electronic reporting system. Reporters include health care providers, hospitals, local public health agencies, laboratories and the public. The reports received are on Iowa residents; however acquisition or exposure to a certain illnesses may have occurred in Iowa, in another state, or outside of the United States.

Reports received by CADE are tracked in the secure web-based Iowa Disease Surveillance System (IDSS). De-identified data are electronically exchanged between IDSS and 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.

Rates were calculated using the 2010 census population for the State of Iowa or the appropriate estimated census year. Five-year average values used in the graphs in the summary of enteric disease were calculated by adding two standard deviations to the five-year average. 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)/CDC case definitions found at https://wwwn.cdc.gov/nndss/case-definitions.html. CSTE/CDC definitions are used to classify the case as confirmed, probable, suspect, not a case, or awaiting more information. Only confirmed and probable cases meeting the CSTE/CDC definitions are included in this report.

Disease 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 2011. Case reports and additional information that may have altered the disease counts received after this date were not included in this report. In addition, the data file was generated using MMWR (Morbidity Mortality Weekly Report) year 2011. Therefore, case counts in this report may vary slightly from counts generated using the calendar year of 2011.

Influenza surveillance data were collected from multiple sources, including outpatient health care providers, hospitals, public health, clinical laboratories, and schools. Laboratory-confirmed influenza cases were largely based on real-time polymerase chain reaction (RT-PCR) test results sent from SHL.

Influenza-associated hospitalizations were also reported from the sentinel hospitals that participated in the Influenza Surveillance Network (IISN).

Respiratory syncytial virus (RSV) rapid antigen test data are used to determine the weekly positive predictive value of the rapid antigen tests in Iowa. SHL surveyed clinical and reference labs throughout the state for the number of rapid-antigen tests performed and number positive weekly and sent the survey results to IDPH.

The surveillance case definitions for HIV, AIDS, STDs, and TB are those developed by CSTE/CDC. Surveillance is conducted according to detailed guidelines developed. Several programs enter data into CDC-developed software programs. Programs transfer data via a secure data network on a weekly or monthly basis. HIV/AIDS data are collected in a software program called the HIV/AIDS Reporting System or eHARS.

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 semi-annually, and as needed. An epidemiological profile is produced every three years, with annual interim updates[2]. HIV/AIDS data analysis for this report used a combination of CDC's eHARS software, Microsoft® Excel, SAS® and SAS® Enterprise Guide.

In 2010, the STD program began using IDSS for surveillance of syphilis, Chlamydia, and gonorrhea. Prior to 2010, the STD program entered data in a CDC database called STD*MIS or the STD Management Information System.

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. BLPP exports data from STELLAR to CDC on a quarterly basis per programming developed by CDC. IDPH also 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 on a routine basis after being de-identified. Some disease information is communicated at the request of CDC. The statistics reported by ADPER programs to CDC are used to develop a composite picture of disease burden in the US.

Summary of respiratory and vaccine-preventable diseases

HAEMOPHILUS INFLUENZAE B

Cases of *Haemophilus influenzae* type B (Hib), invasive disease are rare in Iowa and the US. In 1991, Hib vaccine was recommended for all infants after age two months. Since then, the incidence of Hib in children less than five years of age has declined by greater than 99 percent. In 2011, three cases of *Haemophilus influenzae* type B were reported to IDPH. One occurred in a 68 year-old male with no Hib vaccination, one in a 34 year-old female with unknown Hib vaccination and one in a 12 year-old female with no Hib vaccination.

HEPATITIS A

See Summary Enteric Disease Section.

HEPATITIS B (ACUTE AND CHRONIC)

Hepatitis B is a contagious liver disease that results from infection with the hepatitis B virus. It can be either acute or chronic. Acute hepatitis B virus infection is a short-term illness that occurs within the first six months after someone is exposed to the virus. Chronic hepatitis B virus infection is a long-term illness that occurs when the virus remains in a person's body. Chronic hepatitis B is a serious disease that can result in long-term health problems, and even death.

A total of 15 cases, or 0.5 cases for every 100,000 persons, of acute hepatitis B were reported to CADE in 2011. Eighty-seven percent of the cases were males. Nationally, acute hepatitis B infections occur 1.8 times more often in men than in 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 estimates that there are between 800,000 and 1.4 million people living with chronic hepatitis B disease in the US.

There were 182 confirmed or probable chronic hepatitis B cases reported in 2011 in Iowa.

INFLUENZA

The Iowa Influenza Surveillance Network (IISN) tracks influenza activity, age groups impacted, outbreaks, virus type and strain, and severity of seasonal influenza. During the 2011-2012 season, over 250 surveillance sites reported to IISN, including medical clinics, hospitals, laboratories, schools, local public and health departments. IDPH analyzed the data reported from the surveillance sites and published the influenza weekly report during the season. To see the weekly report, visit https://idph.iowa.gov/influenza/reports.

The 2011-2012 influenza season had a mild level of activity compared to most non-pandemic influenza seasons in Iowa. The first case of seasonal influenza was confirmed by the State Hygienic Laboratory (SHL) in November, 2011 and influenza activity remained low through December and increased in January and February before peaking in mid-March (Figure 1). SHL identified three seasonal influenza viruses circulating in Iowa-influenza A (H3), influenza A (H1N1) pdm09 and influenza B. Influenza A (H3) viruses were predominant in Iowa, accounting for 85 percent of all positive influenza specimens tested.

Influenza-associated hospitalizations were reported from 26 sentinel hospitals during the season (Figure2). Most of the hospitalizations occurred in people younger than five years of age and older than 64 years of age.

Figure 1. Laboratory-confirmed cases of influenza reported to IDPH, 2011-2012

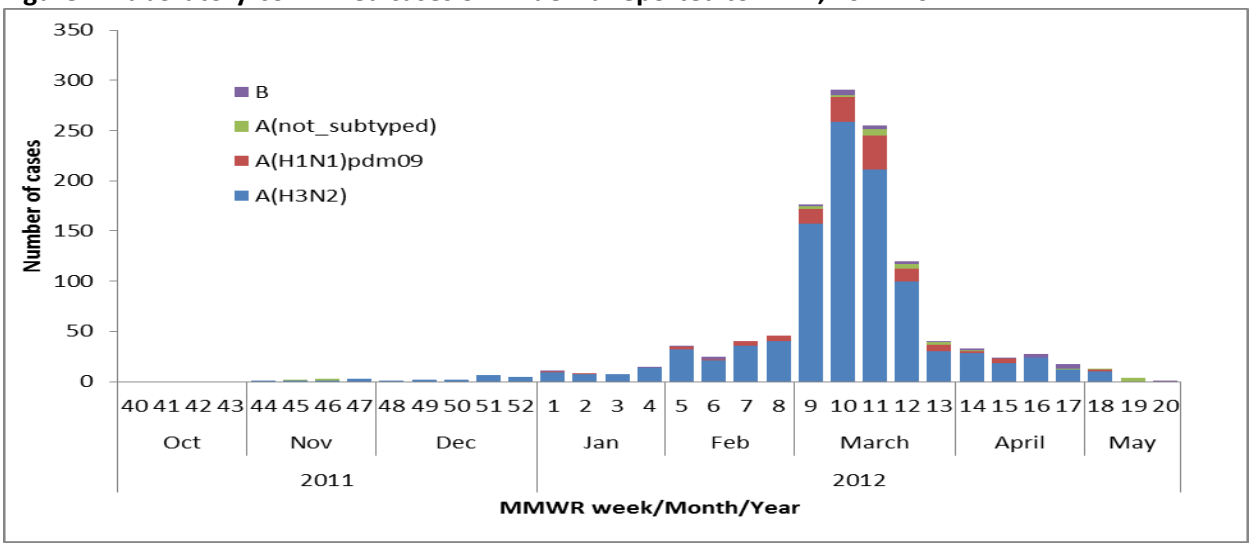
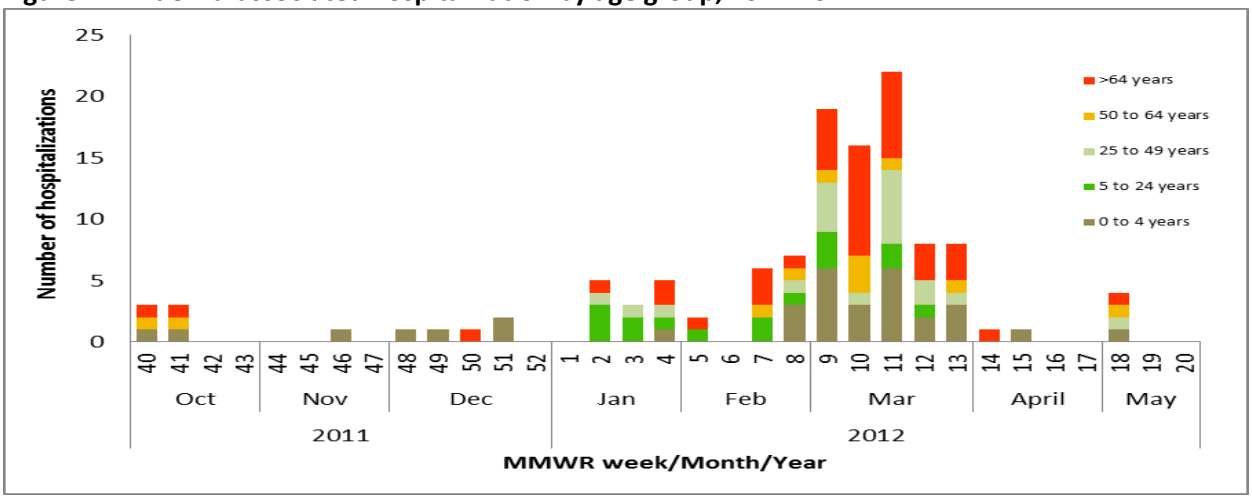


Figure 2. Influenza-associated hospitalization by age group, 2011-2012



MEASLES

There was one confirmed case of measles reported to IDPH in 2011. This case occurred in an child between 0-18 years of age.

MENINGOCOCCAL INVASIVE DISEASE

In 2011, there were 14 confirmed and probable cases or 0.5 cases for every 100,000 persons in Iowa. The age of case patients ranged from zero to 87 years old with the mean age of 49 years. Nationally, there are 0.36 cases for every 100,000 persons.

Of these cases, six were group B, four were group Y, two were W135, and two were undetermined (Table 2).

Table 2. Cases of meningococcal disease by serogroups, 2011

A	B*	C	W135	Y	Unk
0	6	0	2	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 less than or equal to three 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 outbreaks in Iowa in 2011.

Meningococcal invasive disease is fatal in 10-14 percent of cases; however, no Iowa case was fatal in 2011. There are two types of meningococcal-vaccines currently licensed for use in the US: 1) a polysaccharide vaccine and 2) a conjugated vaccine.

MUMPS

In 2011, there were seven cases of mumps or 0.3 cases per 100,000 persons, a 68.8 percent decrease over the previous three year average of 26. Case ages in 2011 ranged from five to 47 years with a median age of 22.5 years. There were no outbreaks in Iowa in 2011.

In 2006, Iowa was the center of the largest mumps outbreak in 20 years in the US with 1,963 confirmed and probable cases. Prior to 2006, most cases were typically imported from countries with endemic disease.

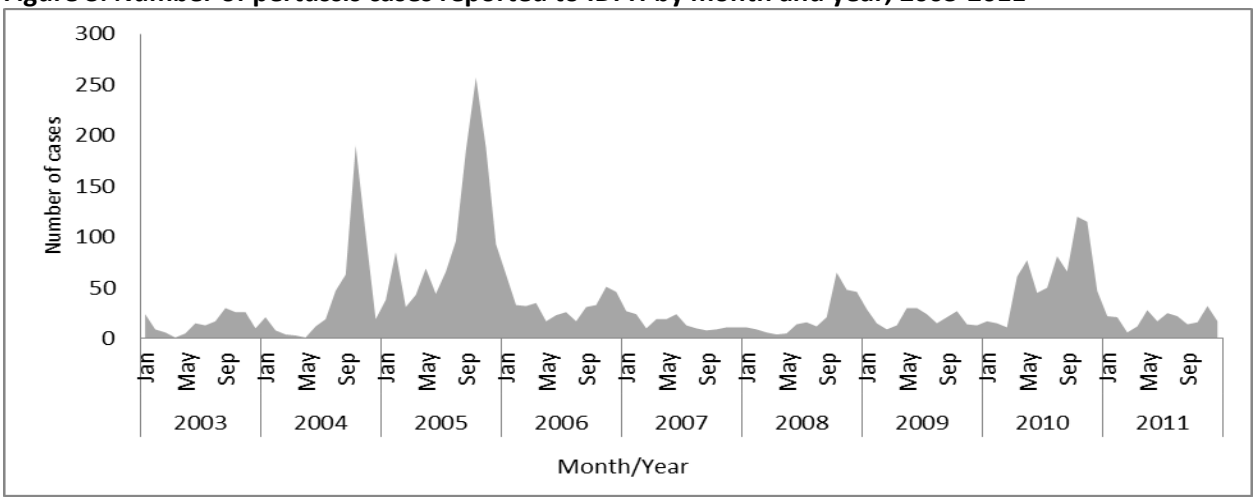
PERTUSSIS (WHOOPING COUGH)

Pertussis is caused by *Bordetella pertussis* and typically causes epidemics every three to five years. In 2011, there were 232 confirmed and probable cases reported to IDPH or 7.6 cases for every 100,000 persons in Iowa, which accounts for a 67.1 percent decrease in activity over the previous three-year average. High levels of activity also occurred in 2004 and 2005 (Figure 3).

Nearly half (45%) of 2011 cases occurred in children ages 0 to fourteen years, and especially children ages ≤ four. Four percent of pertussis cases were hospitalized. The highest numbers of cases were reported in the eastern region of the state.

The most common symptoms are paroxysms (fits of coughing), followed by posttussive vomiting, whooping, and apnea. Rare, but serious secondary conditions reported included pneumonia, encephalopathy and seizures.

Figure 3. Number of pertussis cases reported to IDPH by month and year, 2003-2011



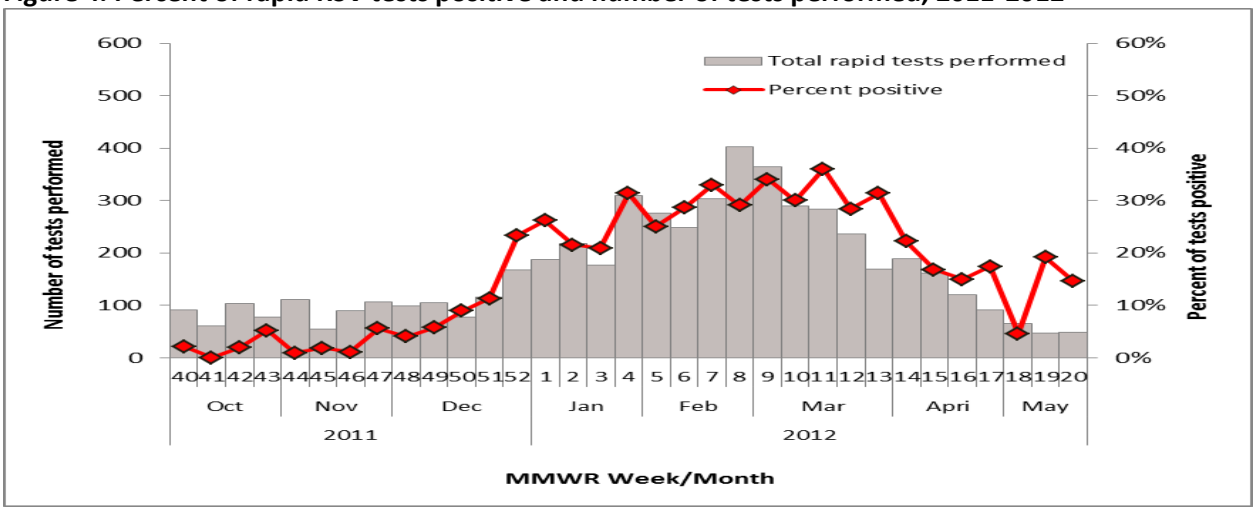
RESPIRATORY SYNCYTIAL VIRUS (RSV)

Sentinel surveillance for respiratory syncytial 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 (Figure 4). In addition, various labs including SHL report polymerase

chain reaction (PCR) or culture confirmation of RSV as a means to verify the presence of RSV in Iowa. The typical RSV season in Iowa extends from December through May.

Nationally, RSV surveillance is conducted by CDC using data from the National Respiratory and Enteric Virus Surveillance System. Data are reported from sentinel laboratories throughout the US on a voluntary basis. Recent research has highlighted variability among different regions and states in the US[4].

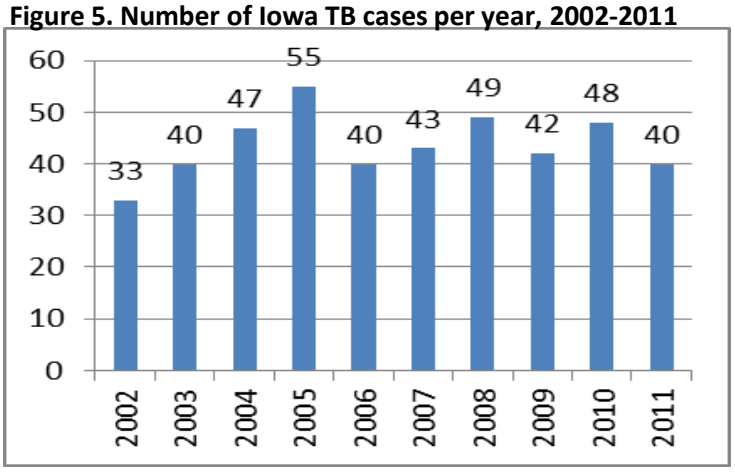
Figure 4. Percent of rapid RSV tests positive and number of tests performed, 2011-2012



TUBERCULOSIS (TB)

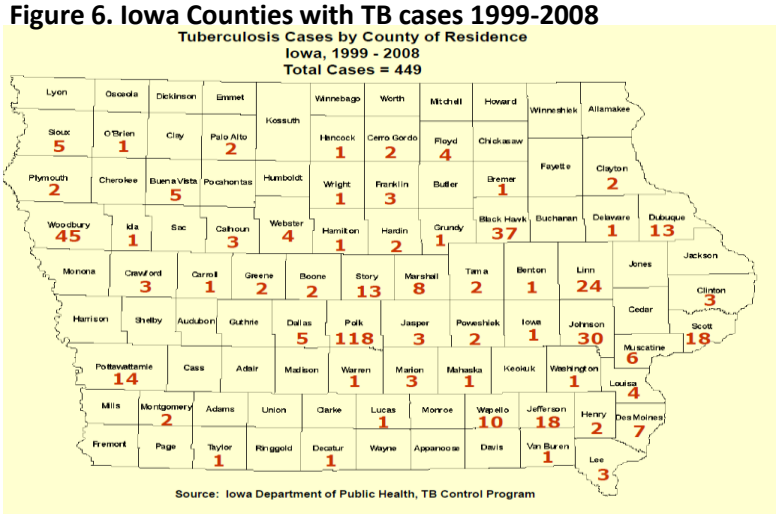
In 2011, Iowa reported 40 cases of active TB disease. Since 2002, Iowa averaged almost 44 cases of TB each year (Figure 5). Although case rates are declining, many cases have existing co-morbidities that make TB treatment considerably more complex and require extensive care, including the use of second line drugs. Treatment with second line drugs is complicated and expensive, requiring expert consultation and extended treatment durations.

Figure 5. Number of Iowa TB cases per year, 2002-2011



Counties with larger population centers such as Polk, Woodbury and Black Hawk report the majority of TB cases. However, as Figure 6 illustrates, many (55/99) Iowa counties reported TB cases during calendar years 1999-2008.

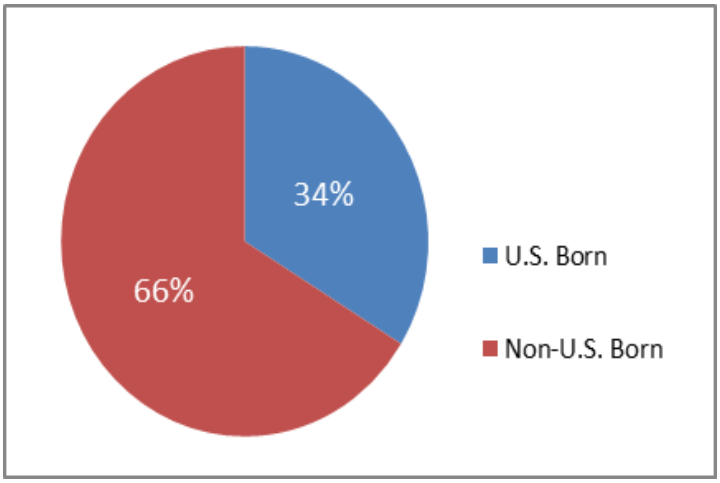
Figure 6. Iowa Counties with TB cases 1999-2008



The 2011, TB case rate for Iowa is 1.3 cases per 100,000 persons. This is significantly lower than the national average of 3.6 cases per 100,000 persons. Iowa owes its low TB case rate in part to proficient contact

investigations, healthcare providers observance of treatment guidelines, adherence to the Directly Observed Therapy for active disease cases and the provision of medication for latent TB infections to thousands of Iowans annually.

Figure 7. Percent of US born versus non-US born TB cases in Iowa 2002-2011



The proportion of reported TB cases in non-US born persons has increased significantly in the past two decades. In 1995, for example, non-U.S. born persons accounted for 38 percent of reported TB cases Iowa. From 2002 – 2011, non-US born persons accounted for 66 percent of reported TB cases Iowa (Figure7). Non-US born persons account for only four percent of the Iowa population, highlighting the disparity. The decreasing numbers of US-born cases are due, in part, to effective TB control practices in this country.

In many parts of the developing world, TB is still widespread and remains a leading cause of death. Immigration of people from these countries to the United States illustrates that what happens in one part of the world directly impacts other parts of the world. Effective targeted testing programs for newly arriving refugees, immigrants, and students play a major role in identifying and treating these populations.

Figure 8: Iowa TB cases by country of origin 2002-2010

Country of Origin Data

For 2011, 29 individuals emigrating from 15 countries (excludes US) developed TB in Iowa. Figure 8 represents 290 individuals, emigrating from 47 countries (excludes US) who developed TB disease after their arrival to Iowa 2002-2010. As the map illustrates, TB anywhere is TB everywhere. Approximately 95 percent of all patients with active TB disease live in the developing world, where 99 percent of all TB deaths occur. TB is a good example of the global nature of public health. It is important to implement consistent and aggressive public health measures to halt TB disease, which left untreated, kills half of its victims.

For a detailed overview of TB, see the https://idph.iowa.gov/Portals/1/Files/IMMTB/TB%20Annual%20Report%20Final.pdf

Summary of sexually transmitted diseases, HIV and AIDS, and hepatitis C,

HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

Although there has been some year to year fluctuation, HIV diagnoses have been increasing at a rate of about three each year since 2000. There were 120 HIV diagnoses in 2011, an increase of six (five %) from the 114 diagnoses reported in 2010 and also higher than the average of 115 for the previous five years. There were 3.9 HIV diagnoses per 100,000 population in 2011, compared to 3.7 HIV diagnoses per 100,000 population in 2010 and 4.1 HIV diagnoses per 100,000 population in 2009. Figure 9 charts the number of HIV diagnoses by year for the years 2000 through 2011.

While males have always accounted for the majority of HIV diagnoses, this has become even more pronounced since 2003. Diagnoses among males had increased steadily, from 56 in 2003 to 105 in 2007. Since then, the number of diagnoses was fluctuated, averaging 96 per year from 2008 through 2011. There were 100 diagnoses among males in 2011. In contrast, the number of diagnoses among females decreased from 33 in 2003 to 19 in 2006 and has averaged 19.5 per year since then. There were 20 females diagnosed in 2011. The proportion of diagnoses in males has stabilized at around 83 percent (about five males for every female) since 2007. This is in contrast to 75 percent male (three males to one female) from 2003 through 2006.

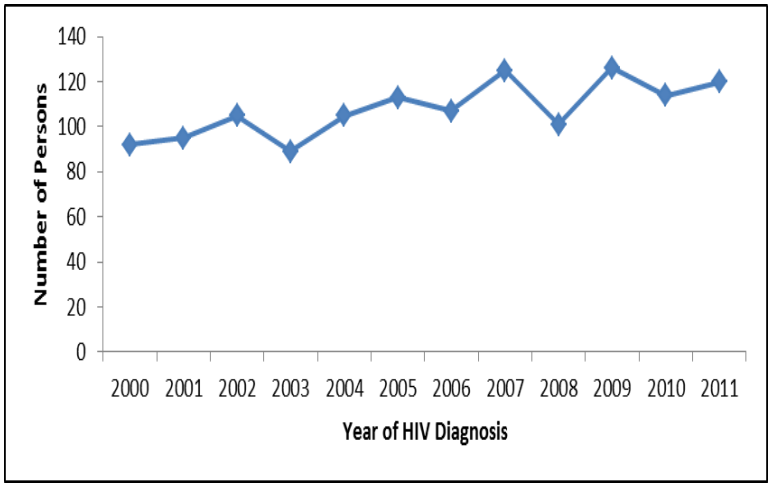


Figure 9. Number of HIV diagnoses by year, 2000 -2011

Diagnoses of HIV among the foreign born have declined from the 10-year high recorded in 2002 when 32 (30%) of the 105 persons diagnosed with HIV were foreign born. By comparison, 27 (22.5%) of the 120 persons diagnosed in 2011 were born in a country other than the United States (or one of its dependencies).

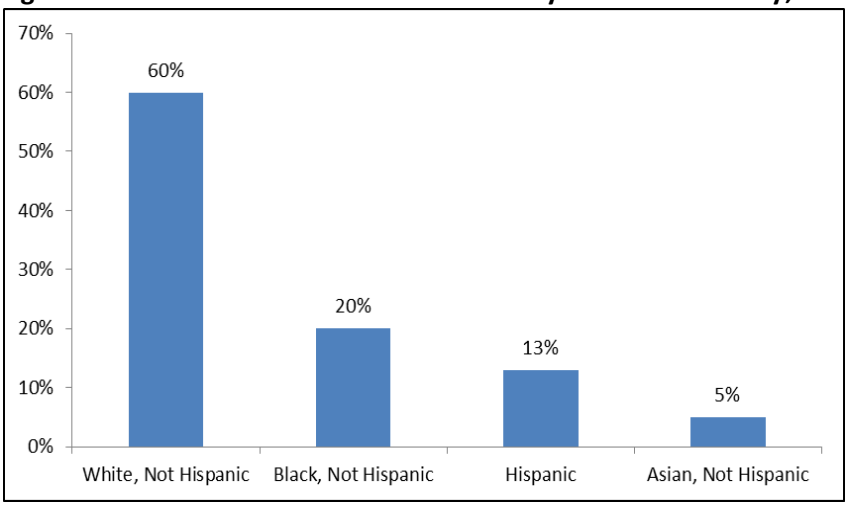
The gradual increase in HIV diagnoses since 2000 is largely attributed to increases in diagnoses among males, and in particular, among those 13 to 24 years of age and 45 years of age and older. For the past three years, diagnoses among persons 13 to 24 years of age have numbered 20 or more. Twenty-eight persons between the ages of 13 to 24 years were diagnosed in 2011, an increase of 7 (33%) from the 21 diagnoses in 2010, and four times the diagnoses recorded in 2003. While this is concerning, it is important not to lose sight of the fact that diagnoses among persons 25 to 44 years of age accounted for half of all diagnoses, with 61 persons diagnosed in 2011. The number of diagnoses among persons 45 years and older, which had increased steadily from 18 in 2003 to a peak of 39 in 2007, decreased slightly, from 33 in 2010 to 30 in 2011. There was one pediatric HIV diagnosis in 2011, a child born to an HIV-infected mother.

For persons 13 years of age and older (adults and adolescents), the median age at diagnosis in 2011 was 34 years. Adult/adolescent males, whose median age at diagnosis was 35 years, tended to be slightly older than females whose median age was 31 years. There were 24 diagnoses in 2011 among

non-Hispanic African Americans, a decrease of six (20%) from 30 diagnoses in 2010, and near the four year average of 22 from 2007 through 2010. While non-Hispanic African-Americans made up almost 3 percent of Iowa's population in 2011, they accounted for 20 percent of the new HIV diagnoses. This equates to 26.9 diagnoses per 100,000 non-Hispanic African-Americans. Hispanics were also overrepresented among persons diagnosed with HIV. While making up five percent of Iowa's population, Hispanics accounted for 13 percent of new HIV diagnoses in 2011. A total of 15 Hispanics were diagnosed in 2011, equating to 9.9 per 100,000 Hispanics. While non-Hispanic Asians accounted for five percent of HIV diagnoses in 2011, their numbers are too small to calculate a statistically reliable rate.

Despite the disparities in diagnoses among African Americans and Hispanics, the largest proportion of new diagnoses continued to be among white non-Hispanics, accounting for 60 percent of new HIV diagnoses in 2011. A total of 72 white non-Hispanics were diagnosed in 2011, equating to 2.7 per 100,000 population. When the numbers of persons diagnosed per 100,000 population are compared, non-Hispanic African Americans were 10 times more likely to have been diagnosed with HIV in 2011 than white, non-Hispanics. Similarly, Hispanics were 3.7 times more likely to have been diagnosed than white non-Hispanics. Figure 10 shows the percent distribution of new HIV diagnoses by race and ethnicity.

Figure 10. Percent distribution of HIV cases by race and ethnicity, 2011



Men-who-have-sex-with-men (MSM) remained the leading category for mode of exposure to HIV infection. Diagnoses among MSM in 2011 numbered 66, compared to the five year average of 64 from 2006 to 2010. In 2011, MSM accounted for 55 percent of all diagnoses, in line with the five-year average of 55 percent. It is important to note that 18 (86 %) of the 21 diagnoses in young men between the ages of 15 and 24 were among MSM.

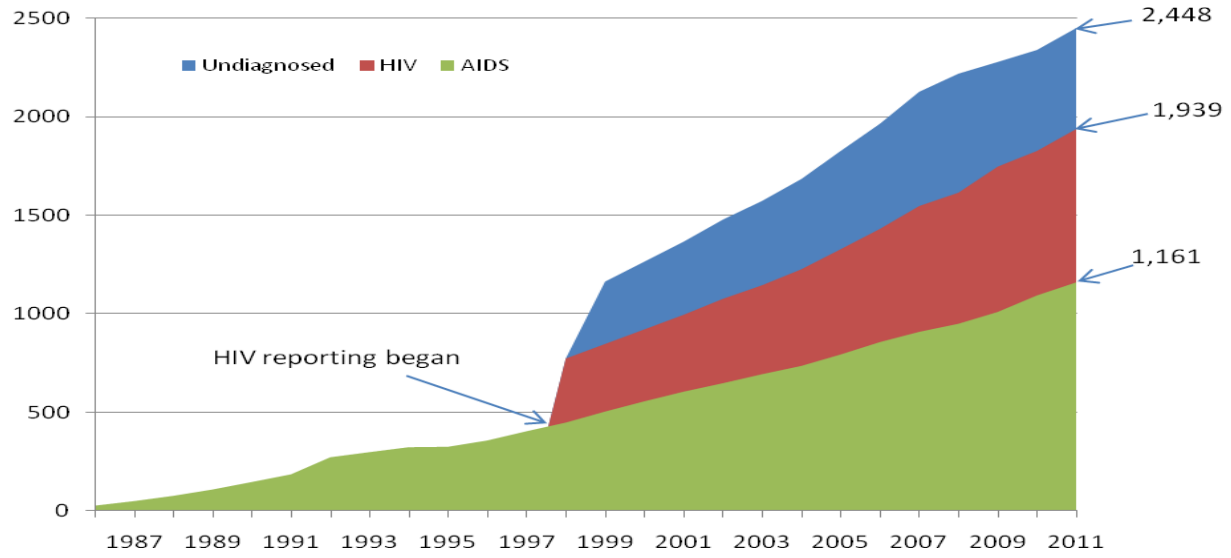
Numbers (and proportions) of other modes of HIV exposure in 2011 were as follows: injection drug use (IDU), three (3%); men-who-have-sex-with-men and inject drugs (MSM/IDU), eight (seven %); heterosexual contact, 23 (19 %); and no identified risk (NIR), 19 (16 %). As noted, one infection was passed from mother to child during pregnancy or labor and delivery (such infections are termed "perinatal" or "vertical" transmission).

Seventy-four persons were diagnosed with AIDS in 2011, similar to 73 in 2010 and down from 92 (the highest number since 1996) in 2009. The 74 diagnoses in 2011 are slightly fewer than the average of 76 for the five years from 2006 through 2010. Of those diagnosed with AIDS in 2011, 40 (54%) were also newly diagnosed with HIV and had received a concurrent diagnosis of AIDS or progressed to AIDS by the end of 2011. This finding is more an indication of prevention failures than it is of treatment failure or access to care.

HIV/AIDS prevalence continues to increase. As of December 31, 2011, there were 1,939 persons living with HIV or AIDS who were Iowa residents at the time of diagnosis of HIV or AIDS, a prevalence of 64 per 100,000 people. This compares to 1,823 persons living with HIV/AIDS on the same date in 2010, a

prevalence of 60 per 100,000. Figure 11 depicts 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 on CDC's estimate of the number of persons who are infected but have not been diagnosed. When the number of 1,939 is adjusted for underreporting (1%) of diagnosed HIV and AIDS and for CDC's estimated percentage of undiagnosed infections (20%), there may have been as many as 2,448 Iowans living with HIV or AIDS at the end of 2011.

Figure 11. Estimated number of persons living with HIV or AIDS in Iowa on December 31 of each year, 1987-2011



HEPATITIS C

Hepatitis C is the most common chronic blood borne pathogen in the United States. According to the Centers for Disease Control and Prevention (CDC) there were an estimated 3.2 million people chronically infected with hepatitis C in the United States. According to the 2010 census population estimate for Iowa, there were 3,046,355 people residing in the state. CDC estimates that 1.8 percent of the state's population, or 54,834 Iowans, has potentially been infected with the hepatitis C virus. To date, approximately 9,459 cases of hepatitis C have been identified by IDPH.

Hepatitis C data are collected using 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.

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 disease surveillance, IDPH supports targeted voluntary screening at 68 public sites throughout Iowa. IDPH also works with private health care providers to increase screening.

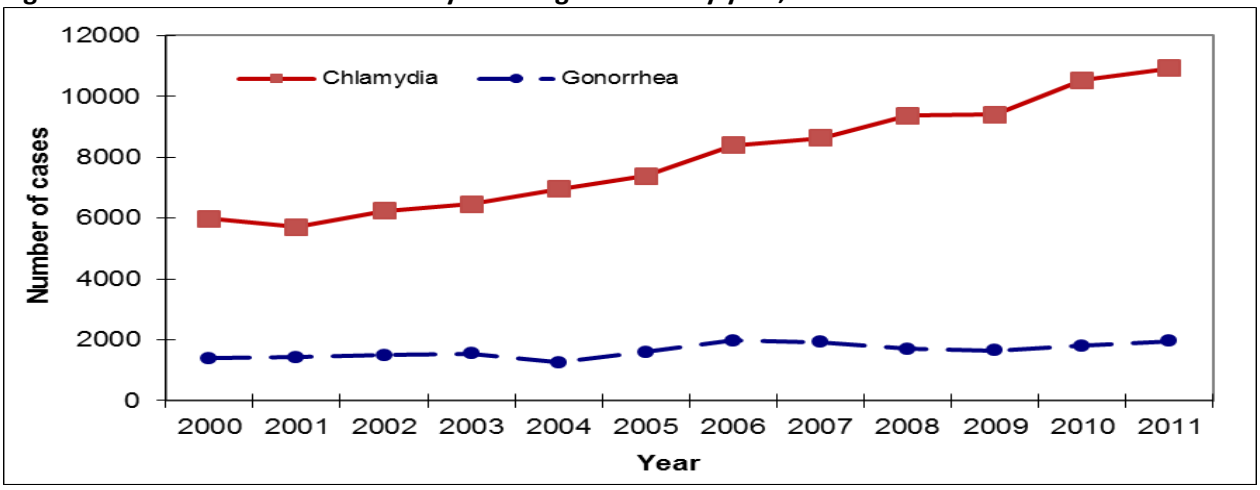
IDPH provides free treatment to individuals with positive STD tests at public testing sites. Sexual partners may be treated as well. In 2008, *Iowa Code 139A* was updated to allow for expedited partner therapy (EPT). This statute allows health care practitioners to give medications or prescriptions to their patients or to public health professionals to pass along to exposed partners, particularly when the partner is unable or unwilling to come in to a clinic for examination.

Chlamydia

Genitourinary infections caused by *Chlamydia trachomatis* are extremely common in some populations. In fact, chlamydial infections account for the greatest number of cases of any reportable disease in the United States and in Iowa. Diagnoses of chlamydia have increased steadily during the past few decades. The reasons for this increase are varied. The most important reason is that testing technology has improved, allowing for more sensitive tests and more convenient ways to test. The use of nucleic acid amplification tests (NAATs) for the detection of *Chlamydia trachomatis* became widespread in Iowa in the mid-2000's. This method of detection is much more sensitive than the previously used method of cell culture. NAATs also permit the use of a greater variety of specimen types. Urine and vaginal specimens (which can be collected much less invasively than the traditional specimen types of cervical and urethral) can be used for NAATs. Because most chlamydial infections cause no symptoms, there is a large pool of undiagnosed chlamydia in certain populations. As testing methodology has improved and as testing has increased, the number of cases reported has also increased.

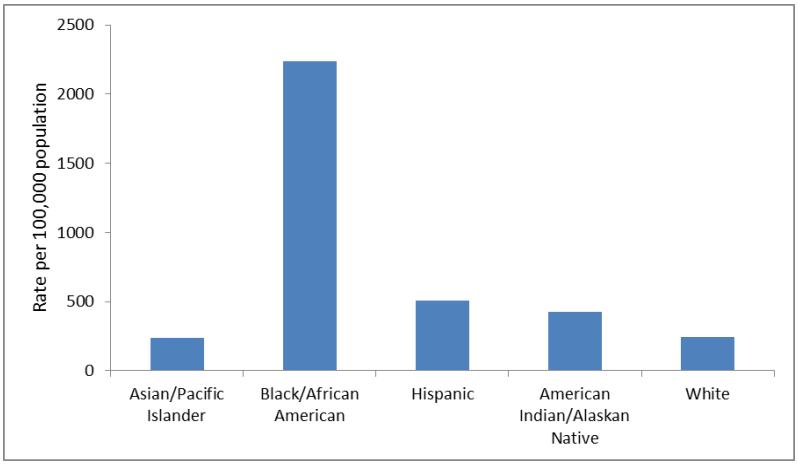
In 2011, 10,928 cases of chlamydia were reported to IDPH (Figure 12). This equates to 363 cases per 100,000 population. Iowa is lower than the U.S. average of 426 cases per 100,000 population. Both nationally and in Iowa, adolescents and young adults are the most impacted populations. In Iowa, 88 percent of reported infections occurred in persons 15 to 29 years of age.

Figure 12. Number of cases of chlamydia and gonorrhea by year, 2000-2011



Chlamydia also disproportionately affects people of color in Iowa (Figure 13). Although African-Americans and other Black persons accounted for three percent of the population in Iowa, 19 percent of chlamydial infections were diagnosed in this population. In fact, according to national data from CDC[6], Iowa ranks number one in the nation for the rate of chlamydia among the African-American/Black population in the US.

Figure 13. Chlamydia rates in Iowa by race, 2011



Gonorrhea

Nationally, the number of reported cases of gonorrhea has remained fairly steady over the past decade. However, Iowa has experienced a gradual increase in the number of reported cases in recent years. NAATs have been utilized for gonorrhea as they have been for chlamydia. The most widely used tests incorporate gonorrhea and chlamydia testing into a single specimen collection. Thus, patients are typically tested for both infections simultaneously.

In 2011, 1,966 cases of gonorrhea were reported to IDPH (Figure 12), which equates to 65 cases per 100,000 population. This is well below the national average of 101 cases per 100,000 population. Gonorrhea has many similarities with chlamydia, chief of which is the population (i.e., adolescents/young adults) that it predominately affects. Eighty-one percent of reported cases in Iowa were among persons 15 to 29 years of age. African-Americans/Blacks are even more disproportionately affected by gonorrhea than they are by chlamydia in Iowa. Forty-four percent of reported cases were among African-Americans. Iowa also ranks number one for its rate of gonorrhea among African-Americans in the US.

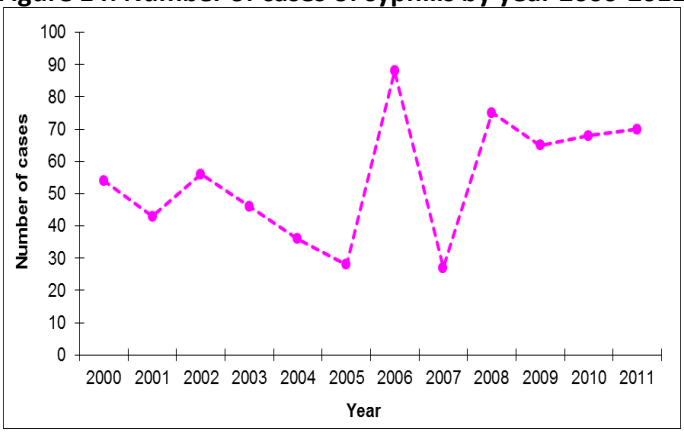
Antimicrobial resistance is of continuing concern with *Neisseria gonorrhoeae*. The only class of antimicrobials still effective in the treatment of gonococcal infection is the cephalosporins. All other classes of antimicrobials possess insufficient efficacy to cure the infection on their own. Current guidelines recommend dual therapy of ceftriaxone with azithromycin or doxycycline[7]. Dual therapy is recommended because individuals infected with gonorrhea are often co-infected with chlamydia. Additionally, dual therapy may slow the development of resistance to cephalosporins. It is anticipated that *N. gonorrhoeae* will soon develop resistance to the cephalosporins, at which time treatment will become much more difficult. No new antimicrobials are available to treat gonorrhea. Researchers are investigating the use of drug combinations to cure gonococcal infections but their efficacies are unsubstantiated at this time.

The significant disparities among African-Americans, the likelihood of further antimicrobial resistance by *N. gonorrhoeae*, and the steady number of cases make improving gonorrhea prevention a priority for IDPH and CDC.

Syphilis

Iowa is a low-morbidity state for syphilis. In 2011, only 70 cases of syphilis were reported to IDPH, a rate of 2 per 100,000 population. This is less than half the U.S. average of 4.4 per 100,000 population. The preponderance of syphilis cases occurred in men, accounting for 66 percent of reported cases in 2011. Of these, the majority were men who have sex with men (MSM). Co-infection with HIV is a concern with this population, so concurrent testing for HIV is recommended for persons at risk for syphilis.

Figure 14. Number of cases of syphilis by year 2000-2011



African-Americans in Iowa are disproportionately affected by syphilis. Twenty-nine percent of reported cases were among this population, equating to a rate of 22 cases per 100,000 population.

Elimination of syphilis from Iowa has proven difficult due to sporadic clusters of cases and the spread from other states. However, it is the goal of IDPH to follow up on every case of syphilis in Iowa and to offer treatment and partner services.

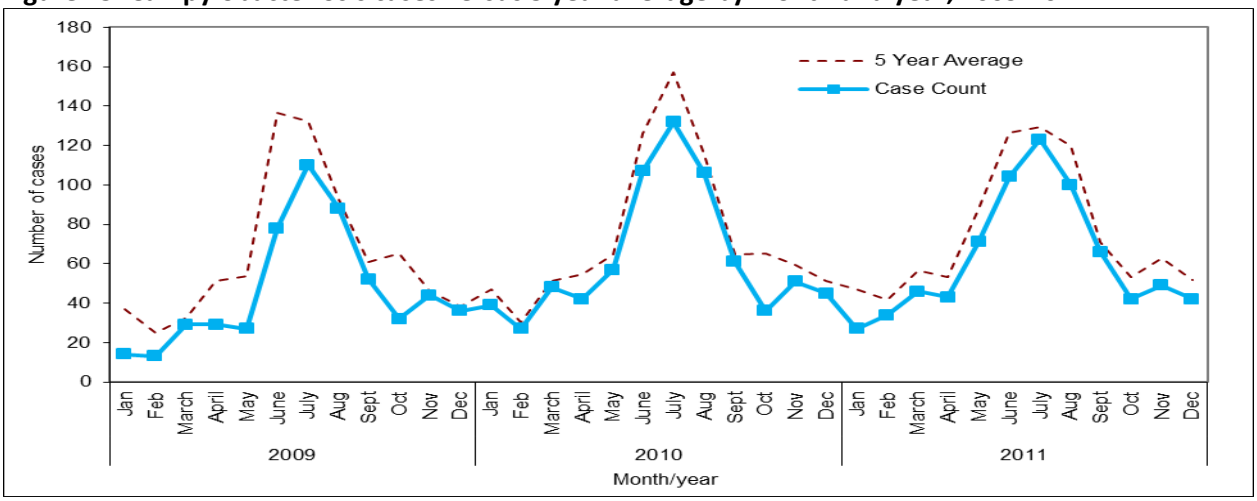
Summary of enteric diseases

CAMPYLOBACTERIOSIS

The total number of campylobacteriosis cases reported in 2011 was 747. Campylobacteriosis incidence was 24.5 cases for every 100,000 people in 2011.

Campylobacteriosis activity typically peaks in early summer. Consumption of raw, undercooked meat, raw milk, contaminated water, and contact with infected animals are common sources of campylobacter infection. In 2011, IDPH interviewed all reported people with *Campylobacter* and those people who were epidemiologically linked in an attempt to identify clusters. No clusters were identified, but the interview information was helpful to assess risk factors for Campylobacteriosis.

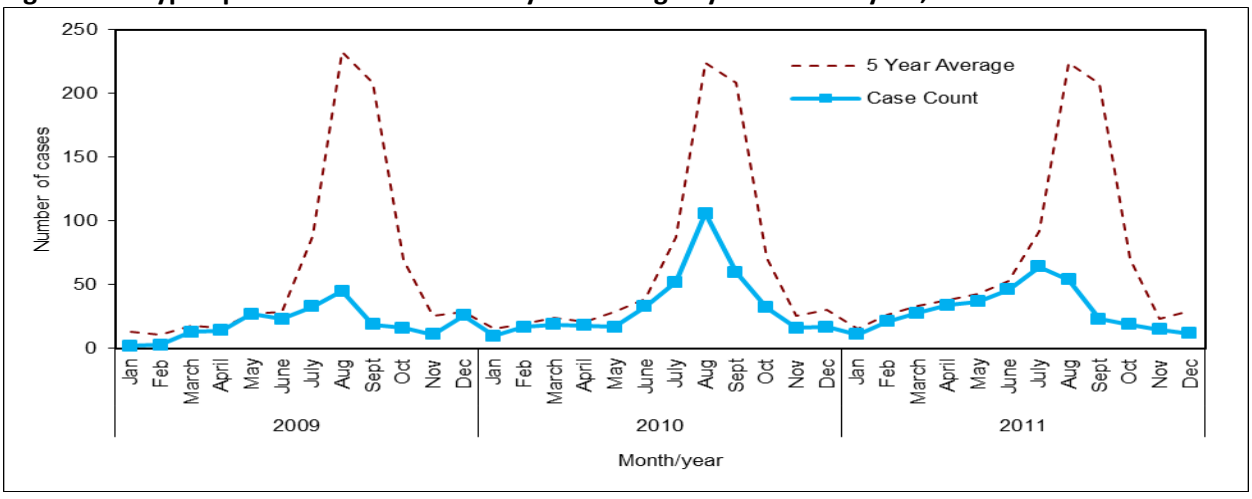
Figure 15. Campylobacteriosis cases versus 5 year average by month and year, 2009-2011



CRYPTOSPORIDIOSIS

Cryptosporidiosis activity in 2011 decreased over activity in 2010. There were 11.9 cases for every 100,000 Iowans in 2011, compared to 13.2 in 2010. Most cases reported either child care attendance or recreational water exposure. One outbreak was investigated that involved animal contact at a day camp.

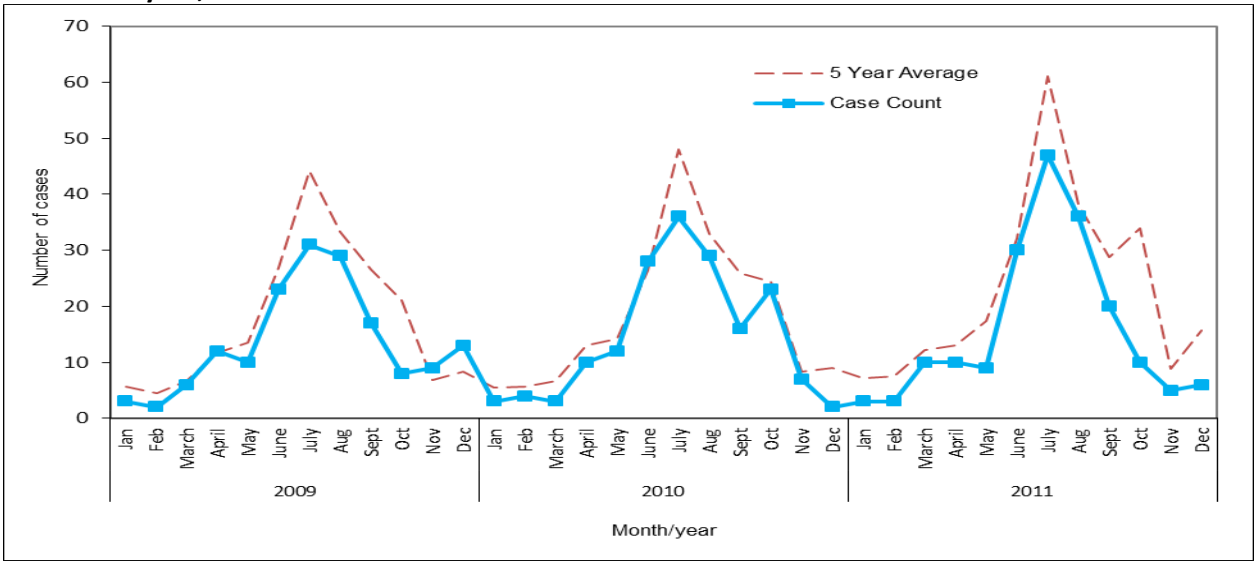
Figure 16. Cryptosporidiosis cases versus 5 year average by month and year, 2009-2011



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

The incidence of *E. coli* shiga-toxin cases in Iowa increased slightly to 6.2 cases per 100,000 persons in 2011 from 5.8 cases per 100,000 persons in 2010. There were 189 cases reported in 2011. IDPH assisted in a national outbreak investigation involving romaine lettuce and one state outbreak associated with a meal served in a private home in 2011.

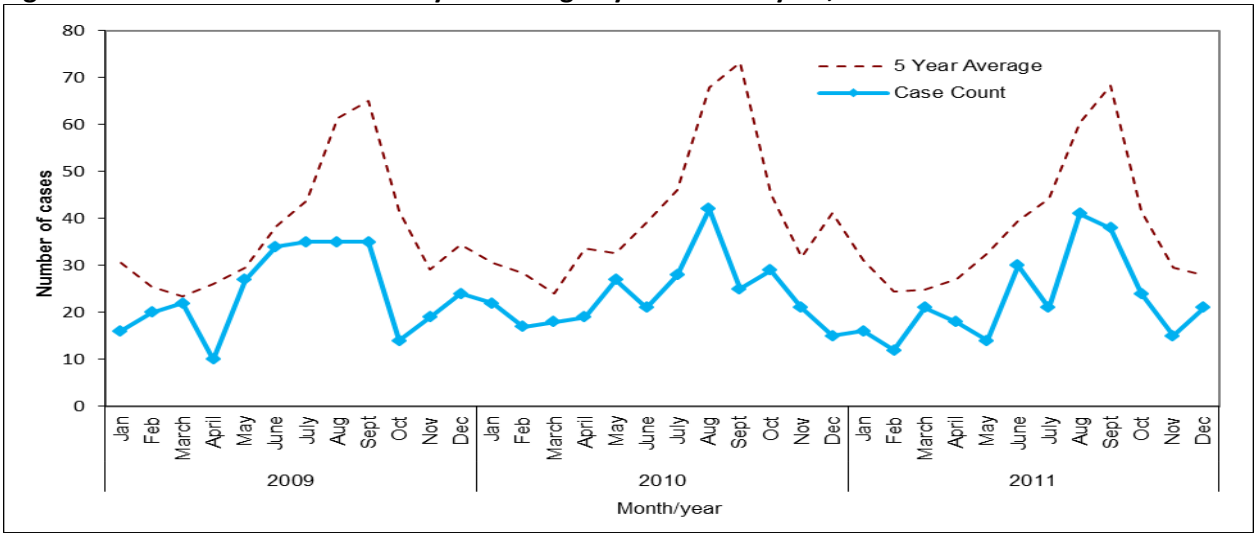
Figure 17. *E. coli* O157:H7 and other shiga-toxin producing strains cases versus 5 year average by month and year, 2009-2011



GIARDIASIS

Giardiasis is one of the leading waterborne diseases. It typically peaks in late summer or early fall. In 2011, there were 271 cases in Iowa. Diapered children and those in child care are most likely to become infected with giardia. Twenty-one percent of cases were age five and under. There were 8.9 cases for every 100,000 Iowans compared to 9.4 per 100,000 in the previous year.

Figure 18. Giardiasis cases versus 5 year average by month and year, 2009-2011

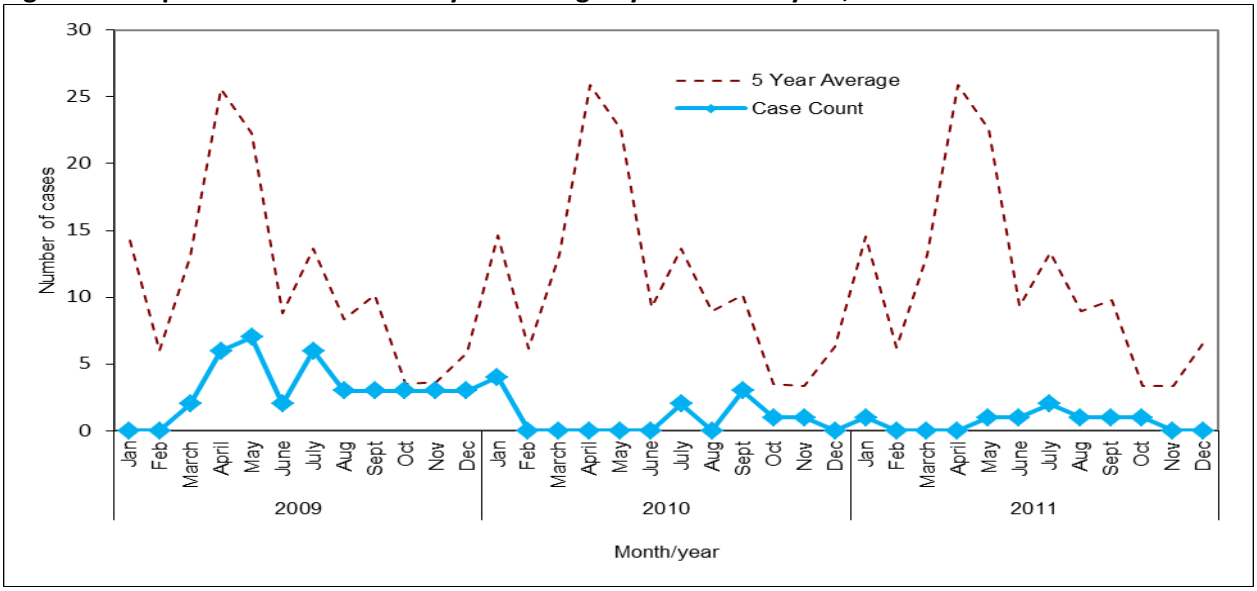


HEPATITIS A

In 2011, there were eight cases of hepatitis A reported in Iowa. This represents an 81 percent reduction over the previous three year average of 41, most likely due to increases in vaccination. Cases ranged

from 20 to 69 years of age, with only one case younger than 25. Seventy-five percent of cases were males. None of the illnesses were associated with outbreaks.

Figure 19. Hepatitis A cases versus 5 year average by month and year, 2009-2011



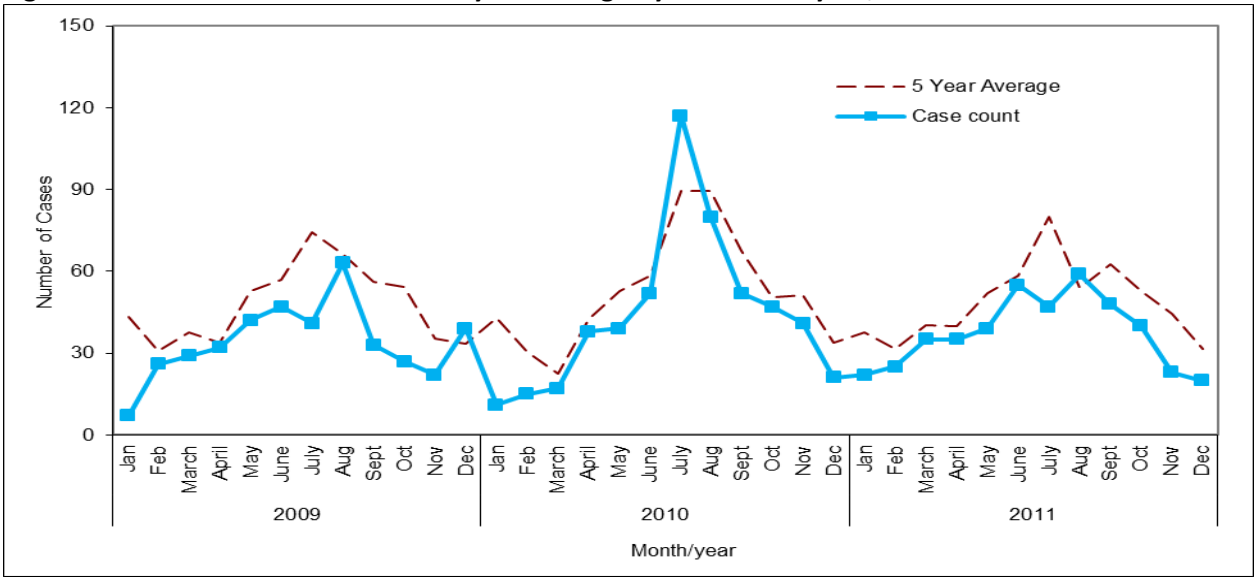
LISTERIOSIS

There were five cases of *Listeria monocytogenes* infections reported in 2011. One case was associated with a national *Listeria* outbreak involving cantaloupes.

SALMONELLOSIS

Salmonellosis incidence in 2011 decreased to 14.7 cases per 100,000 persons from 17.6 cases per 100,000 persons in 2010. The total number of cases reported was 448. IDPH participated in two national outbreaks, one associated with ground turkey; the other with a major chain restaurant. A statewide outbreak involving baby chicks was also investigated.

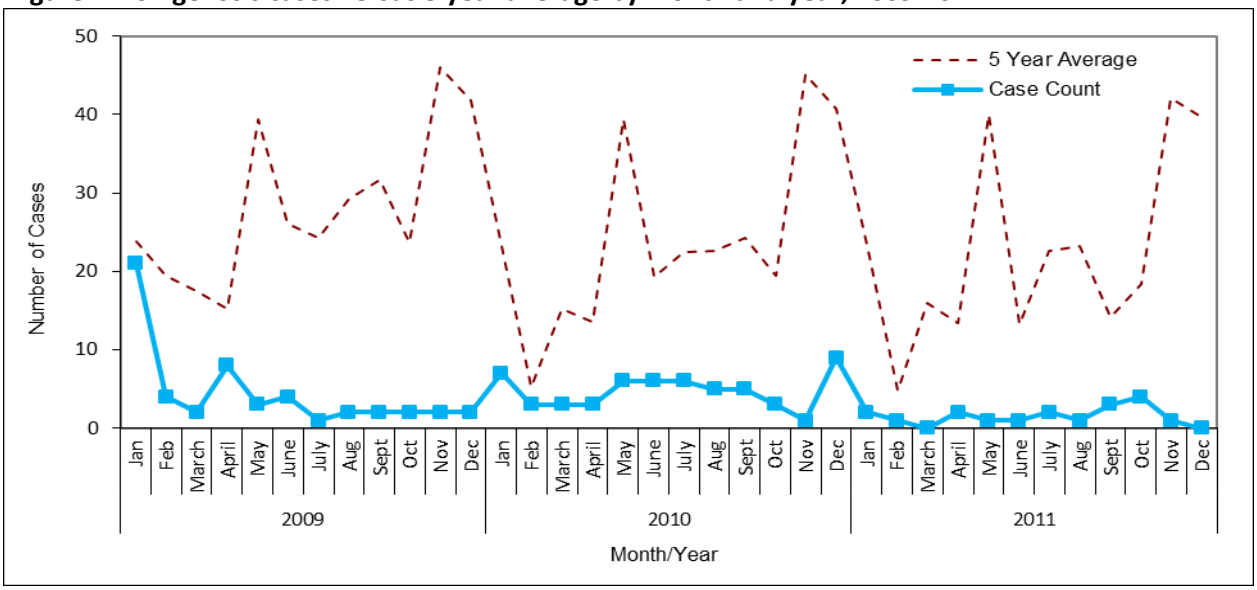
Figure20. Salmonellosis cases versus 5 year average by month and year, 2009-2011



SHIGELLOSIS

In 2011, there were 18 cases of *Shigella* in Iowa. This was an approximate 83 percent decrease over the average number of cases for the past three years. *Shigella* infections were reported in all areas of the state. Approximately 39 percent of cases were under five years old; approximately 39 percent in persons aged 24-64 years. This corresponds to children and their parents or caretakers being at most risk.

Figure 21. Shigellosis cases versus 5 year average by month and year, 2009-2011



Summary of zoonotic diseases

DENGUE FEVER

In 2011, five cases of Dengue fever were reported to IDPH, an increase of three from the cases reported in 2010. Of the five cases, two were female and three were male. Four were with international travel to countries where the Dengue virus is endemic and one with location acquired unknown.

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 2011, there were eight cases of ehrlichiosis/anaplasmosis reported to IDPH, an increase of six from the cases reported in 2010. Median age of the cases was 59 years.

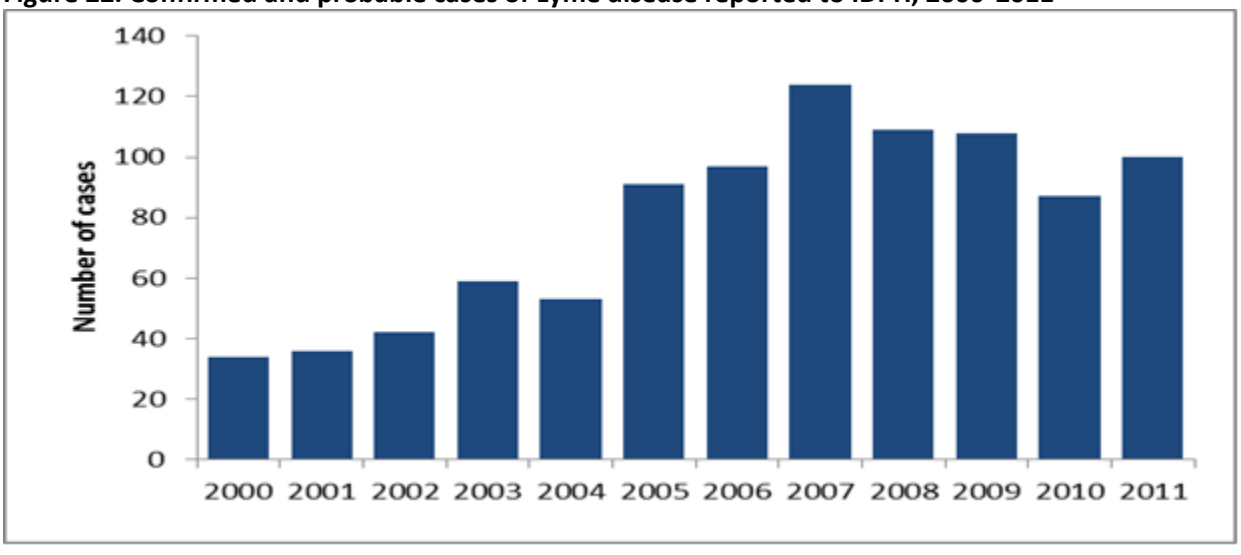
HANTAVIRUS

There was one report of hantavirus pulmonary syndrome (HPS) case in Iowa in 2011. There have been eight 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, primarily the blacklegged tick. Symptoms of Lyme disease include fever, headache, fatigue, and a "bull's-eye" skin rash also known as erythema migrans. There were 100 cases of Lyme disease reported to IDPH in 2011. The 2011 Iowa case rate for Lyme disease was 3.3 per 100,000. Cases ranged from ages two to 89.

Figure 22. Confirmed and probable cases of Lyme disease reported to IDPH, 2000-2011



MALARIA

Twenty-two cases of malaria were identified in Iowa in 2011, an increase of eight from the 14 cases reported in 2010; 19 patients acquired their infections outside the US and three cases had no information on location acquired for their infections.

RABIES, ANIMAL

In 2011, 25 cases of animal rabies were reported in Iowa, which is a slight decrease from 2010 (Table 4). Rabies was identified most frequently in wildlife species including 12 bats and 7 skunks. Three cases were diagnosed in cats; three cows also tested positive.

During 2011, 1,493 animals in Iowa were tested for rabies and 25 were confirmed positive (1.7 %). The percent positive varies greatly by species (Table 3). It is important to note that these data are greatly influenced by the number of animals tested and typically only animals that have exposed humans are 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.

Table 3. Number of animals positive for rabies virus by species, 2011

Species	Positive	Total Tested	% Positive
Cow	3	67	4.48%
Cat	3	369	0.81%
Bat	12	506	2.37%
Skunk	7	22	31.82%

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), SHL can differentiate the rabies strain that infected the animal. In 2011, SHL was able to identify the rabies strain in 22 of the 25 positive rabies cases; 11 were skunk strain and 11 were bat strain. Skunk strain rabies was identified in seven skunks, three cows, and one cat. Bat strain rabies was identified in 10 bats and one cat. For more information about rabies, visit
https://idph.iowa.gov/rabies

Table 4. Number of animals positive for rabies by species and by year, 2001-2011

Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bat	31	27	47	47	60	28	13	11	11	10	12
Skunk	28	27	38	28	33	13	5	7	13	13	7
Cat	10	7	8	11	5	7	7	9	3	1	3
Cow	10	12	3	10	7	4	0	1	5	1	3
Dog	2	3	6	3	2	2	5	1	2	1	0
Horse	3	2	3	0	1	3	1	0	0	0	0
Fox	1	0	0	1	0	0	0	0	0	1	0
Squirrel	0	0	0	0	0	0	0	0	1	0	0
Badger	0	0	1	0	0	0	0	0	0	0	0
Total	**85**	**78**	**106**	**100**	**108**	**57**	**31**	**29**	**35**	**27**	**25**

RABIES, HUMAN

Iowa's most recent human rabies case occurred in 2002, and was caused by the bat strain. Prior to that, the last reported human 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, it is estimated that approximately 390 Iowans receive preventive treatment each year.

ROCKY MOUNTAIN SPOTTED FEVER (RMSF)

In 2011, there were seven 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 the state. The tick is most active late March through August. Iowa RMSF cases in 2011 had symptom onset dates from February to November. Cases ranged from age 9 to 81, with a median age of 35. Five cases are male and two female.

WEST NILE VIRUS

There were nine human cases of West Nile virus reported to IDPH in 2011. Five of the nine cases were hospitalized, and all survived this illness. Cases ranged from age 29 to 73, with a median age of 55. Seven cases were male and two were female. For more information about this disease, visit https://idph.iowa.gov/cade/disease-information/west-nile-virus.

Table 5. Iowa West Nile virus activity by species and outcome, 2002-2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Human cases	54	147	23	37	37	30	5	5	9	9
Human deaths	2	6	2	2	0	3	1	0	2	0
Sentinel chickens	31	15	9	19	18	18	3	6	14	14
Mosquito pools	8	27	0	7	15	5	5	9	7	5
Horses	1142	96	18	15	12	10	4	3	2	1

Summary of Rare and Unusual Diseases

Legionellosis
The average number of *Legionella* cases for the past three years is 20 cases. There were 11 cases of legionellosis reported to IDPH in 2011. Of these cases, 10 were hospitalized and one died from the disease.

Toxic Shock Syndrome
There was one case of Toxic Shock Syndrome reported to IDPH in 2011, which occurred in a 19 year-old female.

Tularemia
There were three cases of tularemia reported to IDPH in 2011. Two cases were male and one, female. Age ranged from 34 to 68 with a median age of 59 years.

There were no cases of human illness reported for the following diseases:
Hansen's disease (Leprosy)
Hepatitis E
Psittacosis
Tetanus
Yellow Fever

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; additionally more than 20,000 visit the emergency room, and more than 4,000 are hospitalized due to CO poisoning. Fatalities are 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 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 and intervention.

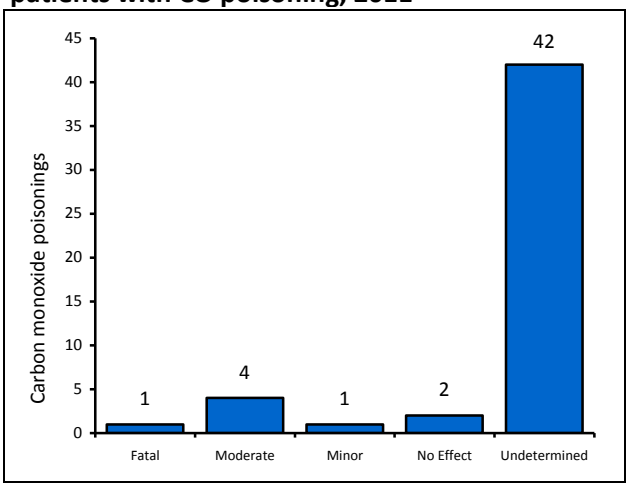
In 2011 there was one reported death from CO exposure in Iowa. Seventy-four individual reports of CO exposure were received by IDPH. Fifty of these reports met the case definition for carbon monoxide poisoning.

Table 6. Gender of cases with carbon monoxide poisoning meeting case definition, 2011

	Number of cases
Male	32
Female	15
Total	50*

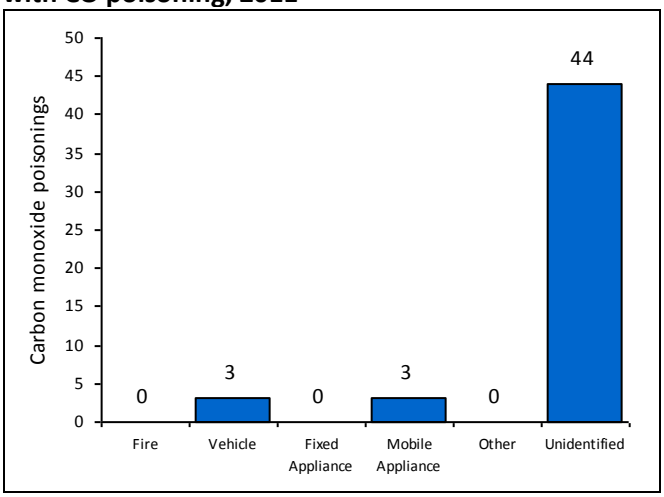
*Gender was not specified for 3 cases.

Figure 23. Severity of health impact among case patients with CO poisoning, 2011



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 24. Sources of exposure among case patients with CO poisoning, 2011



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

METHEMOGLOBINEMIA

Methemoglobinemia is a blood disorder caused when nitrite interacts with the hemoglobin in red blood cells, reducing the ability to carry sufficient oxygen to individual body cells. Infants under six months of age are the primary population at risk, and the condition is also known as 'Blue Baby Syndrome.' Sources of nitrite include nitrate in drinking water or from preservatives in food, some drugs, or other sources.

In 2011 there were five cases of methemoglobinemia reported in Iowa. None of the cases were infants.

HEAVY METAL POISONING (NON-LEAD)

IDPH conducts surveillance for three other heavy metals in addition to lead; arsenic, cadmium, and mercury. Cases of poisoning from these three heavy metals are rare in Iowa, and many exposures are related to industrial or hobby/small market work in industries that use these metals. Outside of industrial use, the possibility of arsenic contamination of moonshine, herbal preparations, and nutritional supplements also must be considered as a source of exposure. Other potential sources of mercury exposure include consumption of large amounts of contaminated fish and seafood; or from broken thermometers, barometers, fluorescent light bulbs, or electrical switches. In 2011, there were eight cases of mercury poisoning and no cases of arsenic and cadmium poisoning reported.

CHILDHOOD LEAD POISONING

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 six. 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 or higher.

In 2002, researchers estimated that the average decrease in lifetime earnings of a child with a blood lead level of10 µg/dL would be at least $40,000 and that the average decrease for a child with a blood lead level of20 µg/dL would be at least $80,000.

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 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. 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 group of children born during a specific year). IDPH has complete data for children born in 1991 through 2005. During that time, the percentage of children tested for lead poisoning has increased from 26 percent to 97.9 percent.

In Iowa, the prevalence of lead poisoning among children under the age of six is 3.2 percent. At the national level, the prevalence of blood lead levels greater than or equal to 10 µg/dL is too small to report. Data collected by IDPH include the number and percentage of children born in 2005 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 children who were tested for lead poisoning and identified as lead-poisoned by Medicaid status (see Table 15).

ADULT LEAD POISONING

A total of 5,690 blood lead test (BLL) results on 3,155 Iowans were recorded by the Iowa Adult Blood Lead Epidemiology and Surveillance (ABLES) program for adults 16 years or older with a residence in Iowa tested in calendar year 2011 (Table 16 for data by county) . All blood lead test results for Iowa residents are reportable to IDPH under *Iowa Administrative Code* 641, Chapter 1.

Blood lead tests of 10 micrograms per deciliter (µg/dL) or higher are currently defined as an elevated blood lead level (EBL). Based on the highest BLL for each person tested in 2011, there were 832 people (26.4 percent of those tested) who had blood lead levels of 10 µg/dL or higher: 37 people with levels 40 µg/dL or higher, 203 people with levels 25-39 µg/dL, and 592 people with levels 10-24 µg/dL.

Of the 832 adults with EBLs, 247 (29.8 %) were classified as new cases; that is, they did not have a blood lead levels of 10 µg/dL or higher in the 2010 records in the Iowa ABLES database. The average blood lead level for new cases was 22 µg/dL with a range of 10-94 µg/dL. Of the new cases, 172 were known to be work-related exposures, and 159 of 247 (64 %) were classified by their occupational industry. The lead battery manufacturing industry accounted for 114 (46 %) of the new cases.

New cases included a cluster of elevated blood lead levels were identified linked to usage of ayurvedic products obtained from India by people pursuing alternative medicine practices. A total of 123 people known to be using ayurvedic products had blood lead test results reported in the 2011 Iowa data. Ayurvedic medicine ingestion accounted for 44 (18 %) of the new cases. Firearms-related hobbies or exposure were identified as the lead source for eight (three %) of the new cases in 2011.

For the 582 adults with an EBL in 2011 who had a prior EBL in 2010, all but five had known work-related lead exposure. This group's 2011 EBLs ranged from 10 - 47 µg/dL with an average BLL of 21, and 168 had EBLs of 25 µg/dL or higher.

Females accounted for 11.4 percent (95) of the 832 EBLs in 2011, with an average blood lead level of 22 µg/dL, which was an increase from 2010 (2010 N=78, average BLL=18 µg/dL). The blood lead levels for EBL females ranged from 10-69 µg/dL. Lead exposure to women during pregnancy poses increased health risks for unborn babies and may impact the ability to carry the pregnancy to term. Women of child-bearing age (16-44 years of age i.e. those born in 1966 or later) accounted for 25 of the 95 female cases (26 %), and 10 of the 95 EBLs females (10.5 %) were 35 years of age or younger. It is unknown if any of these women were pregnant at the time of their exposure. Most of the females with EBLs (74 of 95, 78 %) had work-related exposure to lead, with 66 of 74 (89 %) working in the lead battery manufacturing industry and 60 of the 95 females (63 %) having an elevated blood lead in both 2010 and 2011. Ayurvedic product usage was known to be the route of exposure for 17 of the EBL women (18 %), and none of them had a prior blood lead level on record for 2010.

Iowa's high risk industries in 2011 remain consistent with data from previous years, with the majority (695/832 or 84%) of EBL adults working in manufacturing plants that use lead or metal products that contain lead. Seven employers accounted for 688 workers with EBLs or almost 83 percent of the 832 Iowans with elevated blood test results for 2011. These workers are also the most likely to be tested for lead exposure because of regulatory oversight or concerns about the risk of exposure. Other work-related cases in 2011 include worker exposures from indoor firing ranges, recyclable materials wholesalers, automotive or radiator repair, leaded glass workers, and workers in the construction or remodeling industry. Additional workers – especially those working for smaller companies or those who are self-employed - may have lead exposure but were never tested during the year.

Table 7. Iowa adult blood lead test results, 2009-2011 and changes from 2010-2011

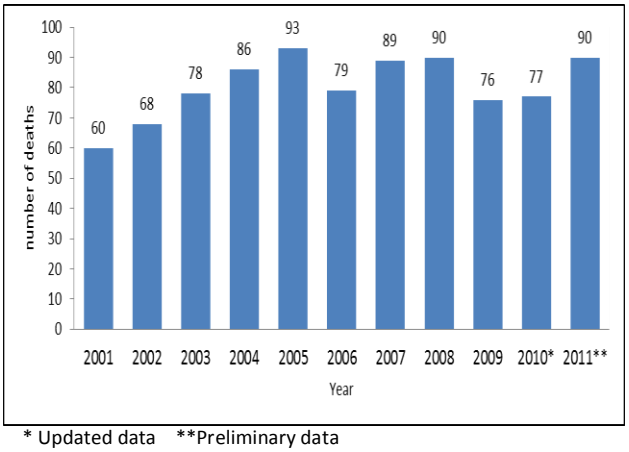
IA ABLES DATA	Number of Iowa Adults Tested by Highest BLL/Year 2011	2010	2009	2011 change in numbers from 2010	Percent of all Iowa Adults Tested by BLL Range for Year 2011	2010	2009
BLL 40 µg/dL or higher	37	14	13	+23	1.1%	0.5%	0.5%
BLL 25-39 µg/dL	203	159	172	+44	6.5%	5.5%	7.2%
BLL 10-24 µg/dL	592	563	509	+29	18.8%	19.4%	21.2%
BLL 0-9 µg/dL	2323	2169	1711	+154	73.6%	74.7%	71.1%
All BLL 10+ (Total EBLS)	832	736	694	+96	26.4%	25.3%	28.9%
Total Individuals Tested	3155	2905	2405	+250			

Adults: Persons 16 years of age or older as of the date of blood test.
Iowa Adult Data: Test results for persons with an Iowa residential address as of the date of blood test. Blood lead test reports received without address data or with a residential address outside of Iowa are not included in this report. The report reflects data in the database as of May 23, 2012. Later data entries are not included at this time.

TRAUMATIC WORK-RELATED FATALITIES SURVEILLANCE

The IDPH Occupational Health and Safety Surveillance Program (OHSSP) includes the Iowa Fatality Assessment and Control Evaluation (FACE) program, which is subcontracted to the University of Iowa College of Public Health Injury Prevention Research Center (UI IPRC). The program is a collaboration between the OHSSP, the Iowa Office of the State Medical Examiner, and UI IPRC through funding provided by the National Institute of Occupational Safety and Health (NIOSH). Iowa FACE has identified 90 work-related fatalities for 2011 (preliminary data), which is above the 10-year average of 80 cases (2001-2010). Transportation incidents of all types are the largest single event causing work-related fatalities in Iowa (46/90, 51%) including 27 roadway fatalities, 16 off-roadway fatalities, and three involving rail or plane fatalities. Agriculturally (ag)-related activities involved 32 of the 90 deaths (35%), including 20 of the transportation incidents. Of the 20 ag-related transportation incidents, 14 occurred off-roadway. Ages for work-related fatalities ranged from 10 to 85 years of age. Females accounted for 11 (12%) of the work-related deaths.

Figure 25. Iowa FACE work-related death, 2001-2011



* Updated data **Preliminary data

For fatalities to be included as a FACE "case", the incident causing the work-related death has to occur in Iowa (resident or non-resident), and be traumatic in nature. Cases include work-related deaths of persons regardless of compensation status, that is, volunteers or family members who are working regardless of payment. Deaths that occur while commuting to or from work do not qualify. Iowa workers killed while working out of state are not included.

Some potential cases may not be identified due to lack of surveillance data, especially for individuals killed in motor vehicle crashes when it is unknown that the person was traveling as part of their job duties (other than commuting). For this reason, some cases are not identified until months after the incident. For these reasons total case numbers may differ between those reported by other programs, such as the US Bureau of Labor Statistics Census of Fatal Occupational Injuries (CFOI) or the Iowa Worker Memorial Day observance. Additional information can be found at www.public-health.uiowa.edu/face/

2011 Iowa summary of reported outbreak investigations

Table 8. Foodborne outbreaks

Type	Nature of Episode	Event/Place	Location of Food Preparation	Location of Food Consumption	Region	Month	Number Affected/Number Exposed (if known)	Food Vehicle of Transmission	Agent Involved
Foodborne	Diarrhea, Nausea, Fever	Restaurant	Restaurant	Restaurant	1	April	12/18	Unknown	*Clostridium* species
Foodborne	Diarrhea, Vomiting, Nausea	Shooting Competition	Home	Outside	1	June	12/100	Unknown	Unknown, suspected toxin
Foodborne	Diarrhea, Vomiting, Nausea	Potluck	Home	Home	1	July	10/100	Unknown	*E.coli* O157:H7
Foodborne (National Outbreak)	Diarrhea, Vomiting, Nausea	Home	Home	Home	Multi-county	June	2	Ground Turkey	*Salmonella* Heidelberg
Foodborne (National Outbreak)	Fever, Headache, Vomiting, Nausea	Home	Home	Home	3	September	1	Cantaloupe	*Listeria monocytogenes*
Foodborne	Diarrhea, Vomiting, Nausea	Church	Church	Church	1	October	2, 1 epi-link	Unknown	*Salmonella* Lagos
Foodborne (National Outbreak)	Bloody Diarrhea, Abdominal Cramps	Restaurant	Restaurant	Restaurant	1	October	1	Unknown	*Salmonella* Enteriditis
Foodborne (National Outbreak)	Bloody Diarrhea, Vomiting, Abdominal Cramps	College	College	College	6	November	1	Romaine Lettuce	*E.coli* O157:H7
Foodborne	Diarrhea, Vomiting, Abdominal Cramps	Workplace	Home	Workplace	6	December	21	Unknown	***Clostridium perfringens***

Table 9. Non-foodborne or unknown cause outbreaks

Type	Nature of Episode	Event/Place	Region	Month	Number Affected/Number Exposed (if known)	Vehicle of Transmission	Agent Involved, Number of Positive Tests, if known
Person-to-Person	Diarrhea, Vomiting	Restaurant	4	January	7/9	Person-to-Person	Norovirus – 3
Person-to-Person	Diarrhea, Abdominal Cramps	Assisted Living/Long Term Care Facility	4	January	18/25	Person-to-Person	Norovirus - 2
Person-to-Person	Headaches, Diarrhea, Vomiting,	Doctors Office	4	January	17	Person-to-Person	Unknown
Vaccine Preventable	Fever, Cough	Long Term Care Facility	3	January	6	Person-to-Person	Influenza A H3 -3
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps, Fever	Clinic	3	January	20	Person-to-Person	Norovirus - 2
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps, Fever	Long Term Care Facility	1	January	19	Person-to-Person	Norovirus - 3
Person-to-Person	Diarrhea, Vomiting, Nausea	Long Term Care Facility	1	February	16	Person-to-Person	Norovirus - 1
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps, Nausea	Restaurant	1	February	6	Person-to-Person	Norovirus - 2
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps, Fever	School	4	February	34	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Nausea	Long Term Care Facility	1	March	10	Person-to-Person	Norovirus - 3
Vaccine Preventable	Vomiting, Fever, Cough	Long Term Care Facility	6	March	9	Vaccine Preventable	Suspect Influenza
Person-to-Person	Diarrhea, Vomiting, Nausea, Fever, Abdominal Cramps	Childcare Center	3	March	16	Person-to-Person	Rotavirus - 2
Person-to-Person	Diarrhea, Vomiting, Nausea, Abdominal Cramps	Restaurant	1	March	4	Person-to-Person	Suspect Norovirus
Animal Contact	Diarrhea, Nausea, Abdominal Cramps	Children's Event	5	April	20	Animal Contact	*Cryptosporidium*
Person-to-Person	Diarrhea, Abdominal Cramps	Restaurant	1	April	12	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Abdominal Cramps	Long Term Care Facility	1	April	25	Person-to-Person	Norovirus - 4

Animal-to-Person	Diarrhea, Abdominal Cramps	Farm Supply Store	Multi-county	April	5	Animal-to-Person	*Salmonella* Berta
Person-to-Person	Diarrhea, Vomiting	Long-Term Care Facility	6	June	20	Person-to-Person	Norovirus - 3
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Home	6	October	14	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Restaurant	1	October	4	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Restaurant	1	November	5	Person-to-Person	Norovirus - 2
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Carry-out Meal	4	November	7	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Long-Term Care Facility	6	November	17	Person-to-Person	Norovirus - 3
Person-to-Person	Diarrhea, Vomiting	School	4	November	66	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Restaurant	4	November	7	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Restaurant	1	November	6	Person-to-Person	Norovirus -2
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Assisted Living Facility	6	December	24	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Restaurant	6	December	7	Person-to-Person	Norovirus -1
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	School	2	December	13	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Restaurant	6	December	26	Person-to-Person	Suspect Norovirus
Person-to-Person	Diarrhea, Vomiting, Abdominal Cramps	Restaurant	1	December	4	Person-to-Person	Suspect Norovirus

Table 10. Cases and rates per 100,000 population for 2011 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	0	0.0	15	3.6	18	5.0	40	4.0	1	0.2	0	74	2.4
Botulism	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
Campylobacteriosis	101	50.0	130	21.0	96	23.3	76	21.0	248	24.8	96	21.2	0	747	24.5
Chlamydia	12	5.9	2973	480.8	6634	1613.4	1083	299.3	222	22.2	4	0.9	0	10928	358.7
Cryptosporidiosis	54	26.7	78	12.6	51	12.4	48	13.3	73	7.3	60	13.2	0	364	11.9
Dengue fever	0	0.0	0	0.0	1	0.2	1	0.3	2	0.2	1	0.2	0	5	0.2
E. coli/other shgt producing	31	15.3	67	10.8	22	5.4	11	3.0	30	3.0	28	6.2	0	189	6.2
Ehrlichiosis/anaplasmsis	0	0.0	0	0.0	0	0.0	1	0.3	4	0.4	3	0.7	0	8	0.3
Giardiasis	56	27.7	41	6.6	34	8.3	33	9.1	85	8.5	22	4.9	0	271	8.9
Gonorrhea	0	0.0	494	79.9	1115	271.2	265	73.2	92	9.2	0	0.0	0	1966	64.5
Hemolytic uremic syndrome	7	3.5	4	0.6	1	0.2	0	0.0	0	0.0	1	0.2	0	13	0.4
Hepatitis A	0	0.0	0	0.0	1	0.2	2	0.6	4	0.4	1	0.2	0	8	0.3
Hepatitis B, acute	0	0.0	0	0.0	3	0.7	5	1.4	6	0.6	1	0.2	0	15	0.5
Hepatitis B, chronic	0	0.0	7	1.1	46	11.2	56	15.5	63	6.3	10	2.2	0	182	6.0
HIV (diagnoses)	1	0.5	2	0.3	44	10.7	29	8.0	42	4.2	2	0.4	0	120	3.9
Legionellosis	0	0.0	0	0.0	1	0.2	0	0.0	3	0.3	7	1.5	0	11	0.4
listeriosis	0	0.0	0	0.0	1	0.2	0	0.0	1	0.1	3	0.7	0	5	0.2
Lyme disease	6	3.0	25	4.0	14	3.4	9	2.5	31	3.1	15	3.3	0	100	3.3
Malaria	0	0.0	3	0.5	15	3.6	2	0.6	1	0.1	1	0.2	0	22	0.7
Meningococcal Inv. Disease	2	1.0	1	0.2	1	0.2	0	0.0	4	0.4	6	1.3	0	14	0.5
Mumps	0	0.0	2	0.3	4	1.0	0	0.0	2	0.2	0	0.0	0	8	0.3
Pertussis (whooping cough)	68	33.6	100	16.2	16	3.9	20	5.5	25	2.5	3	0.7	0	232	7.6
Q fever	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	2	0.1
Rocky Mountain spotted fever	0	0.0	1	0.2	2	0.5	1	0.3	1	0.1	2	0.4	0	7	0.2
Salmonellosis	69	34.1	79	12.8	60	14.6	46	12.7	130	13.0	64	14.1	0	448	14.7
Shigellosis	6	3.0	4	0.6	1	0.2	3	0.8	2	0.2	2	0.4	0	18	0.6
Syphilis	3	1.5	4	0.6	23	5.6	20	5.5	19	1.9	1	0.2	0	70	2.3
Tuberculosis	0	0.0	4	0.6	9	2.2	10	2.8	10	1.0	7	1.5	0	40	1.3
Typhoid fever	0	0.0	0	0.0	1	0.2	1	0.3	1	0.1	1	0.2	0	4	0.1
West Nile virus	0	0.0	0	0.0	1	0.2	1	0.3	4	0.4	3	0.7	0	9	0.3

Table 11. Cases and rates per 100,000 population for 2011 by sex, Iowa

	Sex						
	Female		Male		Unk	Total	
Disease	Cases	Rate	Cases	Rate	Cases	Cases	Rate
AIDS (diagnosis)	8	0.5	66	4.4	0	74	2.4
Botulism	0	0.0	0	0.0	0	0	0.0
Campylobacteriosis	323	21.0	424	28.1	0	747	24.5
Chlamydia	7813	508.0	3115	206.5	0	10928	358.7
Cryptosporidiosis	194	12.6	170	11.3	0	364	11.9
Dengue fever	2	0.1	3	0.2	0	5	0.2
E. coli and other shiga-toxin producing	110	7.2	79	5.2	0	189	6.2
Ehrlichiosis/anaplasmsis	4	0.3	4	0.3	0	8	0.3
Giardiasis	118	7.7	152	10.1	1	271	8.9
Gonorrhea	1245	80.9	721	47.8	0	1966	64.5
Hemolytic uremic syndrome	7	0.5	6	0.4	0	13	0.4
Hepatitis A	2	0.1	6	0.4	0	8	0.3
Hepatitis B, acute	2	0.1	13	0.9	0	15	0.5
Hepatitis B, chronic	70	4.6	112	7.4	0	182	6.0
HIV (diagnoses)	20	1.3	100	6.6	0	120	3.9
Legionellosis	3	0.2	8	0.5	0	11	0.4
Listeriosis	4	0.3	1	0.1	0	5	0.2
Lyme disease	38	2.5	62	4.1	0	100	3.3
Malaria	3	0.2	19	1.3	0	22	0.7
Meningococcal invasive disease	6	0.4	8	0.5	0	14	0.5
Mumps	2	0.1	6	0.4	0	8	0.3
Pertussis (whooping cough)	130	8.5	102	6.8	0	232	7.6
Q fever	1	0.1	1	0.1	0	2	0.1
Rocky Mountain spotted fever	2	0.1	5	0.3	0	7	0.2
Salmonellosis	229	14.9	219	14.5	0	448	14.7
Shigellosis	10	0.7	8	0.5	0	18	0.6
Syphilis	24	1.6	46	3.0	0	70	2.3
Tuberculosis	11	0.7	29	1.9	0	40	1.3
Typhoid fever	2	0.1	2	0.1	0	4	0.1
West Nile virus	2	0.1	7	0.5	0	9	0.3

Table 12. Notifiable diseases by year, 1991-2011

Notifiable diseases	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
AIDS (diagnosis)	117	157	103	110	104	97	75	60	77	80	80	75	75	70	78	79	68	66	92	73	74
Anthrax																					
Botulism									1					1		1	1	1	0		
Brucellosis	1	1	2	1	2	4	4	1	6		2	1			1	2	0	2	2		1
Campylobacteriosis	333	260	292	280	274	339	425	455	467	499	467	427	458	559	537	449	524	591	552	751	747
Chlamydia		6125	5214	5412	5088	4165	4906	5173	5511	5989	5716	6241	6462	6958	7390	8399	8643	9372	9406	10542	10928
Cholera				1					1												
Cryptosporidiosis				71	21	75	71	66	56	77	82	49	122	90	122	230	610	284	232	397	364
Cyclospora						3	1	3			1								1		1
Dengue Fever															1	1	6	5	2	2	5
Diphtheria																					
Ehrlichiosis												1	1		4	7	7	7	8	2	8
Encephalitis (arboviral except WNV)	4	3	4	1	13	19	3	3	3	4	3	3		2		1					
E. coli/other shiga-toxin producing	15	20	27	54	64	123	114	93	114	180	81	122	103	124	108	161	185	208	163	173	189
Hemolytic uremic syndrome*																					13
Giardiasis	422	351	340	339	391	410	358	429	377	420	345	315	277	301	280	302	301	326	291	284	271
Gonorrhea		1653	1824	1645	1723	1144	1309	1615	1365	1394	1424	1496	1544	1249	1606	1981	1928	1700	1658	1804	1966
Haemophilus influenzae Type B	15	7	5	6	3	4	6	5	2					1		2	1	2	1	1	3
Hansen's disease (Leprosy)	1							1		2	1				1	1		1		1	
Hantavirus syndromes							2	1	2				1					1			1
Hepatitis A (viral, infectious)	48	53	58	64	106	346	490	400	161	67	41	72	40	50	22	13	48	109	38	11	
Hepatitis B (serum) acute /chronic	42	33	36	27	46	74	44	54	44	38	24	20	27	17	32	21/35	269	25/226	293	15/183	15/182
Hepatitis B (perinatal)																1		1		1	
Hepatitis C or unspecified	14	12	12	25	1	43						1	1						262	156	48

Notifiable diseases	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
HIV (diagnosis)								96	84	92	95	105	89	105	113	107	125	101	126	114	120
Legionellosis	12	18	19	34	21	11	12	11	17	15	8	13	12	8	8	13	12	21	24	16	11
Listeria monocytogens						1		2	6	2	3	5		3	7	6	8	1	4	3	5
Lyme disease	22	33	8	17	16	19	8	27	24	34	36	42	58	56	91	97	124	109	108	87	100
Malaria	7	5	5	5	3	3	10	8	11	2	9	4	6	5	9	2	3	12	10	14	22
Measles (Rubeola)	17	1		7		1								3					1		1
Meningococcal invasive disease	15	18	28	25	31	56	47	46	42	37	32	29	28	17	19	20	15	19	16	10	14
Mumps	23	13	11	16	11	3	10	11	8	8	1	1	2	2	6	1,963	27	24	15	38	8
Pertussis (whooping cough)	26	11	38	23	11	32	207	78	111	67	167	230	182	1066	1106	342	150	257	235	705	232
Plague																					
Poliomyelitis	1																				
Psittacosis	3	2	2								3				1						
Rabies, animal	155	175	78	90	141	237	160	153	159	81	83	74	105	100	108	57	31	29	35	27	
Rabies, human												1									25
Rocky Mountain spotted fever	1	3	7	1		1	2	2	1	2	5	7	3	2	7	5	17	8	5	5	7
Rubella (German Measles)	6	3							30		1										
Salmonellosis	304	339	242	404	433	335	296	375	260	373	339	509	413	435	410	475	477	425	408	530	448
Shigellosis	33	46	68	338	351	151	90	69	74	569	367	122	93	64	103	134	109	214	53	57	18
Syphilis		154	175	235	171	91	65	25	31	54	43	56	46	36	28	88	27	75	65	68	70
Tetanus		1	1	1			1	1		1		1			1					1	
Toxic Shock Syndrome	7	7	7	8	5	4	3	4	4	4	1	3	5	5	5			1	2	1	1
Trichinosis	1			1	6						3				1						
Tuberculosis	71	49	58	66	67	70	74	55	58	37	42	31	40	47	55	36		46	42	48	40
Tularemia																			1		3
Typhoid fever		1				1	1		1				2				1	6		3	4
West Nile virus												52	147	23	37	37	30	5	5	9	9
Yellow Fever																			2		

*it includes cases starting 2011

Table 13. *Salmonella* serotypes reported, 2011

***Salmonella* Serotypes by Frequency**					
Salmonella	**Serotype**	**Cases**		**Serotype**	**Cases**
Salmonella	Agona	5	*Salmonella*	Miami	1
Salmonella	Albany	1	*Salmonella*	Minnesota	1
Salmonella	Anatum	2	*Salmonella*	Monophasic	1
Salmonella	Bareilly	3	*Salmonella*	Montevideo	15
Salmonella	Barranquilla	1	*Salmonella*	Muenchen	9
Salmonella	Barranquilla	1	*Salmonella*	Muenster	1
Salmonella	Berta	11	*Salmonella*	Newport	16
Salmonella	Bovismorbificans	4	*Salmonella*	Obugu	1
Salmonella	Braenderup	10	*Salmonella*	Oranienburg	5
Salmonella	Bredeney	2	*Salmonella*	Ouakam	1
Salmonella	Coeln	1	*Salmonella*	Panama	1
Salmonella	Concord	1	*Salmonella*	Paratyphi B var Java	1
Salmonella	Cotham	2	*Salmonella*	Reading	1
Salmonella	Derby	1	*Salmonella*	Saintpaul	3
Salmonella	Dublin	1	*Salmonella*	Sandiego	1
Salmonella	Eastbourne	1	*Salmonella*	Sangera	1
Salmonella	Enteritidis	124	*Salmonella*	Schwarzengrund	1
Salmonella	Hartford	8	*Salmonella*	Stanley	1
Salmonella	Havana	1	*Salmonella*	Species	1
Salmonella	Heidelberg	8	*Salmonella*	Subspecies I	48
Salmonella	Hvittingfoss	1	*Salmonella*	Subspecies IIIa	1
Salmonella	Infantis	13	*Salmonella*	Subspecies IIIb	3

Salmonella	Javiana	6	*Salmonella*	Thompson	6
Salmonella	Johannesburg	1	*Salmonella*	Typhi	6
Salmonella	Kentucky	1	*Salmonella*	Typhimurium	58
Salmonella	Lagos	1	*Salmonella*	Typhimurium Var Copenhagen	10
Salmonella	Litchfield	7		Unknown	33
Salmonella	Manhattan	1	Total		448
Salmonella	Mbandaka	2			

Table 14. *Shigella* serogroups, 1991-2011

***Shigella* Serogroups**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Boydii		1			1	1				4	6	2		3	1	1	0	1	1	2	1
Dysenteriae	1	1				1										1	0	0	0	0	0
Flexneri	8	8	8		3	13	12	6	7	10	7	11	5	8	7	15	9	11	7	6	4
Group B						3		1	1						3		2	0	0	0	0
Group C				1													2	0	0	0	0
Group D		1		4	3	5		1					1				1	1	0	0	0
Sonnei	24	33	50	199	119	116	62	44	55	514	306	63	62	41	58	110	97	136	45	49	10
Unknown										41	46	46	25	12	7	7	0	0	0	0	3
TOTAL CASES	33	46	68	338	351	151	90	69	74	569	365	122	93	64	78	134	109	214	53	57	18

Table 15. Iowa children born in 2005 and tested for blood lead levels before the age of six years by county (as of 12/31/2011)

COUNTY	2005 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl	COUNTY	2005 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl
Adair	86	86	100.0	4	4.7	Des Moines	500	500	100.0	40	8.0
Adams	42	42	100.0	7	16.7	Dickinson	153	153	100.0	1	0.7
Allamakee	206	206	100.0	8	3.9	Dubuque	1125	1047	93.1	16	1.5
Appanoose	184	144	78.3	5	3.5	Emmet	158	143	90.5	7	4.9
Audubon	73	73	100.0	5	6.8	Fayette	250	250	100.0	14	5.6
Benton	291	291	100.0	7	2.4	Floyd	218	192	88.1	7	3.6
Black Hawk	1683	1683	100.0	73	4.3	Franklin	128	128	100.0	10	7.8
Boone	310	310	100.0	15	4.8	Fremont	90	90	100.0	5	5.6
Bremer	273	273	100.0	5	1.8	Greene	93	93	100.0	5	5.4
Buchanan	298	247	82.9	8	3.2	Grundy	123	123	100.0	2	1.6
Buena Vista	292	292	100.0	13	4.5	Guthrie	127	114	89.8	4	3.5
Butler	171	171	100.0	4	2.3	Hamilton	185	185	100.0	4	2.2
Calhoun	100	95	95.0	4	4.2	Hancock	155	155	100.0	3	1.9
Carroll	269	269	100.0	17	6.3	Hardin	207	207	100.0	12	5.8
Cass	170	164	96.5	7	4.3	Harrison	177	177	100.0	3	1.7
Cedar	194	194	100.0	13	6.7	Henry	246	246	100.0	14	5.7
Cerro Gordo	471	471	100.0	17	3.6	Howard	131	131	100.0	5	3.8
Cherokee	113	113	100.0	6	5.3	Humboldt	121	115	95.0	2	1.7
Chickasaw	179	163	91.1	6	3.7	Ida	81	73	90.1	8	11.0
Clarke	132	132	100.0	2	1.5	Iowa	200	195	97.5	7	3.6
Clay	200	200	100.0	6	3.0	Jackson	198	198	100.0	4	2.0
Clayton	190	190	100.0	6	3.2	Jasper	474	468	98.7	9	1.9
Clinton	623	623	100.0	15	2.4	Jefferson	171	163	95.3	3	1.8
Crawford	212	212	100.0	4	1.9	Johnson	1457	1457	100.0	12	0.8
Dallas	797	797	100.0	14	1.8	Jones	228	228	100.0	5	2.2
Davis	137	95	69.3	2	2.1	Keokuk	125	111	88.8	9	8.1
Decatur	101	94	93.1	4	4.3	Kossuth	181	181	100.0	4	2.2
Delaware	210	185	88.1	3	1.6	Lee	407	407	100.0	15	3.7

COUNTY	2005 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl	COUNTY	2005 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl
Linn	2783	2714	97.5	69	2.5	Poweshiek	195	195	100.0	10	5.1
Louisa	129	129	100.0	3	2.3	Ringgold	79	68	86.1	3	4.4
Lucas	120	100	83.3	3	3.0	Sac	120	120	100.0	15	12.5
Lyon	169	144	85.2	2	1.4	Scott	2317	2317	100.0	79	3.4
Madison	189	189	100.0	6	3.2	Shelby	101	101	100.0	1	1.0
Mahaska	306	306	100.0	10	3.3	Sioux	479	479	100.0	17	3.5
Marion	424	423	99.8	4	0.9	Story	945	945	100.0	10	1.1
Marshall	612	612	100.0	44	7.2	Tama	256	256	100.0	13	5.1
Mills	197	171	86.8	2	1.2	Taylor	79	79	100.0	13	16.5
Mitchell	147	122	83.0	2	1.6	Union	152	152	100.0	26	17.1
Monona	95	95	100.0	8	8.4	Van Buren	98	78	79.6	6	7.7
Monroe	76	76	100.0	1	1.3	Wapello	504	504	100.0	32	6.3
Montgomery	142	142	100.0	7	4.9	Warren	549	549	100.0	3	0.5
Muscatine	587	587	100.0	13	2.2	Washington	265	249	94.0	10	4.0
O'Brien	184	184	100.0	11	6.0	Wayne	76	76	100.0	4	5.3
Osceola	73	73	100.0	5	6.8	Webster	474	474	100.0	17	3.6
Page	167	167	100.0	18	10.8	Winnebago	120	120	100.0	3	2.5
Palo Alto	121	106	87.6	5	4.7	Winneshiek	210	210	100.0	4	1.9
Plymouth	313	313	100.0	8	2.6	Woodbury	1578	1578	100.0	93	5.9
Pocahontas	88	86	97.7	2	2.3	Worth	81	81	100.0	6	7.4
Polk	6567	6567	100.0	126	1.9	Wright	165	165	100.0	7	4.2
Pottawattamie	1227	987	80.4	13	1.3	TOTALS	39275	38434	97.9	1244	3.2

Table 16. 2011 Iowa adult blood testing summary by county (as of 03/30/12)

COUNTY	# tested	# BLL result ≥ 10 µg/dL	COUNTY	# tested	# BLL result ≥ 10 µg/dL	COUNTY	# tested	# BLL result ≥ 10 µg/dL
Adair	6	0	Floyd	11	<5	Monona	<5	0
Adams	5	<5	Franklin	7	0	Monroe	13	<5
Allamakee	<5	0	Fremont	9	<5	Montgomery	49	30
Appanoose	51	38	Greene	6	0	Muscatine	53	<5
Audubon	<5	<5	Grundy	7	<5	O'Brien	<5	0
Benton	15	<5	Guthrie	<5	0	Osceola	<5	0
Black Hawk	98	<5	Hamilton	13	0	Page	24	12
Boone	19	0	Hancock	5	0	Palo Alto	<5	0
Bremer	10	0	Hardin	9	0	Plymouth	10	0
Buchanan	110	29	Harrison	9	<5	Pocahontas	<5	<5
Buena Vista	<5	0	Henry	13	0	Polk	291	8
Butler	10	0	Howard	10	<5	Pottawattamie	35	<5
Calhoun	<5	0	Humboldt	5	0	Poweshiek	9	<5
Carroll	15	<5	Ida	<5	0	Ringgold	<5	0
Cass	15	11	Iowa	12	<5	Sac	10	0
Cedar	13	<5	Jackson	21	8	Scott	253	18
Cerro Gordo	39	0	Jasper	14	0	Shelby	<5	<5
Cherokee	<5	0	Jefferson	178	53	Sioux	5	0
Chickasaw	7	0	Johnson	79	<5	Story	45	<5
Clarke	5	<5	Jones	20	<5	Tama	8	<5
Clay	<5	0	Keokuk	22	5	Taylor	<5	0
Clayton	55	47	Kossuth	<5	0	Union	12	<5
Clinton	88	<5	Lee	53	<5	Van Buren	5	<5
Crawford	<5	0	Linn	174	15	Wapello	35	11
Dallas	31	<5	Louisa	12	0	Warren	27	<5
Davis	6	<5	Lucas	41	25	Washington	18	<5
Decatur	6	5	Lyon	<5	0	Wayne	141	108
Delaware	253	220	Madison	12	0	Webster	24	<5
Des Moines	33	<5	Mahaska	48	8	Winnebago	5	0
Dickinson	9	0	Marion	17	<5	Winneshiek	<5	0
Dubuque	159	99	Marshall	17	<5	Woodbury	62	<5
Emmet	<5	0	Mills	15	<5	Worth	<5	0
Fayette	45	10	Mitchell	<5	0	**Total** including suppressed data	**3155**	**832**

Based on highest test result in 2011 per adult (16 yo at time of test) residing in Iowa. Numbers 1-4 are suppressed and shown as <5. An elevated blood lead level (EBL) is considered a venous result greater than or equal to 10 micrograms per deciliter (µg/dL).

Table 17. Common notifiable diseases by county, 2011

	AIDS (diagnosis)	HIV (diagnosis)	CAMPY	CHLAMYDIA	CRYPTOSPORA	*E.COLI* SHGT	EHRLICH (HME)	GIARDIA	GONORRHEA	HUS	HEP A	HEP B, ACUTE	HEP B, CHRON	LEGION	LISTERIA	LYME	MENINGO.INF	MUMPS	PERTUSSIS	RABIES (ANIMAL)	RMSF	SALM	SHIGELLA	SYPHILIS	TB	WEST NILE VIRUS
ADAIR	0	0	0	11	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
ADAMS	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
ALLAMAKEE	0	*	12	18	5	1	0	1	0	0	0	0	1	0	0	11	0	0	7	0	0	8	1	0	1	0
APPANOOSE	0	0	2	31	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
AUDUBON	0	0	0	23	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BENTON	0	0	13	47	3	5	0	6	7	0	0	0	3	0	0	2	0	0	3	0	0	7	0	0	0	0
BLACK HAWK	*	*	9	896	0	9	0	8	265	0	1	0	7	2	0	3	0	1	5	0	0	23	2	2	5	0
BOONE	0	0	7	51	2	0	0	2	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
BREMER	0	0	7	42	0	2	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
BUCHANAN	0	0	11	33	1	1	0	3	7	0	0	0	1	0	0	0	0	0	5	0	0	4	0	0	0	0
BUENA VISTA	0	*	8	46	2	0	0	2	3	0	1	1	9	0	0	0	0	0	0	0	1	1	4	1	1	0
BUTLER	0	0	5	28	0	3	0	2	2	0	0	0	0	0	0	1	0	0	0	1	0	5	0	0	0	0
CALHOUN	0	0	1	20	0	1	0	1	7	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
CARROLL	0	0	3	38	2	1	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
CASS	0	0	0	41	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0
CEDAR	*	*	2	39	2	1	0	0	3	0	0	0	1	0	0	1	0	0	4	0	0	4	0	0	0	0
CERRO GORDO	*	*	7	126	0	3	0	0	16	0	0	0	3	0	0	0	1	0	1	0	0	6	0	0	0	1
CHEROKEE	*	*	1	12	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0
CHICKASAW	0	0	4	17	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLARKE	0	0	1	24	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLAY	*	*	13	49	1	2	0	2	1	0	0	0	1	0	2	0	0	0	0	0	0	2	0	1	0	0
CLAYTON	0	0	3	19	6	2	0	1	3	0	0	0	0	0	0	13	0	0	1	0	0	1	0	1	0	0
CLINTON	*	*	9	173	5	1	0	1	30	0	0	2	2	1	0	1	1	1	4	0	0	8	0	2	0	0
CRAWFORD	0	*	3	63	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
DALLAS	*	4	20	127	4	5	0	14	18	0	0	0	3	1	0	0	0	0	8	1	0	10	0	0	1	0

	AIDS (diagnosis)	HIV (diagnosis)	CAMPY	CHLAMYDIA	CRYPTOSPORA	*E.COLI* SHGT	EHRLICH (HME)	GIARDIA	GONORRHEA	HUS	HEP A	HEP B, ACUTE	HEP B, CHRON	LEGION	LISTERIA	LYME	MENINGO.INF	MUMPS	PERTUSSIS	RABIES (ANIMAL)	RMSF	SALM	SHIGELLA	SYPHILIS	TB	WEST NILE VIRUS
DAVIS	0	0	5	13	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
DECATUR	0	0	5	23	1	1	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0
DELAWARE	*	0	11	40	5	7	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0
DES MOINES	*	*	13	227	9	3	0	3	63	0	0	1	2	0	0	2	0	0	2	0	0	9	0	1	0	0
DICKINSON	*	0	3	18	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	1	0
DUBUQUE	*	5	42	346	16	9	0	9	94	1	0	0	5	0	0	12	1	0	22	0	0	23	1	0	1	0
EMMET	0	0	3	21	2	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
FAYETTE	0	0	8	52	3	0	0	0	2	0	0	0	0	0	0	3	0	0	1	0	0	5	0	0	0	0
FLOYD	0	0	3	43	1	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
FRANKLIN	0	0	0	26	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
FREMONT	0	0	0	6	3	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1
GREENE	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
GRUNDY	*	0	2	28	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
GUTHRIE	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAMILTON	0	0	2	30	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0
HANCOCK	0	0	3	13	1	1	0	0	1	0	0	0	0	1	0	1	0	0	3	0	0	2	0	0	0	0
HARDIN	*	*	5	44	1	0	1	1	4	0	0	0	0	0	0	1	0	0	3	1	0	3	0	1	0	0
HARRISON	0	0	4	31	1	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3
HENRY	0	0	0	58	5	0	0	3	4	0	0	0	2	0	0	0	0	2	6	0	0	2	0	0	0	0
HOWARD	0	0	6	17	2	2	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
HUMBOLDT	0	0	2	13	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
IDA	0	0	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0
IOWA	0	0	1	42	2	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	2	0	1	0	0
JACKSON	0	0	27	38	5	2	0	1	1	0	0	0	2	0	0	4	0	0	4	0	0	5	0	0	0	0
JASPER	0	0	5	76	13	3	0	2	6	0	0	0	0	0	0	0	0	0	1	1	0	6	0	0	0	0

	AIDS (diagnosis)	HIV (diagnosis)	CAMPY	CHLAMYDIA	CRYPTOSPORA	*E.COLI* SHGT	EHRLICH (HME)	GIARDIA	GONORRHEA	HUS	HEP A	HEP B, ACUTE	HEP B, CHRON	LEGION	LISTERIA	LYME	MENINGO.INF	MUMPS	PERTUSSIS	RABIES (ANIMAL)	RMSF	SALM	SHIGELLA	SYPHILIS	TB	WEST NILE VIRUS
JEFFERSON	0	0	4	21	5	0	0	6	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
JOHNSON	9	11	30	750	9	7	0	17	106	0	0	0	20	0	0	13	0	0	7	0	0	18	1	6	4	0
JONES	0	*	14	35	6	3	0	1	4	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	0
KEOKUK	0	*	1	21	1	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
KOSSUTH	0	0	3	19	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0
LEE	*	0	2	131	2	5	0	3	8	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0
LINN	*	9	38	1097	27	8	1	20	261	0	1	0	17	0	0	10	2	1	12	2	0	27	0	9	3	0
LOUISA	0	0	4	33	3	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0
LUCAS	0	0	2	15	1	4	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
LYON	0	0	12	10	4	5	0	1	1	1	0	0	0	0	1	0	0	0	1	1	0	9	0	0	0	0
MADISON	0	0	1	17	0	4	0	1	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
MAHASKA	0	0	2	64	2	1	0	2	2	0	0	0	0	0	0	0	0	0	9	0	0	4	0	0	0	0
MARION	0	0	10	60	5	1	0	4	3	0	0	0	1	0	0	1	0	0	2	0	0	5	0	0	0	0
MARSHALL	*	*	11	157	1	2	0	1	15	0	0	1	5	0	0	0	1	0	0	0	0	5	0	0	1	0
MILLS	0	*	6	31	1	3	0	3	5	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2
MITCHELL	0	0	0	12	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0
MONONA	0	0	2	14	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
MONROE	0	0	2	19	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONTGOMERY	0	*	3	14	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	2	0	0	0	0
MUSCATINE	*	0	4	158	2	1	0	2	20	0	0	0	1	0	0	1	0	0	8	1	0	5	0	1	0	0
O'BRIEN	0	0	13	22	2	2	0	4	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	0	0	0
OSCEOLA	0	0	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAGE	0	0	2	33	3	1	1	2	1	0	0	0	0	1	0	0	0	0	0	1	0	4	0	0	0	0
PALO ALTO	0	0	2	17	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
PLYMOUTH	0	0	10	49	10	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
POCAHONTAS	0	0	2	9	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0

	AIDS (diagnosis)	HIV (diagnosis)	CAMPY	CHLAMYDIA	CRYPTOSPORA	*E.COLI* SHGT	EHRLICH (HME)	GIARDIA	GONORRHEA	HUS	HEP A	HEP B, ACUTE	HEP B, CHRON	LEGION	LISTERIA	LYME	MENINGO.INF	MUMPS	PERTUSSIS	RABIES (ANIMAL)	RMSF	SALM	SHIGELLA	SYPHILIS	TB	WEST NILE VIRUS
POLK	25	47	108	2053	34	17	1	62	513	3	1	5	46	1	0	3	2	2	21	2	0	56	6	22	11	0
POTTAWATTAMIE	*	6	23	318	7	5	0	4	77	2	0	2	5	3	1	0	2	0	4	0	0	6	0	0	0	2
POWESHIEK	0	0	4	43	4	3	0	1	3	0	0	0	1	0	0	0	0	0	0	0	0	2	0	1	0	0
RINGGOLD	0	0	1	5	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
SAC	0	0	2	8	0	2	0	1	3	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	1	0
SCOTT	6	9	20	936	10	7	1	6	215	0	0	1	11	1	0	3	0	0	13	0	1	13	1	6	0	0
SHELBY	*	*	2	20	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
SIOUX	0	*	19	39	31	5	0	8	0	0	0	0	2	0	0	0	0	0	6	2	1	9	0	0	0	0
STORY	0	*	17	293	7	4	0	1	25	2	0	1	11	0	0	1	1	0	4	2	0	7	0	1	3	0
TAMA	0	0	3	72	1	2	0	1	4	0	0	0	0	0	0	0	0	0	1	0	0	5	0	0	0	0
TAYLOR	0	0	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
UNION	0	0	1	39	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
VAN BUREN	*	0	1	10	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
WAPELLO	0	*	5	135	18	1	0	4	9	0	0	1	2	0	0	1	0	0	0	1	0	2	0	1	2	0
WARREN	0	0	10	79	5	4	0	4	15	2	0	0	0	0	0	2	0	0	3	0	0	4	0	1	0	0
WASHINGTON	0	0	5	42	0	3	0	1	9	0	0	0	1	0	0	0	1	0	9	0	0	2	0	0	0	0
WAYNE	0	0	0	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
WEBSTER	0	0	8	183	13	0	0	7	26	0	0	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0
WINNEBAGO	0	0	3	20	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WINNESHIEK	0	0	12	27	3	4	0	0	2	0	0	0	0	0	0	6	1	0	1	1	0	3	0	1	0	0
WOODBURY	4	4	17	510	12	0	0	9	41	0	0	0	4	0	0	0	0	0	34	0	0	22	1	4	2	0
WORTH	*	0	4	7	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
WRIGHT	0	0	2	19	0	0	0	0	4	0	0	0	3	0	0	0	0	0	2	0	0	2	0	0	0	0
Total	74	120	747	10928	364	189	8	271	1966	13	8	15	182	11	5	100	14	8	232	8	7	448	18	70	40	9

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

References

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