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 2010

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

Mariannette Miller-Meeks, B.S.N., M.Ed., MD
Director

Mary J. Jones, BSEMS, MA
Deputy Director, ADPER Director

Patricia Quinlisk, MD, MPH
State Medical Director/State Epidemiologist

Primary Authors
The following Center for Acute Disease Epidemiology staff are the primary authors of this report:
Yumei Sun, PhD
Diana Von Stein, MPH
Ariel Pleva, MPH
Ann Garvey, DVM, MPH

Contributing Authors and Editors
Iowa Department of Public Health
Medical Director/State Epidemiologist
Patricia Quinlisk, MD, MPH

Division of Acute Disease Prevention and Emergency Response
Deputy Director/Division Director
Mary J. Jones, BSEMS, MA

Bureau of Immunization and TB
*Allan Lynch
Don Callaghan (Bureau Chief)

Center for Acute Disease Epidemiology
Pam Deichmann, RN, MPH (Bureau Chief)
Carrie Stief
John Satre
Judy Goddard, RN, BS
Mary Rexroat, RN, BS
Chris Galeazzi, MPH
Matt Hobson, MA
Elizabeth Miller, PhD
Rob Ramaekers, MPH, CPH
Denyse Gipple, MPH, CIC, CPH
Barbara Livingston, RN, BSN, MPH, CIC
Shawnice Cameron
Chris Tate, MPH
Kemi Oni, MPH

Division of Environmental Health
Division Director
Ken Sharp, MPA

Bureau of Environmental Health Services
Carmily Stone, MPH, CP-FS (Bureau Chief)
*Tim Wickam, MPH

Bureau of Lead Poisoning Prevention
*Rita Gergely, M.Ag. (Bureau Chief)
* Kathy Leinenkugel, MPA,REHS,MT

Division of Behavioral Health
Division Director
Kathy Stone, MBA

Bureau of HIV, STD, and Hepatitis
*Jerry Harms, MPH, CART
*Anna Bode
*Alagie Jatta, MS
* Randy Mayer, MS, MPH (Bureau Chief)

State Hygienic Laboratory at the University of Iowa
Lucy DesJardin, PhD
Sandy Jirsa

***Denotes direct program-specific data and text contribution, and editorial review**

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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 2010, there were more than 60,000 laboratory results of infectious disease and conditions submitted to IDPH disease surveillance programs. IDPH also investigates conditions related to lead, occupational, and environmental hazards like carbon monoxide. Approximately 100,000 blood lead test results were reported to IDPH in 2010.

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

In 2010, the number of the vaccine-preventable diseases decreased when compared to the three year average (2007-2009), however, the number of pertussis cases and mumps cases increased. Pertussis cases had a 229 percent increase when compared to the three year average while mumps had a 73 percent increase.

Enteric diseases, like salmonellosis and campylobacteriosis, were generally higher than in previous years.

Diseases spread via insects and other vectors continue to impact Iowans. Nine cases of West Nile virus were detected in 2010. Seven of the nine cases were hospitalized and two patients died.

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 decreased when compared to the average number of diagnoses for the previous three years. However, a long-term view indicates a slow, steady increase in diagnoses. The increase in HIV diagnoses is primarily among males from 13 to 24 years of age and males older than 44 years of age. The data also continue to show a disproportionate number of diagnoses among non-Hispanic African Americans, a group that made up 2.9 percent of Iowa's general population in 2010, but accounted for 26 percent of the new HIV diagnoses.

Great strides were made in improving surveillance for carbon monoxide poisoning and 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.

More 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, the Iowa Department of Public Health and its partners will keep moving forward in promoting and protecting the health of Iowans.

Table 1. Summary of common, notifiable diseases, 2007-2010 and percent change in number of cases reported compared to 3-year average

	2007	2008	2009	3-yr average 2007-2009	2010	Percent change†
	Number of cases ǂ					
Campylobacteriosis	524	591	552	556	751	35.2%
Chlamydia	8643	9372	9406	9140	10542	15.3%
Cryptosporidiosis	610	284	232	375	397	5.8%
E. coli and other shiga-toxin producing	175	208	163	182	173	- 4.9%
Giardiasis	301	326	291	306	284	-7.2%
Gonorrhea	1928	1700	1658	1762	1804	2.4%
Hepatitis A	48	109	38	65	11	-83.1%
Hepatitis B, acute	27	25	38	30	15	-50.0%
HIV (new diagnoses)	125	101	124	117	112	-4.0%
Legionellosis	12	21	24	19	16	-15.8%
Listeriosis	8	1	4	4	3	-30.8%
Lyme disease	124	109	108	114	87	-23.5%
Meningococcal invasive disease	15	19	16	17	10	-40.0%
Mumps	27	24	15	22	38	72.7%
Pertussis (whooping cough)	150	257	235	214	705	229.4%
Salmonellosis	477	425	408	437	530	21.4%
Shigellosis	109	214	53	125	57	-54.5%
Syphilis	64	75	65	68	68	0.0%

†The percent change is calculated by subtracting the 3-year average from the total cases for 2010 and dividing by the absolute value of the 3-year average.

ǂ Table includes all confirmed and probable cases.

Introduction

The purpose of this report is to provide an overall snapshot of the types and trends of 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, HIV/AIDS, hepatitis C, enteric diseases, zoonotic diseases, rare and unusual diseases, and environmental health conditions.

The Iowa Department of Public Health 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, and it also includes data from the BLPP, which 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 other health investigators, and communication, education, and intervention implementation.

Support for the initiatives of both divisions stem from federal and state allocations and grants. The TB, STD, and HIV/AIDS surveillance programs are funded under separate

cooperative agreements with the Centers for Disease Control and Prevention (CDC), National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention.

Methods

Disease reports are submitted to IDPH via phone, fax, e-mail, or an electronic reporting system. Reporters include health care providers, hospitals, local public health agencies, and laboratories.

Reports received by CADE are tracked in the web-based Iowa Disease Surveillance System (IDSS). 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 of enteric illness.

Rates were calculated using the 2009 estimated census population for the State of Iowa or the appropriate estimated census year. Threshold values used in the graphs in the summary of enteric disease were calculating by adding two standard deviations to the three-year moving average.

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

CADE uses the most recent Council of State and Territorial Epidemiologists (CSTE) and CDC case definitions found at http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm. CSTE/CDC definitions are used to classify the case as confirmed, probable, suspect, not a case, awaiting more information, or chronic hepatitis B reported in a past year. 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 or additional information that may have altered the disease counts received after this date was not included in this report. In addition, the data file was generated using MMWR (Morbidity Mortality Weekly Report) year 2010, therefore, case counts in this report may vary slightly from counts generated using the calendar year of 2010.

Influenza surveillance data were collected from multiple sources, including outpatient health care providers, hospitals, public health, clinical laboratories, and schools. Influenza laboratory-confirmed cases were largely based on real-time polymerase chain reaction (RT-PCR) test results sent from SHL. Influenza-associated hospitalizations were reported from 21 hospitals enrolled in Influenza Surveillance Network (IISN). School percent absence is calculated by taking the total absent due to illness over the total enrolled times the number of days school was in session.

Respiratory syncytial virus (RSV) rapid antigen test data are used to determine the weekly positive predictive value of the rapid antigen tests in Iowa. Laboratories report the total tests performed and total positive each week.

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

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.

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 utilized a combination of CDC's eHARS software, Microsoft® Excel, SAS® and SAS® Enterprise Guide.

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. 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 U.S.

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 U.S. 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 greater than 99 percent. In 2010, one case of *Haemophilus influenzae* type B was reported to IDPH. The case occurred in a 22 year-old male. He had received no Hib vaccinations.

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 of acute hepatitis B for every 100,000 persons were reported to CADE in 2010. Sixty percent of the cases were males. Nationally, acute hepatitis B infections occur 1.8 times more often in men than women.

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

There were 183 confirmed or probable chronic hepatitis B cases reported in 2010 in Iowa

The number of acute and chronic hepatitis B infections in 2010 decreased from 2009.

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 2010-2011season, approximately 200 surveillance sites reported to IISN including medical clinics, hospitals, laboratories, schools, local public health departments.

Influenza virus circulation in the 2010-2011 season returned to a more typical season distribution (as seen prior to the 2009 pandemic) with three types and subtypes of influenza viruses (influenza A (H3N2), 2009 influenza A (H1N1) and influenza B) identified in Iowa. The season occurred from October through May, peaking in late January and early February.

Among the specimens testing positive for influenza during the season (Figure 1), influenza B accounted for 32 percent, influenza A (H3N2) 31percent, and influenza A (H1N1) 28 percent. The influenza vaccine protects against both influenza A and B strains.

Influenza A (H1N1) disease was highest in the 18-24 year age group and influenza B was highest in children aged 5-17 years. While influenza A (H3N2) occurred most in people 65 and older, high numbers of cases were also seen in children younger than 18 years of age.

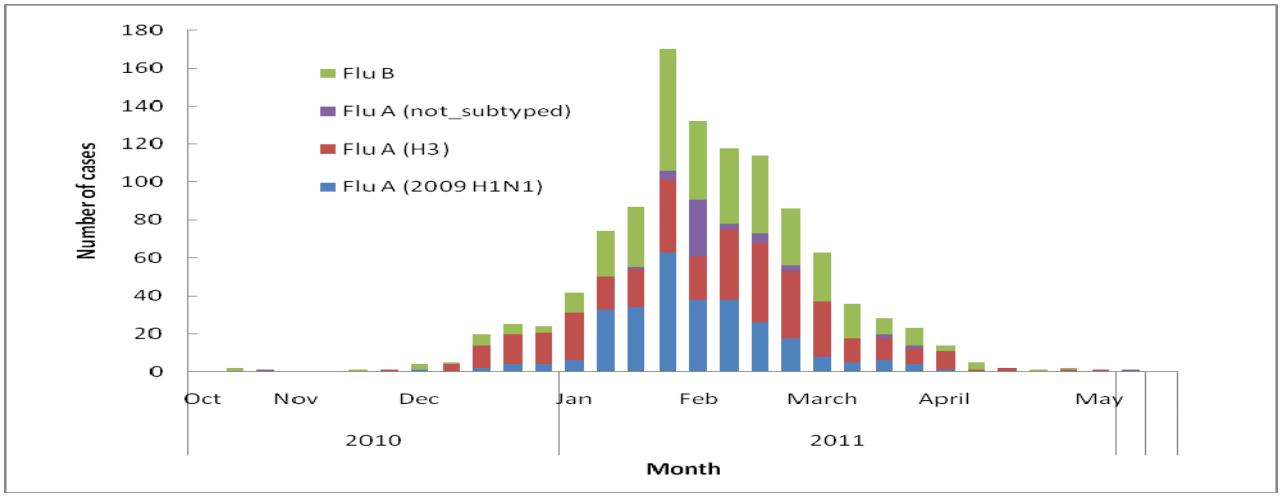


Figure 1. Laboratory-confirmed cases of influenza reported to the Iowa Department of Public Health, 2010-2011

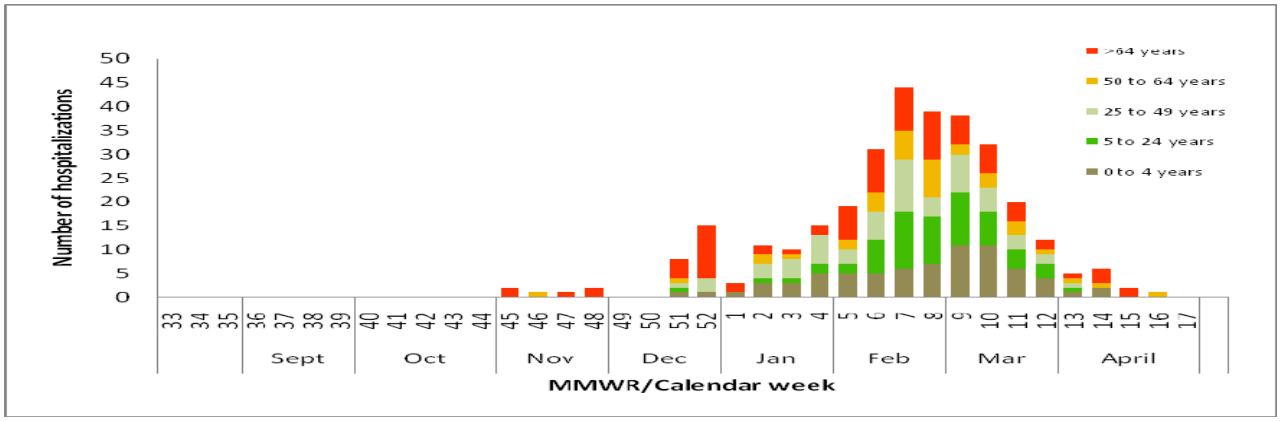


Figure 2. Influenza-associated hospitalization by age group, 2010-2011

Influenza-associated hospitalizations were reported from twenty-one sentinel hospitals during the season (Figure 2). Forty-two percent of these hospitalizations occurred in people younger than 25 years of age and twenty-seven percent in people older than 64 years of age.

There were approximately 165 school outbreaks due to illness reported to IDPH and the percent of students absent due to illness reported from sentinel schools with influenza virus activity in Iowa.

Measles

There was no case of measles reported to IDPH in 2010.

Meningococcal invasive disease

In 2010, there were 10 confirmed and probable cases or 0.3 cases for every 100,000 persons in Iowa. The age of case patients ranged from two to 69 years old with the mean age of 37 years. Nationally, there are 0.36 cases for every 100,000 persons.

Of these cases, four were group Y, two were group B, two group C, one was group A, and one was undetermined (Table 3).

Table 2. Cases of Meningococcal disease by serogroups, 2010

A	B*	C	W135	Y	Unk
1	2	2	0	4	1

*Serogroup B is not covered by the meningococcal vaccine

CDC defines a community-based outbreak of meningitis as the occurrence of three or more confirmed or probable cases during a period of 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 2010.

Meningococcal invasive disease is fatal in 10-14 percent of cases. One Iowa case (10%) was fatal in 2010. There are two types of meningococcal-vaccines currently licensed for use in the U.S.; 1) a polysaccharide vaccine and 2) a conjugated vaccine.

Mumps

In 2010, there were 38 cases of mumps or 1.3 cases per 100,000 persons, a 73 percent increase over the previous three year average of 22. Case ages in 2010 ranged from zero to 52 years with a median of 19 years old. Over half (21) of the 38 cases were associated with an outbreak in Northwest Iowa (primarily in Sioux County); almost all of the cases had occurred in young adults, primarily college students.

In 2006, Iowa was the center of the largest mumps outbreak in 20 years in the U.S. 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 causes epidemics every three to five years. In 2010, there were 705 confirmed and probable cases reported to IDPH or 23.4 cases for every 100,000 persons in Iowa, which accounts for 229 percent increase in activity over the previous three years average and 69% increase over the past five years average. High levels of activity last occurred in 2004 and 2005 (see Figure 3).

The majority (57%) of 2010 cases occurred in children ages 5-14 years, and especially children ages 10-14. Four percent of pertussis cases were hospitalized.

The most common symptom is paroxysms, or fits of coughing, followed by posttussive vomiting, whooping, and apnea. Less common, but serious secondary conditions reported include pneumonia, encephalopathy and seizures.

The highest numbers of cases were reported in east and central regions of the state.

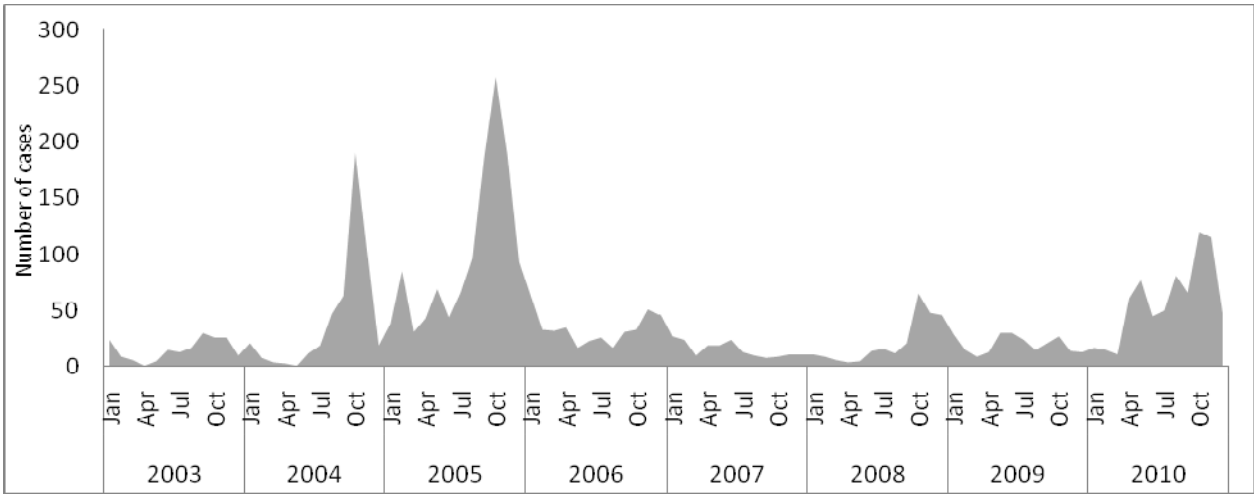


Figure 3. Number of pertussis cases reported to IDPH, Iowa, 2003-2010

Respiratory Syncytial Virus (RSV)

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. In addition, various labs including SHL report 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.

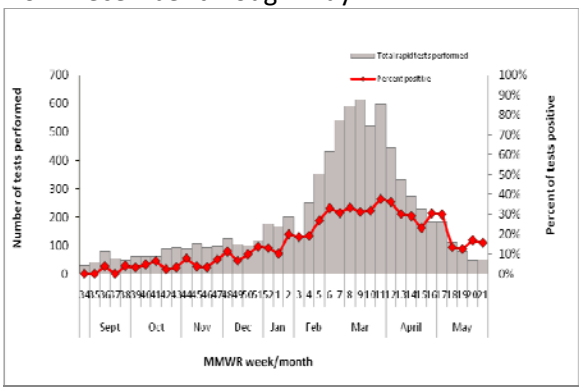


Figure 4. Percent of rapid RSV tests positive and number of tests performed, 2010-2011

Nationally, RSV surveillance is conducted by CDC using data from the National Respiratory and Enteric Virus Surveillance System. Data is reported from 19 laboratories throughout the U.S. Recent research has highlighted variability among different regions and states in the US[4].

Tuberculosis

In 2010, 48 tuberculosis (TB) cases were reported in Iowa. Between 2000 and 2010, Iowa reported 441 cases to CDC; an average of 43 cases each year.

TB, once the leading cause of death in Iowa and the United States, is still among the leading causes of death in many parts of the world. The World Health Organization estimates that one-third of the world's population is infected with TB, a major reservoir for future TB disease cases. Immigration to the United States from areas of the world with high TB prevalence is the leading source of TB cases reported in the U.S. The proportion of Iowa's reported TB cases in non-U.S.-born persons has increased significantly in the past two decades. For example, in 1995, 38% (27) of all reported TB cases were found in non-U.S.-born persons, compared to 77% (37) in 2010. This disparity is further illustrated by the fact that people born outside of the United States account for only 3.1% of the Iowa population.

The decreasing numbers of U.S.- born cases are due to effective TB control practices in this country. Priority for follow-up is given for newly arriving refugees and immigrants with an identified TB condition. State and local health departments designate this sub-population of persons for follow up medical evaluations. These evaluations play a major role in identifying and treating this high-risk population.

State law requires active cases of TB to be reported to IDPH. Iowa has one of the lowest TB case rates in the country, thanks in part to contact investigations, directly-observed therapy for active disease cases, and the provision of medication to Iowans with latent tuberculosis infection (LTBI). By completing six to nine months of therapy, those with latent TB reduce their risk of developing TB disease by 70-90 percent.

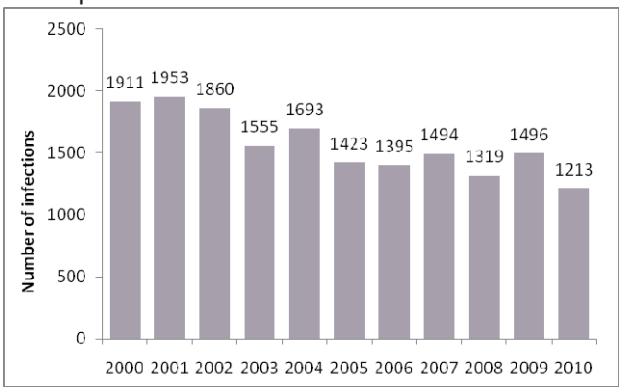


Figure 5. Number of latent TB infections by year in Iowa, 2000-2010

Summary of Sexually Transmitted Diseases, Hepatitis C, HIV and AIDS

HIV and AIDS

HIV diagnoses, on average, have been increasing at the rate of 3.5 per year since 2000, although there is some variability from year to year. There were 112 HIV diagnoses in 2010, a decrease of 12 (10%) from the 124 diagnoses reported in 2009. There were 3.7 HIV diagnoses per 100,000 population in 2010, compared to 4.1 HIV diagnoses per 100,000 population in 2009 and 3.4 HIV diagnoses per 100,000 population in 2008.

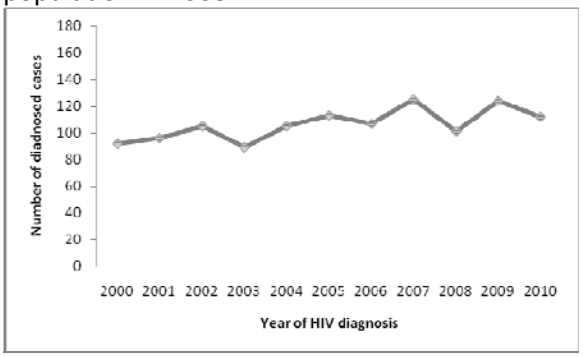


Figure 6. Number of newly diagnosed cases of HIV by year, 2000-2010

While males have always accounted for the majority of HIV diagnoses, this has become even more pronounced since 2003. Males accounted for eighty-four percent of HIV diagnoses in 2010. Diagnoses among males increased steadily from 2003 to 2007, from 56 to 105. Since then they have fluctuated somewhat, and may have now leveled off. There were 94 diagnoses among males in 2010. In contrast, the number of diagnoses among females decreased from 33 in 2003 to 19 in 2006, where the number has since been relatively steady; 18 females were diagnosed in 2010. The proportion of diagnoses in males has stabilized at around eighty-three percent male (about five males for every female) since 2007. This is in contrast to seventy five percent male (three males to one female) from 2003 through 2006.

Diagnoses of HIV among the foreign born have declined from the 10-year high recorded in 2002 when 32 (30%) of the 108 persons diagnosed with HIV were foreign born. By comparison, 20 (18%) of the 112 persons diagnosed in 2010 were born in a country other than the United States or one of its dependencies.

The gradual increase in HIV diagnoses since 2003 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 second year in a row, there were more than 20 diagnoses among persons 13 to 24 years of age. Twenty-two persons between the ages of 13 to 24 years were diagnosed in 2010, similar to the 24 in 2009, and more than three times the diagnoses recorded in 2003.

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, numbered 33 in 2010. Despite this, diagnoses among persons 25 to 44 years of age still accounted for half of all diagnoses, with 56 persons diagnosed in 2010. There was one pediatric HIV diagnosis in 2010, 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 2010 was 35 years. For adult/adolescent males, the median was 35 years; for females, it was 37 years .

Diagnoses among non-Hispanic African Americans, which had averaged 19 per year from 2007 through 2009, rose sharply in 2010 to 29. While non-Hispanic African Americans made up 2.9 percent of Iowa's population in 2010, they accounted for twenty-six percent of the new HIV diagnoses. This equates to 32.5 diagnoses per 100,000 non-Hispanic African Americans.

Hispanics were also overrepresented among persons diagnosed with HIV. While making up 5 percent of Iowa's population, Hispanics accounted for 8 percent of new HIV diagnoses

in 2010. A total of nine Hispanics were diagnosed in 2010, equating to 5.9 per 100,000 Hispanics.

Despite the disparities in diagnoses among African Americans and Hispanics, the largest proportion of new diagnoses continued to be among non-Hispanic white, accounting for 60 percent of new HIV diagnoses in 2010. A total of 67 non-Hispanic white were diagnosed in 2010, equating to 2.4 per 100,000 population. When the numbers of persons diagnosed per 100,000 population are compared, non-Hispanic African Americans were 13.5 times more likely to have been diagnosed with HIV in 2010 than white, non-Hispanics. Similarly, Hispanics were 2.5 times more likely to have been diagnosed than non-Hispanic white. Figure 7 shows the percent distribution of new HIV diagnoses by race and ethnicity.

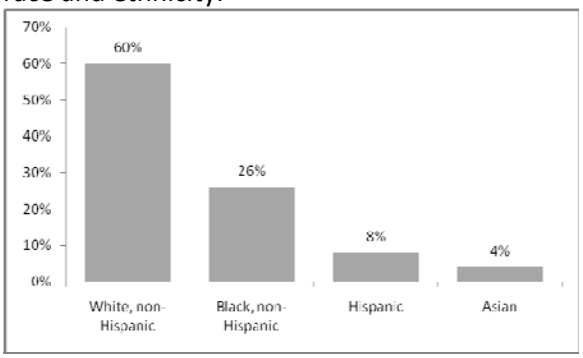


Figure 7. Percent distribution of newly diagnosed HIV cases by race and ethnicity

Men-who-have-sex-with-men (MSM) remained the leading category for mode of exposure to HIV infection. Diagnoses among MSM in 2010 numbered 63, compared to an average of 66 from 2007 to 2009. In 2010, MSM accounted for 56 percent of all cases, in line with the three-year average of 57 percent. Numbers (and proportions) of other modes of HIV exposure in 2010 were as follows: Injection drug use (IDU), 5(4%); men-who-have-sex-with-men and inject drugs (MSM/IDU), 8 (7%); heterosexual contact, 15 (13%); and no identified risk (NIR), 20 (18%). As noted above, one infection was passed from mother to child during pregnancy or labor and delivery. Such infections are termed "perinatal" or "vertical" transmission.

HIV/AIDS prevalence continues to increase. As of December 31, 2010, there were 1,828 persons living with HIV or AIDS who were Iowa residents at time of diagnosis, a prevalence of 60 per 100,000 people. This compares to 1,733 persons living with HIV/AIDS on the same date in 2009, a prevalence of 58 per 100,000. Figure 8 shows the upward trend in the estimated number of persons living with HIV or AIDS, as documented at the end of each calendar year. The top tier of the graph represents the estimated numbers of undiagnosed/unreported persons, based on the surveillance program's estimate of the timeliness of case reporting and on CDC's estimate of the number of persons who are infected but have not been diagnosed. When the figure of 1,828 is adjusted for under-reporting (1%) of diagnosed HIV and AIDS and for CDC's estimated percentage of undiagnosed infections (21%), there may have been as many as 2,337 Iowans living with HIV or AIDS at the end of 2010.

Seventy-one persons were diagnosed with AIDS in 2010, down from 91 (the highest number since 1996) in 2009. The 71 diagnoses in 2010 were more in line with the average of 70 for the three years 2006 through 2008. Of those diagnosed with AIDS in 2010, 51 (72%) were also newly diagnosed with HIV and received a concurrent diagnosis of AIDS or progressed to AIDS by the end of 2010. This finding is more an indication of prevention failures than it is of treatment failure or access to care.

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

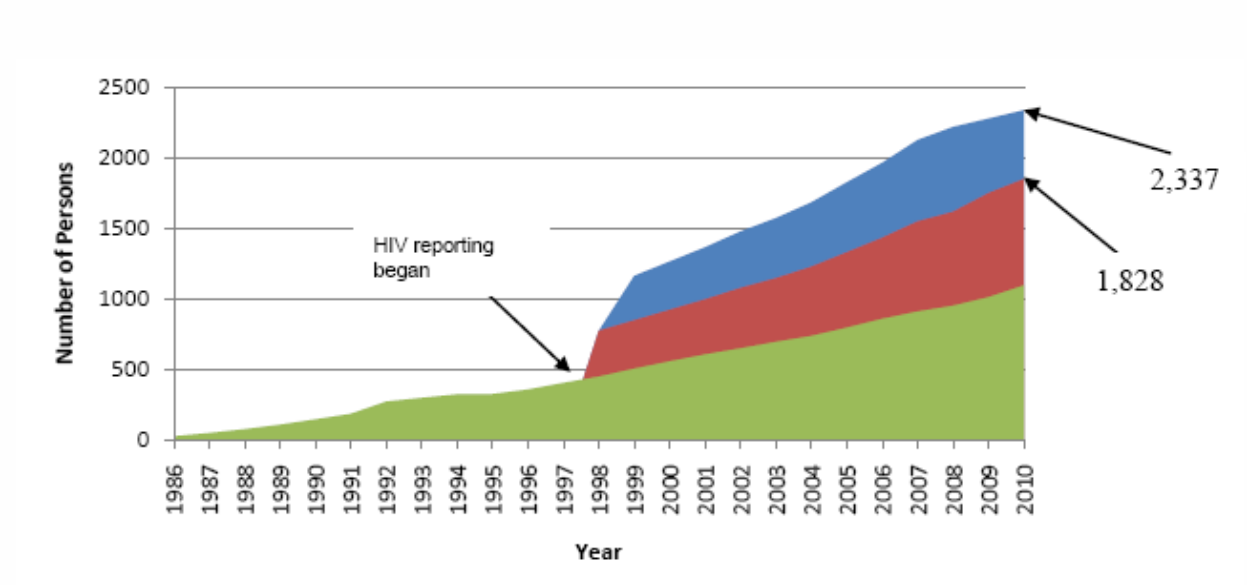


Figure 8. Estimated number of persons with HIV or AIDS in Iowa, 1986-2010

Hepatitis C

There were an estimated 4.1 million cases of hepatitis C in the United States; up to eighty-five percent of these cases are chronic. According to the 2009 census population estimate for Iowa, there were 3,007,856 people residing in the state. CDC estimate that 1.8 percent of the state's population, or 54,141 Iowans, has potentially been infected with the hepatitis C virus. To date, approximately 10,630 cases of hepatitis C have been identified by IDPH.

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

Due to a lack of funding, hepatitis C surveillance activities are not performed at the state level. IDPH is working toward beginning surveillance activities on January 2, 2012.

Sexually Transmitted Diseases

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

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

IDPH provides treatment to persons with positive tests at a public testing site, as well to their sexual partners. In 2008, *Iowa Code 139A* was updated to allow for partner delivered therapy. 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.

Chlamydia

CDC estimates that about 40 percent of chlamydial infections and 50 percent of gonorrhea infections remain undiagnosed and untreated each year. This means that in 2010, an estimated 10,135 infections went undiagnosed and untreated in Iowa.

Chlamydia and gonorrhea are more often diagnosed in women because women are more likely to have routine STD screening tests performed during annual exams, and because their infections are more likely to cause symptoms. Men are more likely to be tested

when their partners have tested or they are symptomatic.

There were 10,542 chlamydial infections reported to IDPH in 2010, which equates to 350 cases for every 100,000 people. Iowa remains below the national average of 544 cases for every 100,000 people. Diagnoses in Iowa and nationally have been steadily increasing for the past three decades. Despite this, data from population-based studies nationally indicate that the number of new infections is not increasing. This increase in cases (i.e., diagnoses) is due to better testing technologies and more widespread testing.

The majority of infections, 74%, were reported in persons aged 15-24 years. Although African Americans account for only 2.9 percent of Iowa's population, 18 percent of all reported chlamydial infections are among African Americans.

Gonorrhea

In 2010, 1,804 cases of gonorrhea were reported to IDPH, or 60 for every 100,000 Iowans. The state has about half as many cases for every 100,000 people as the national average of 119 cases. Like C*hlamydia*, gonorrhea most strongly impacts those 15-24 years of age; sixty-two percent of gonorrhea cases are among people of this age. Disparities among African Americans are the most pronounced for this infectious disease, with forty-one percent of gonorrhea cases being reported among this population. The highest rates of diagnoses are found in Black Hawk, Polk, Des Moines, and Scott counties.

Diagnoses of gonorrhea have been relatively steady for the past decade. However, *N. gonorrhoeae* has progressively developed resistance to the antibiotic drugs available to treat it. Because of this, dual therapy with a cephalosporin and either azithromycin or doxycycline is now recommended. This is to address the potential emergence of resistance to cephalosporins, the one class of antibiotics that effectively treats gonorrhea. The potential for the loss of the last effective class of antibiotics, the steady number of cases, and the pronounced disparities among African Americans make improving gonorrhea prevention an important goal of IDPH and of CDC.

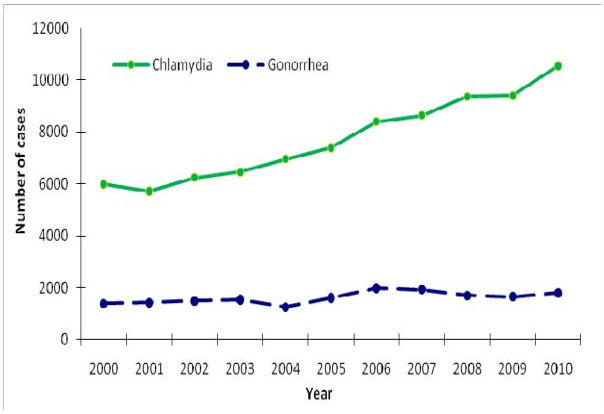


Figure 9. Number of cases of Chlamydia and gonorrhea by year, 2000-2010

Syphilis

There were 68 total cases of syphilis reported in 2010, or 2 for every 100,000 people. However, sporadic clusters of cases and spread from other states make it challenging to eliminate syphilis completely from Iowa. Syphilis cases were reported primarily among males, ages 20-55, and most often among men who have sex with men. The rate of infection was highest among African Americans, who experience a rate of 26 for every 100,000 people. Clusters of syphilis are seen, especially in early stages of infection and in urban areas.

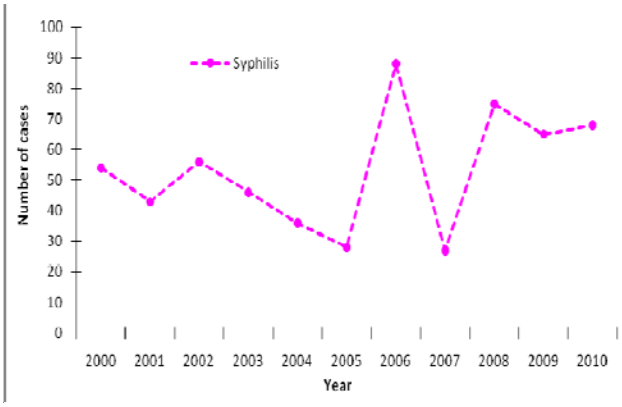


Figure 10. Number of cases of syphilis by year, 2000-2010

Summary of Enteric Diseases

Outbreak summary tables are at the end of this report.

Campylobacteriosis

The total number of campylobacteriosis cases reported in 2010 was 751. Campylobacteriosis incidence was 25.0 cases for every 100,000 people in 2010.

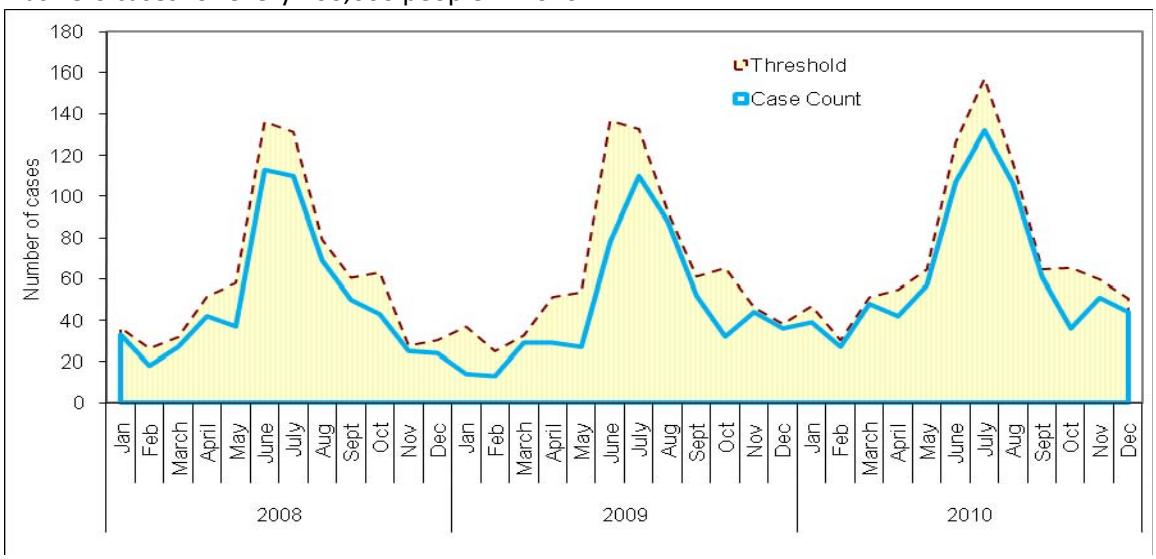


Figure 11. Campylobacteriosis cases versus maximum expected cases or threshold by month, 2010

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 June 2009, a new rapid, non-culture test for campylobacter was introduced. IDPH and SHL are evaluating whether the new test is having any effect on the increased number of reported cases.

Cryptosporidiosis

Cryptosporidiosis activity in 2010 increased over activity in 2009. There were 13.2 cases for every 100,000 Iowans in 2010, compared to 7.7 in 2009. Most cases reported either child care attendance or recreational water exposure. The CDC case definition used for cryptosporidiosis cases in 2010 now includes epidemiologically linked cases. Those cases are currently being tracked and reported.

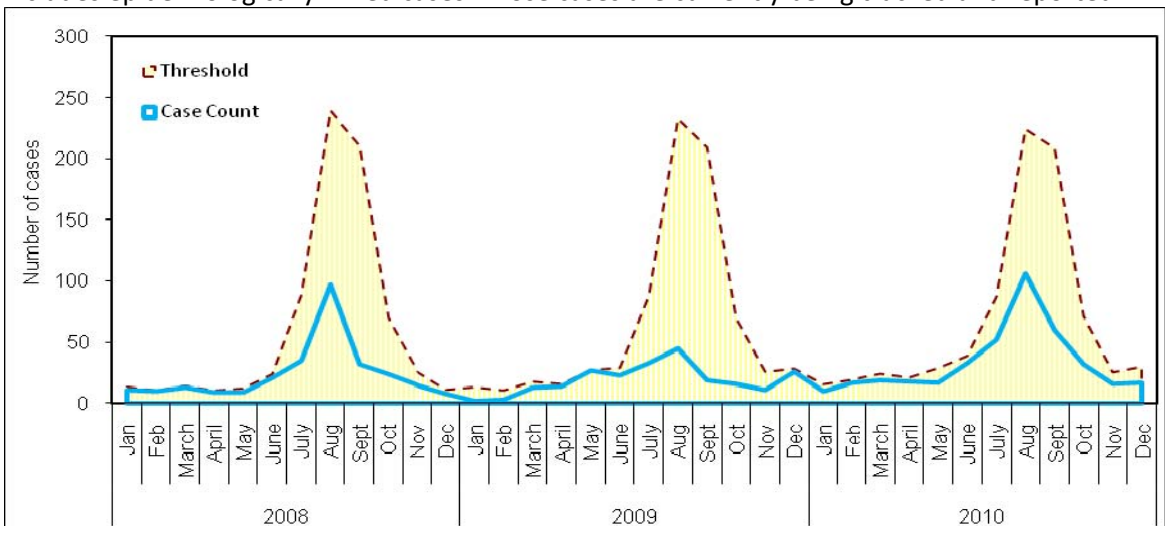


Figure 12. Cryptosporidiosis cases versus maximum expected cases or threshold by month, 2010

E. coli O157:H7 and other shiga-toxin producing strains

The incidence of *E. coli* shiga-toxin cases in Iowa increased slightly to 5.8 cases/100,000 persons in 2010 from 5.4 cases/100,000 persons in 2009. In 2010, IDPH assisted in the national outbreak investigations involving raw cookie dough and blade-tenderized steak. There were 173 cases reported in 2010.

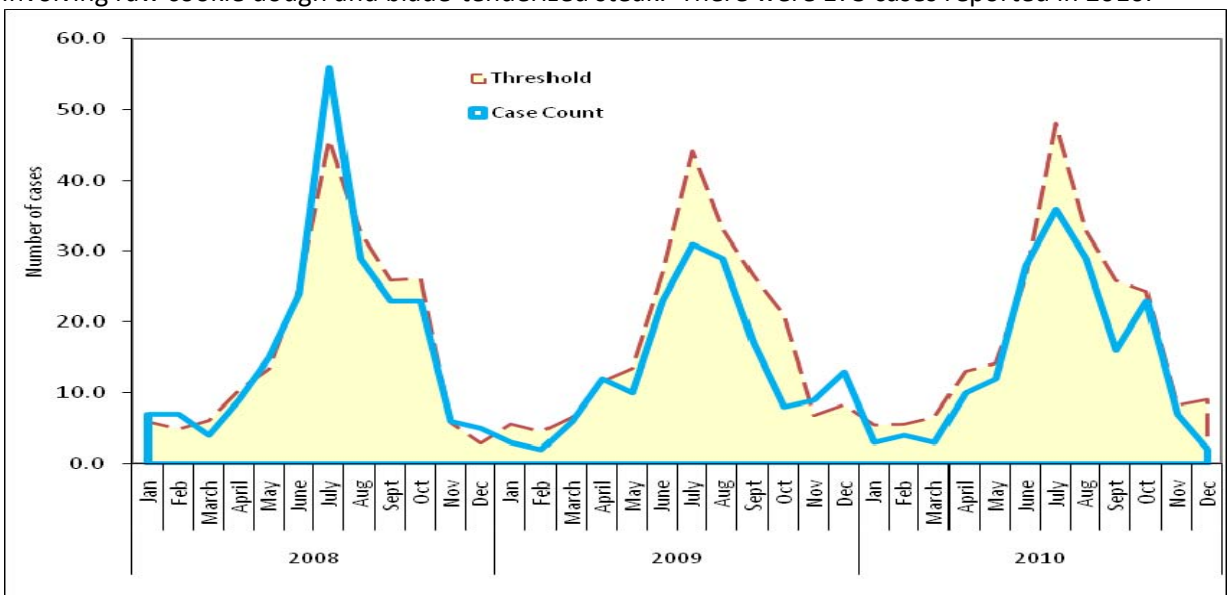


Figure 13. *E. coli* O157:H7 and other shiga-toxin producing strains cases versus maximum expected cases or threshold by month, 2010

Giardiasis

Giardiasis is one of the leading waterborne diseases. It typically peaks in late summer or early fall. In 2010, there were 284 cases in Iowa. Diapered children and those in childcare are most likely to become infected with giardia. Twenty-three percent of cases were age five and under. There were 9.4 cases for every 100,000 Iowans compared to 9.7/100,000 in the previous year.

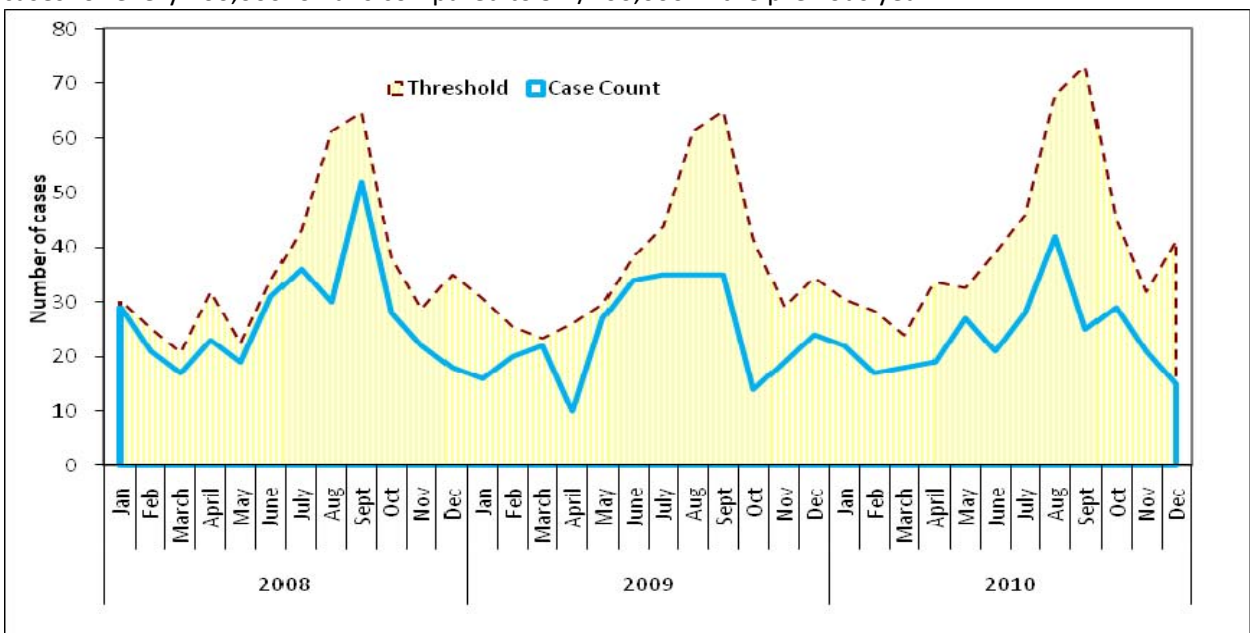


Figure 14. Giardiasis cases versus maximum expected cases or threshold by month, 2010

Hepatitis A

In 2010, there were 11 cases of hepatitis A reported in Iowa. This represents a seventy-nine percent reduction over the previous three year average of 52. Cases ranged from 17 to 85 years of age, with only three cases younger than 25. Sixty-four percent of cases were male. None of the illnesses were associated with outbreaks.

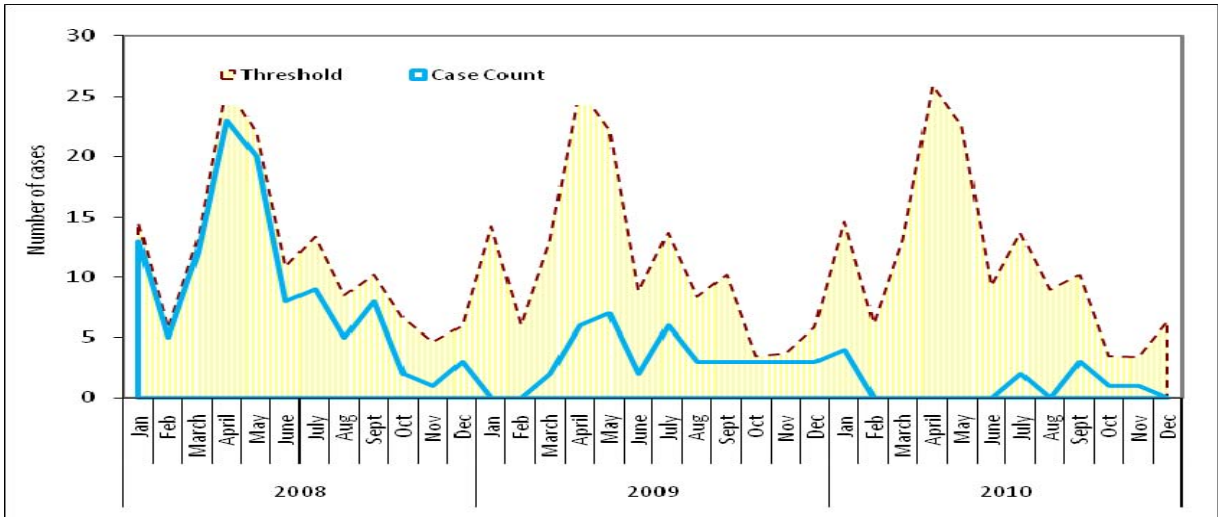


Figure 15. Hepatitis A cases versus maximum expected cases or threshold by month, 2010

Listeriosis

There were three cases of *Listeria montocytogenes* infection reported in 2010. None of these cases were associated with known *Listeria* outbreaks.

Salmonellosis

Salmonellosis incidence in 2010 increased to 17.6 cases per 100,000 persons from 13.6 cases per 100,000 persons in 2009. The total number of cases reported was 530. A statewide outbreak of *Salmonella* Newport associated with guacamole products sold at community events occurred in July. In August 2010, IDPH participated in an effort to identify *Salmonella* enteriditis from shell eggs produced in Iowa; however, no outbreaks were identified due to the shell eggs.

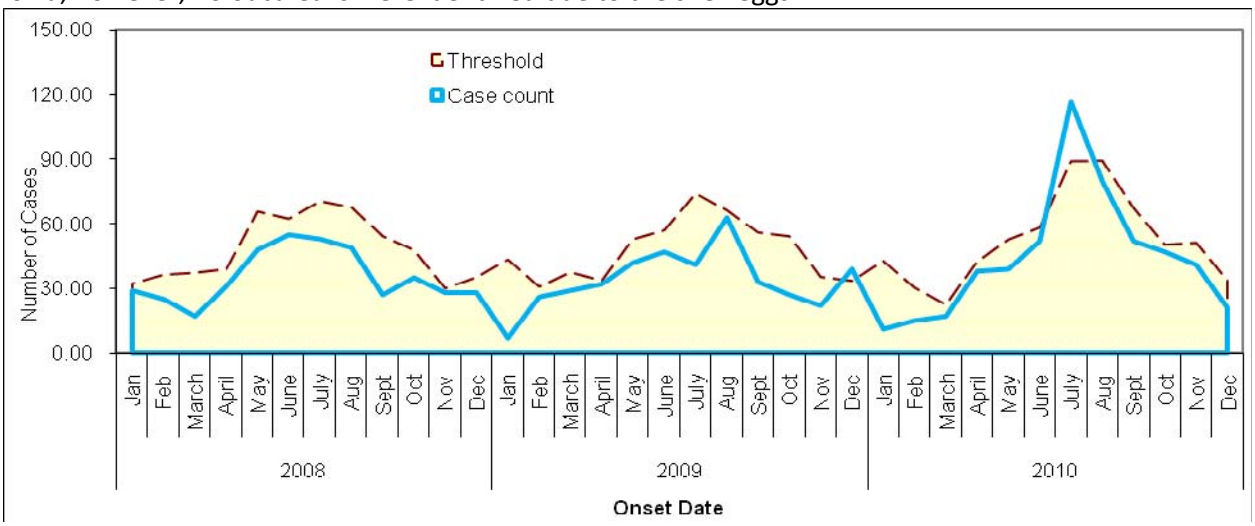


Figure16. Salmonellosis cases versus maximum expected cases or threshold by month, 2010

Shigellosis

In 2010, there were 57 cases of *Shigella* in Iowa. This was an approximately a 45 percent decrease over the average number of cases for the past three years. *Shigella* infections were reported in all areas of the state. Approximately 26 percent cases were under 5 years old; approximately 33 percent in persons aged 24-64 years. This corresponds to children and their parents or caretakers being at most risk.

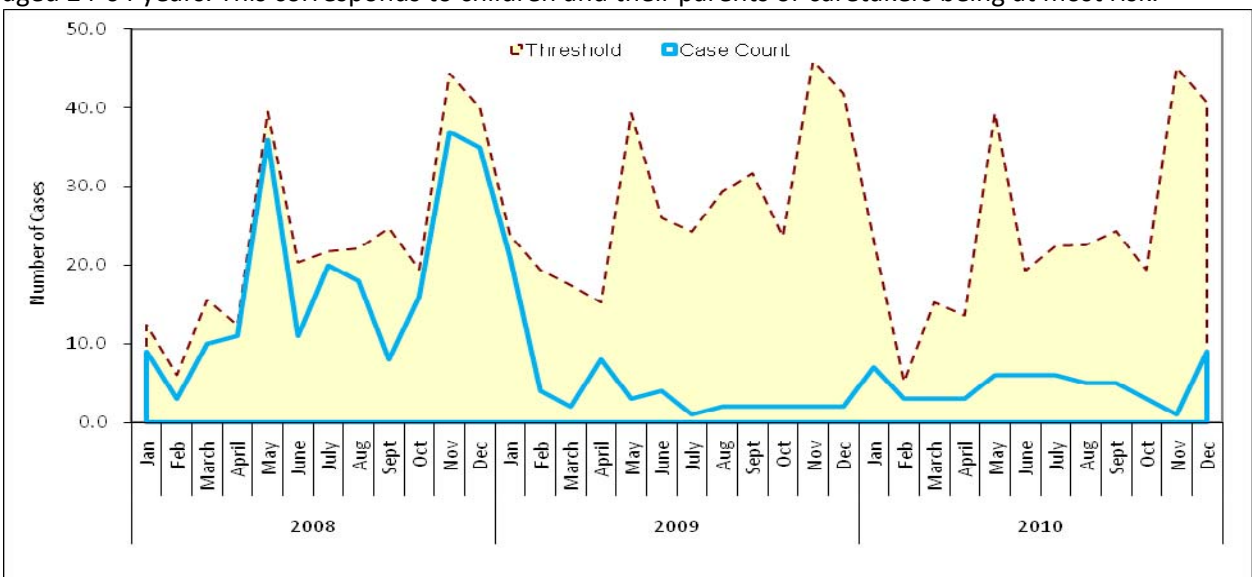


Figure 17. Shigellosis cases versus maximum expected cases or threshold by month, 2010

Summary of Zoonotic Diseases

Dengue fever

In 2010, two cases of dengue fever were reported to IDPH; both with recent international travel to countries where dengue virus is endemic.

Ehrlichiosis/Anaplasmosis

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

In 2010, there were two cases of ehrlichiosis/ anaplasmosis reported to IDPH. Median age of the cases was 83.5 years.

Hantavirus

There were no reports of hantavirus pulmonary syndrome (HPS) case in Iowa in 2010.

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

Lyme disease

Lyme disease is caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans by the site of an infected tick, specifically the blacklegged tick. Symptoms of Lyme disease include fever, headache, fatigue, and skin rash also known as erythema migrans. There were 87 cases of Lyme disease reported to IDPH in 2010. The 2010 Iowa case rate for Lyme disease was 2.9 per 100,000. Cases ranged from ages three to 84.

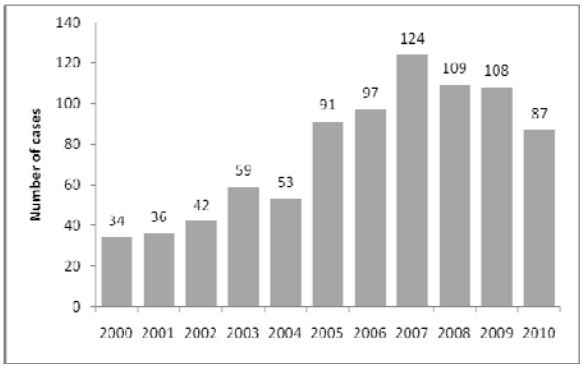


Figure 18. Confirmed and probable cases of Lyme disease reported to IDPH, 2000-2010

Malaria

Fourteen cases of malaria were identified in Iowa in 2010; six patients had recently immigrated to the United States. Three cases were determined to have *Plasmodium malariae*; eight cases had *Plasmodium falciparum* infections; three were unknown.

Rabies, Animal

In 2010, 27 cases of animal rabies were reported in Iowa, which is a slight decrease from 2009 (see table below). Rabies was identified most frequently in wildlife species including 13 skunks, 10 bats, and one fox. Two cases were diagnosed in companion animals including one cat and one dog. One cow also tested positive.

Table 3. Number of animals positive for rabies virus by species, 2010

Species	Positive	Total Tested	% Positive
Dogs	1	322	0.31%
Cow	1	72	1.39%
Cat	1	425	0.24%
Bat	10	444	2.25%
Fox	1	6	16.67%
Skunk	13	27	48.15%

During 2010, 1479 animals in Iowa were tested for rabies and 27 were confirmed positive (1.83%). The percent positive varies greatly by species, see Table 3. It is important to note that the percent positve is greatly influenced by the number of animals tested. Many animals are tested because they exhibit unusual behavior or clinical signs, making them more likely to be infected with the rabies virus. For these reasons, the percentages should not be considered representative of the true distribution of this disease within the animal population in Iowa.

There are two rabies strains that commonly circulate in Iowa (bat and skunk); many different types of animals can be infected with these strains. In animal samples that are strongly positive for rabies, the State Hygienic Laboratory (SHL) can differentiate the rabies strain that infected the animal. In 2010, SHL was able to identify the rabies strain in 22 of the 27 positive rabies cases; 14 were skunk strain and 8 were bat strain. Skunk strain rabies was identified in 12 skunks, 1 cat, and 1 fox. Bat strain rabies was identified in 8 bats.

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 preventative treatment each year.

Rocky Mountain Spotted Fever (RMSF)

In 2010, there were 5 cases of Rocky Mountain Spotted Fever (RMSF) reported in Iowa. American dog ticks are carriers of *Rickettsia rickettsii*, the bacterium that causes RMSF. The American dog tick is the most common species of tick in Iowa and can be found in every county in the state. The tick is active late March through August[5]. Iowa RMSF cases in 2010 had symptom onset dates from April to August. Cases ranged from age 48 to 76, with a median age of 43. All the five cases are male.

Table 4. Number of animals positive for rabies virus by species and year, 2001-2010

Species	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Bat	31	27	47	47	60	28	13	11	11	10	285
Skunk	28	27	38	28	33	13	5	7	13	13	205
Cat	10	7	8	11	5	7	7	9	3	1	68
Cow	10	12	3	10	7	4	0	1	5	1	53
Dog	2	3	6	3	2	2	5	1	2	1	27
Horse	3	2	3	0	1	3	1	0	0	0	13
Fox	1	0	0	1	0	0	0	0	0	1	3
Squirrel	0	0	0	0	0	0	0	0	1	0	1
Badger	0	0	1	0	0	0	0	0	0	0	1
Total	**85**	**78**	**106**	**100**	**108**	**57**	**31**	**29**	**35**	**27**	**656**

West Nile Virus

There were nine human cases of West Nile virus reported to IDPH in 2010. Seven of the nine cases were hospitalized; two persons died. One death was reported in an elderly man (86 years of age) from eastern Iowa, the other death was reported in an elderly woman (95 years of age) from central Iowa.

Table 5. Iowa West Nile virus activity by species and outcome, 2002-2010

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

Summary of Rare and Unusual Diseases

Hansen's disease (Leprosy)

In 2010, one case of Hansen's disease was reported in Iowa. The case was a 40 years of age male living outside of U.S.

Legionellosis

The average number of *Legionella* cases for the past three years is 19 cases. There were 16 cases of legionellosis reported to IDPH in 2010. Of the 16 cases, 14 were hospitalized and 5 died from the disease.

Toxic Shock Syndrome

There was one case of Toxic Shock Syndrome reported to IDPH in 2010, which occurred in a 19 year old female.

Tetanus

There was one case of tetanus reported to IDPH in 2010 in a 7 year old boy.

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

Hepatitis E
Psittacosis
Yellow Fever
Tularemia

Summary of Environmental Health Conditions

Carbon Monoxide (CO) Poisoning Surveillance

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

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

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

In 2010, there were 3 reported deaths from CO exposure in Iowa. Sixty-four (64) individual reports of CO exposure were received by IDPH. Fifty (50) of these reports met the case definition for carbon monoxide poisoning.

Table 6. Gender of cases with carbon monoxide poisoning meeting case definition, 2010

	Number of cases
Male	27
Female	20
Total	47*

**gender was not specified for 3 cases*

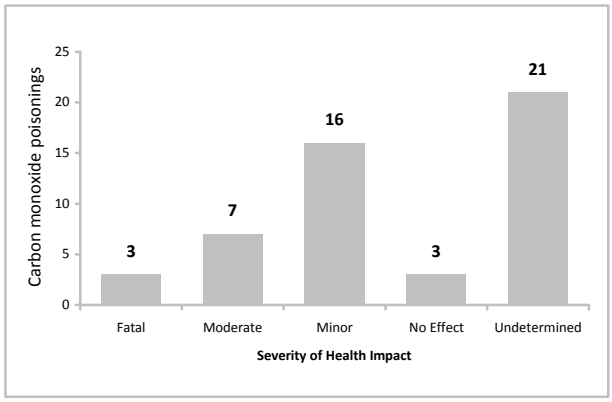


Figure 19. Severity of health impact among case patients with carbon monoxide poisoning, 2010

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

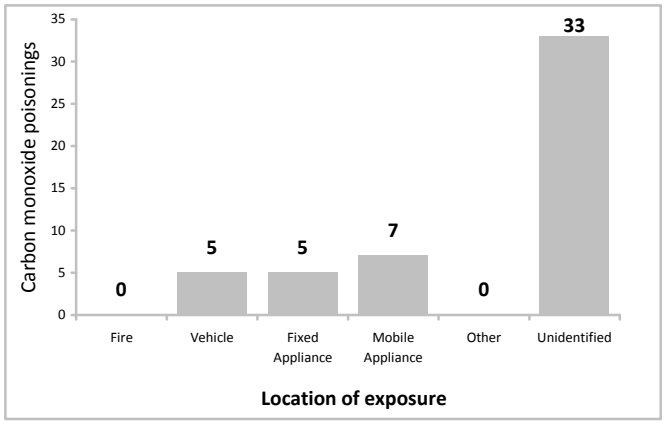


Figure 20. Sources of exposure among case patients with carbon monoxide poisoning, 2010

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

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, they develop a condition also known as 'Blue baby syndrome.'

Sources of nitrite include nitrate in contaminated drinking water or from preservatives in food, some drugs, or other sources.

There were 6 cases of Methemoglobinemia reported in Iowa in 2010. 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 utilize 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, electrical switches or someherbal preparations.

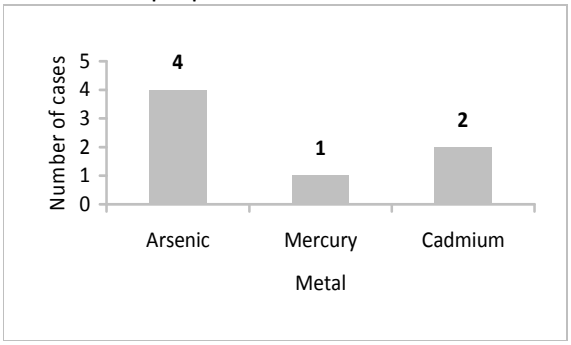


Figure 21. Reported cases of Arsenic, Cadmium and Mercury poisoning in Iowa, 2010

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 6 years. At very high blood lead levels, children can have severe brain damage or even die. At blood lead levels as low as 10 micrograms per deciliter (µg/dL), children's intelligence, hearing, and growth are affected. This damage can be minimized if a child's lead exposure is reduced. However, the damage cannot be reversed. A child is considered to be lead-poisoned at a blood lead level of 10 µg/dL.

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

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

IDPH reports the rate of blood lead testing among children and the prevalence of lead poisoning by birth cohort. A birth cohort is a group of children born during a specific year. IDPH has complete data for children born in 1991 through 2004. During that time, the percentage of children tested for lead poisoning has increased from 26 percent to 97.7 percent.

In Iowa, the prevalence of lead poisoning among children under the age of six years is 4.3 percent (combined birth cohorts). This is approximately seven times the national average of 0.6 percent. Data collected by IDPH include

the number and percentage of children born in 2004 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 and WIC status (see Table 15).

Adult lead poisoning

In 2010, a total of 4,998 blood lead level (BLL) test results on 2,905 adult Iowans were recorded by the Iowa Adult Blood Lead Epidemiology and Surveillance (ABLES) program. All blood lead test results for Iowa residents are reportable to IDPH under *Iowa Administrative Code* 641, Chapter 1.

Blood lead tests of 10 µg/dL or higher are currently defined as an elevated blood lead level (EBL). In 2010, there were 736 people (25% of those tested) who had BLLs of 10 µg/dL or higher. Of them, 14 people had blood led levels of 40 µg/dL or higher, 159 had blood lead levels of 25-39 µg/dL, and 563 had blood lead levels of 10-24 µg/dL.

Of the 736 EBLs, 159 (21.6%) were classified as new cases; that is, they did not have a blood lead levels of 10 µg/dL or higher in 2009 per records in the Iowa ABLES database. The average blood lead level for new cases was 19 µg/dL, with a range of 10-92 µg/dL. Of the new cases, 107 (67%) were able to be classified by their occupational industry, with 50%of the new cases coming from the lead battery manufacturing industry.

Females accounted for 10.6% (78) of the 736 EBLs, with an average blood lead level of18 µg/dL. Women of child-bearing age (16-44 years of age or those born in 1965 or later) accounted for 24 of the 78 female cases (31%), and 8 of the 78 of EBLs females (10%) were 35 years of age or younger. The blood lead levels for EBL females ranged from 10-34 µg/dL. It is unknown if any of these women were pregnant at the time of their exposure. Most of the females with EBLs work in the lead battery manufacturing industry.

Iowa's highest risk industries in 2010 remain consistent with previous years; the majority (84%) of EBL adults working in manufacturing plants that use lead or metal products that contain lead. Additional cases in 2010 include exposures from indoor firing ranges (work and hobby activity), foundry workers, dye and pigment manufacturing, automotive repair, artisans such as leaded glass workers, and workers in residential construction or remodeling.

Table 7. Iowa Adult Blood Lead Tests Result, 2009-2010 and Changes from 2009 to 2010

IA ABLES DATA	Number of Iowa Adults Tested-2009 BLL	Number of Iowa Adults Tested-2010 BLL	2010 change from 2009	Percent of Adults Tested 2009 by BLL Range	Percent of Adults Tested 2010 by BLL Range
BLL 40 µg/dL or higher	13	14	+1	0.5%	0.5%
BLL 25-39 µg/dL	172	159	-13	7.2%	5.5%
BLL 10-24 µg/dL	509	563	+54	21.2%	19.4%
BLL 0-9 µg/dL	1711	2169	+458	71.1%	74.7%
All BLL 10+ (Total EBLS)	**694**	**736**	**+42**	**28.9%**	**25.3%**
Total Individuals Tested	**2405**	**2905**	**+500**		

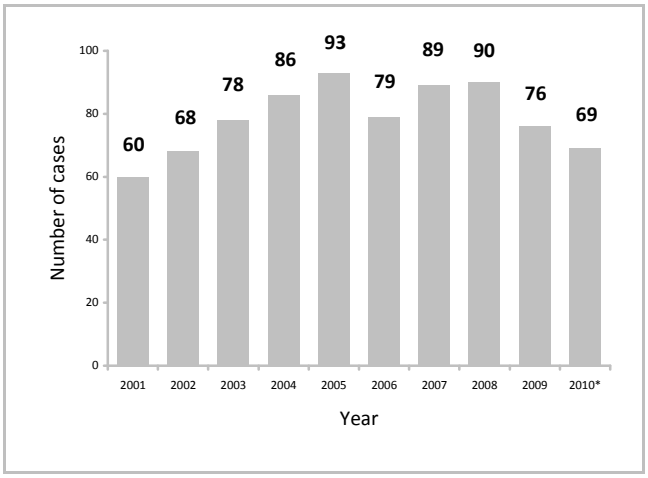
Adults: Persons 16 years of age or older as of date of blood test.
Iowa Adult Data: Test results for persons with an Iowa residential address as of date of blood test. Blood lead test reports received without address data or with a residential address outside of Iowa are not included in this report. Report reflects data in database as of February 28, 2011. 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 69 work-related fatalities for 2010 (preliminary data), which is below the ten-year average of 79 cases, and the third lowest number of work-related fatalities since the IA FACE program began in 1995. Motor vehicle crashes on public roadways are the largest single event causing work-related fatalities in Iowa (26/69 – 38%). Farming or agricultural activities involved 17 of the 69 deaths (25%), including 4 of the public roadway motor vehicle crashes. Construction incidents accounted for 7 deaths (10%).

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 http://www.public-health.uiowa.edu/face/ .



* Preliminary data

Figure 22. Iowa FACE work-related death

Outbreak Summaries

Table8. Foodborne Outbreaks, 2010

Type	Nature of Episode	Event/Place	Location of Food Preparation	Location of Food Consumption	Region	Month	Number Affected	Food Vehicle of Transmission	Agent Involved
Foodborne	Vomiting, Watery Diarrhea, Abdominal Cramps	School	Locker/Caterer	School	4	June	32/50	BBQ Pork	Clostridium perfringens
Foodborne	Diarrhea, Abdominal Cramps	Restaurant	Restaurant	Restaurant	6	June	1	Unknown	*Salmonella* baildon
Foodborne	Diarrhea, Abdominal Cramps	Restaurant	Restaurant	Restaurant	3	June/July	4	Unknown	*Salmonella* enteriditis
Foodborne	Diarrhea, Abdominal Cramps	Farmers' Market	Restaurant	Farmer's Market/Home	6	July	39 conf, 5 epi-link	Guacamole	*Salmonella* newport
Foodborne	Diarrhea, Nausea, Abdominal Cramps	Anniversary Party	Church	Church	3	July-August	4 conf, 1 epi-link	Unknown	*Salmonella* I 4 (5): i; - (monophasic)
Foodborne	Diarrhea, Nausea, Vomiting, Headache, Chills,	Teachers' Luncheon	Home	School	5	August	48/133	Unknown	Clostridium perfringens
Foodborne	Fever, Diarrhea, Abdominal Cramps, Vomiting	Baptism	Home	Home	3	October	6/99	Pork Meat	*Salmonella* infantis
Foodborne	Diarrhea, Abdominal Cramps	Restaurant	Restaurant	Restaurant	5	October	3	Unknown	*Salmonella* Thompson

Table9. Non-foodborne or Unknown Cause Outbreaks, 2010

Type	Nature of Episode	Event/Place	Region	Month	Number Affected	Vehicle of Transmission	Agent Involved
Person-to-Person	Diarrhea, Vomiting	Restaurant	4	January	7/9	Person-to-Person	Norovirus - 3
Person-to-Person	Diarrhea, Vomiting	Skating Competition	6	January	30/100	Person-to-Person	Norovirus -4
Person-to-Person	Diarrhea, Vomiting	Drill Team Event	1	March	4/400	Person-to-Person	Norovirus-3
Person-to-Person	Diarrhea, Vomiting	Hospital Potluck	6	March	27/35	Person-to-Person	Norovirus
Person-to-Person	URI, coughing, Pneumonia	LCTF	5	March	41/125 +staff	Person-to-Person	Human Metapneumo-virus
Person-to-Person	Diarrhea, Vomiting	Congregate Meal	3	March	7/40	Person-to-Person	Norovirus-4
Person-to-Person	Diarrhea, Vomiting	School	3	April	4/24	Person-to-Person	Norovirus-2
Person-to-Person	Diarrhea, Vomiting, Nausea, Chills	Funeral Luncheon	3	April	23/51	Person-to-Person	Norovirus-3
Person-to-Person	Vomiting, Nausea, Abdominal Cramps	School	1	April	42/400	Person-to-Person	Suspect Norovirus
Vaccine Preventable	Parotid Gland Swelling	College	3	May	8	Person-to-Person	Mumps
Person-to-Person	Vomiting, Diarrhea, Cramps	School	5	June	41	Person-to-Person	Viral
Person-to-Person	Vomiting, Diarrhea	Wedding Reception	6	June	30/210	Person-to-Person	Norovirus-2
Person-to-Person	Diarrhea, Abdominal Cramps	Child Care	6	July	9	Person-to-Person	*E.coli* O157:H7
Vaccine Preventable	Fever, Sore Throat, Coughs,	Sports Team	6	July	9	Person-to-Person	Seasonal Flu AH3

Type	Nature of Episode	Event/Place	Region	Month	Number Affected	Vehicle of Transmission	Agent Involved
	Body Aches, Congestion						
Person-to-Person	Diarrhea, Vomiting, Nausea, Chills	Wedding	6	July	28/200	Person-to-Person	Norovirus-1
Person-to-Person	Diarrhea, Vomiting	Restaurant	6	July	8/15	Person-to-Person	Suspect C. perfringens
Person-to-Person	Diarrhea, Vomiting, Nausea	Wedding	1	July	11/200	Person-to-Person	Norovirus-2
Waterborne	Diarrhea, Vomiting, Dehydration	Day Camp	6	July-Aug	4 confirmed, 3 epi-links	Waterborne	Cryptosporidium
Waterborne	Diarrhea, Nausea, Abdominal Cramps	Child Care Center	4	August	5 confirmed, 8 epi-links	Waterborne	Cryptosporidium
Waterborne	Diarrhea, Nausea, Abdominal Cramps	Waterpark	State-wide	July-August	13confirmed, 2 epi-links	Waterborne	Cryptosporidium
Person-to-Person	Diarrhea	Restaurant	6	September	1 confirmed	Person-to-Person	Hepatitis A
Person-to-Person	Diarrhea, Vomiting	After School Child Care	5	September	13/54	Person-to-Person	Suspect Norovirus.
Person-to-Person	Diarrhea, Nausea, Vomiting, Abdominal Cramps	Child Care	5	September	4/8	Person-to-Person	*Salmonella* Hartford
Person-to-Person	Fever, Vomiting, Diarrhea	School	4	October	100/425	Person-to-Person	Norovirus-3
Person-to-Person	Nausea, Vomiting, Diarrhea,	Funeral Reception	1	November	35/175	Person-to-Person	Norovirus-2

Type	Nature of Episode	Event/Place	Region	Month	Number Affected	Vehicle of Transmission	Agent Involved
	Abdominal Cramps						
Person-to-Person	Nausea, Diarrhea, Abdominal Cramps	Long-Term Care Facility	1	November	29/100	Person-to-Person	Suspect Norovirus
Person-to-Person	Nausea, Vomiting, Diarrhea, Abdominal Cramps	Hospital	1	December	48 ill	Person-to-Person	Norovirus-3
Person-to-Person	Diarrhea, Vomiting	Assisted Living	6	December	30 /70	Person-to-Person	Suspect Norovirus
Person-to-Person		Restaurant	5	December	25/51	Person-to-Person	Norovirus-5

Table 10. Cases and rates per 100,000 population for 2010 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	3.5	23	6.6	32	3.3	1	0.2	0	71	2.4
Botulism, infant	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0.0
Campy	85	41.7	129	21.4	114	26.9	94	26.9	221	22.5	108	24.3	0	751	25.0
Chlamydia	15	7.4	3661	606.9	5823	1376.5	864	246.8	179	18.2	0	0.0	0	10542	350.5
Cryptosporidiosis	64	31.4	109	18.1	54	12.8	57	16.3	63	6.4	50	11.3	0	397	13.2
Dengue fever	0	0.0	0	0.0	1	0.2	1	0.3	0	0.0	0	0.0	0	2	0.1
E.coli shgt	44	21.6	61	10.1	16	3.8	10	2.9	26	2.6	16	3.6	0	173	5.8
Ehrlichiosis/anaplasmsis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.5	0	2	0.1
Giardiasis	63	30.9	58	9.6	31	7.3	38	10.9	73	7.4	21	4.7	0	284	9.4
Gonorrhea	3	1.5	549	91.0	917	216.8	255	72.8	77	7.8	3	0.7	0	1804	60.0
Hemolytic uremic syndrome	3	1.5	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0	0	5	0.2
Hepatitis A	0	0.0	1	0.2	3	0.7	2	0.6	4	0.4	1	0.2	0	11	0.4
Hepatitis B, acute	0	0.0	0	0.0	2	0.5	6	1.7	5	0.5	2	0.5	0	15	0.5
Hepatitis B, chronic	5	2.5	10	1.7	36	8.5	48	13.7	74	7.5	10	2.3	0	183	6.1
HIV (diagnoses)	1	0.5	4	0.7	34	8.0	29	8.3	44	4.5	0	0.0	0	112	3.7
Legionellosis	0	0.0	0	0.0	0	0.0	0	0.0	7	0.7	9	2.0	0	16	0.5
Lyme	6	2.9	24	4.0	14	3.3	6	1.7	28	2.8	9	2.0	0	87	2.9
Malaria	0	0.0	5	0.8	5	1.2	2	0.6	2	0.2	0	0.0	0	14	0.5
Meningococcal Inv. Disease	1	0.5	0	0.0	2	0.5	2	0.6	4	0.4	1	0.2	0	10	0.3
Mumps	4	2.0	16	2.7	11	2.6	3	0.9	4	0.4	0	0.0	0	38	1.3
Pertussis	99	48.5	449	74.4	38	9.0	41	11.7	65	6.6	13	2.9	0	705	23.4
Q fever	0	0.0	0	0.0	0	0.0	0	0.0	3	0.3	1	0.2	0	4	0.1
Rocky Mountain Spotted Fever	0	0.0	0	0.0	0	0.0	0	0.0	3	0.3	2	0.5	0	5	0.2
Salmonellosis	85	41.7	72	11.9	68	16.1	63	18.0	163	16.6	79	17.8	0	530	17.6
Shigellosis	15	7.4	18	3.0	6	1.4	5	1.4	10	1.0	3	0.7	0	57	1.9
Syphilis	0	0.0	2	0.3	13	3.1	18	5.1	31	3.2	4	0.9	0	68	2.3
Tuberculosis	0	0.0	4	0.7	17	4.0	6	1.7	13	1.3	8	1.8	0	48	1.6
Typhoid Fever	1	0.5	0	0.0	1	0.2	1	0.3	0	0.0	0	0.0	0	3	0.1
West Nile Virus	0	0.0	0	0.0	0	0.0	2	0.6	3	0.3	4	0.9	0	9	0.3

Table 11. Cases and rates per 100,000 population for 2010 by SEX, IOWA

	Sex						
	Female		Male		Unk	Total	
Disease	Cases	Rate	Cases	Rate	Cases	Cases	Rate
AIDS (diagnosis)	9	0.6	62	4.2	0	71	2.4
Campylobacteriosis	312	20.5	436	29.3	3	751	25.0
Chlamydia	7612	500.1	2930	197.2	0	10542	350.5
Cryptosporidiosis	203	13.3	194	13.1	0	397	13.2
E. coli and other shiga-toxin producing	83	5.5	90	6.1	0	173	5.8
Ehrlichiosis (HME)	0	0.0	2	0.1	0	2	0.1
Giardia	125	8.2	157	10.6	2	284	9.4
Gonorrhea	1180	77.5	624	42.0	0	1804	60.0
Hemolytic uremic syndrome	3	0.2	2	0.1	0	5	0.2
Hepatitis A	4	0.3	7	0.5	0	11	0.4
Hepatitis B, acute	6	0.4	9	0.6	0	15	0.5
Hepatitis B, chronic	76	5.0	107	7.2	0	183	6.1
HIV (diagnoses)	18	1.2	94	6.3	0	112	3.7
Legionellosis	10	0.7	6	0.4	0	16	0.5
Listeriosis	3	0.2	0	0.0	0	3	0.1
Lyme disease	28	1.8	59	4.0	0	87	2.9
Meningococcal invasive disease	3	0.2	7	0.5	0	10	0.3
Mumps	11	0.7	27	1.8	0	38	1.3
Pertussis (whooping cough)	379	24.9	322	21.7	4	705	23.4
Rocky Mountain Spotted Fever	0	0.0	5	0.3	0	5	0.2
Salmonellosis	282	18.5	248	16.7	0	530	17.6
Shigellosis	37	2.4	19	1.3	1	57	1.9
Syphilis	21	1.4	47	3.2	0	68	2.3

Table 12. Notifiable diseases by year, 1991-2010

Notifiable diseases	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
AIDS (diagnosis)	76	117	157	103	110	104	97	75	60	77	80	80	75	75	70	78	79	68	64	91	71
Anthrax																					
Botulism										1					1		1	1	1	0	
Brucellosis (Undulant Fever)	3	1	1	2	1	2	4	4	1	6		2	1			1	2	0	2	2	
Campylobacteriosis	388	333	260	292	280	274	339	425	455	467	499	467	427	458	559	537	449	524	591	552	751
Chlamydia			6125	5214	5412	5088	4165	4906	5173	5511	5989	5716	6241	6462	6958	7390	8399	8643	9372	9406	10542
Cholera					1					1											
Cryptosporidiosis					71	21	75	71	66	56	77	82	49	122	90	122	230	610	284	232	397
Cyclospora							3	1	3			1								1	
Dengue Fever																1	1	6	5	2	2
Diphtheria																					
Ehrlichiosis													1	1		4	7	7	7	8	2
Encephalitis (arboviral except WNV)	7	4	3	4	1	13	19	3	3	3	4	3	3		2		1				
Escherichia coli 0157:H7 (includes HUS & Shiga-toxin producing)	0	15	20	27	54	64	123	114	93	114	180	81	122	103	124	108	161	185	208	163	173
Giardiasis	435	422	351	340	339	391	410	358	429	377	420	345	315	277	301	280	302	301	326	291	284
Gonorrhea			1653	1824	1645	1723	1144	1309	1615	1365	1394	1424	1496	1544	1249	1606	1981	1928	1700	1658	1804
Haemophilus influenzae Type B	23	15	7	5	6	3	4	6	5	2					1		2	1	2	1	1
Hansen's Disease (Leprosy)		1							1		2	1				1	1		1		1
Hantavirus Syndromes								2	1	2				1					1		
Hepatitis A (Viral, infectious)	277	48	53	58	64	106	346	490	400	161	67	41	72	40	50	22	13	48	109	38	11
Hepatitis B (Serum) Acute / Chronic	54	42	33	36	27	46	74	44	54	44	38	24	20	27	17	32	21/35	269	25/226	293	15/183
Hepatitis B (Perinatal)																	1		1		1
Hepatitis C or unspecified	17	14	12	12	25	1	43						1	1						262	156

Notifiable diseases	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
HIV (diagnosis)									99	85	92	96	105	89	105	113	107	125	101	124	112
Legionellosis	4	12	18	19	34	21	11	12	11	17	15	8	13	12	8	8	13	12	21	24	16
Listeria monocytogens	6						1		2	6	2	3	5		3	7	6	8	1	4	3
Lyme Disease	16	22	33	8	17	16	19	8	27	24	34	36	42	58	56	91	97	124	109	108	87
Malaria	2	7	5	5	5	3	3	10	8	11	2	9	4	6	5	9	2	3	12	10	14
Measles (Rubeola)	26	17	1		7		1								3					1	
Meningococcal Inv. Disease	7	15	18	28	25	31	56	47	46	42	37	32	29	28	17	19	20	15	19	16	10
Mumps	22	23	13	11	16	11	3	10	11	8	8	1	1	2	2	6	1,963	27	24	15	38
Pertussis (Whooping Cough)	20	26	11	38	23	11	32	207	78	111	67	167	230	182	1066	1106	342	150	257	235	705
Plague																					
Poliomyelitis		1																			
Psittacosis		3	2	2								3				1					
Rabies (Animal)	215	155	175	78	90	141	237	160	153	159	81	83	74	105	100	108	57	31	29	35	27
Rabies (Human)													1								
Rocky Mountain Spotted Fever	2	1	3	7	1		1	2	2	1	2	5	7	3	2	7	5	17	8	5	5
Rubella (German Measles)	4	6	3							30		1									
Salmonellosis	314	304	339	242	404	433	335	296	375	260	373	339	509	413	435	410	475	477	425	408	530
Shigellosis	51	33	46	68	338	351	151	90	69	74	569	367	122	93	64	103	134	109	214	53	57
Syphilis			154	175	235	171	91	65	25	31	54	43	56	46	36	28	88	27	75	65	68
Tetanus			1	1	1			1	1		1		1			1					1
Toxic Shock Syndrome	10	7	7	7	8	5	4	3	4	4	4	1	3	5	5	5			1	2	1
Trichinosis	79	1			1	6						3				1					
Tuberculosis	72	71	49	58	66	67	70	74	55	58	37	42	31	40	47	55	36		46	42	48
Tularemia																				1	
Typhoid Fever	1		1				1	1		1				2				1	6		3
West Nile Virus													52	147	23	37	37	30	5	5	9
Yellow Fever																				2	

Table 13. Salmonella serotypes reported 2010

***Salmonella* Serotypes by Frequency**					
Salmonella	**Serotype**	**Cases**		**Serotype**	**Cases**
Salmonella	Agona	5	*Salmonella*	Meleagridis	1
Salmonella	Anatum	1	*Salmonella*	Miami	1
Salmonella	Arizonae	1	*Salmonella*	Monophasic	47
Salmonella	Baildon	1	*Salmonella*	Monschaui	1
Salmonella	Baildon	1	*Salmonella*	Montevideo	13
Salmonella	Baranquilla	1	*Salmonella*	Muenchen	7
Salmonella	Bareilly	1	*Salmonella*	Muenster	1
Salmonella	Berta	4	*Salmonella*	Newport	65
Salmonella	Bovismorbificans	1	*Salmonella*	Ohio	1
Salmonella	Braenderup	9	*Salmonella*	Oranienburg	4
Salmonella	Bruck	1	*Salmonella*	Oslo	1
Salmonella	Cubana	3	*Salmonella*	Paratyphi A	2
Salmonella	Derby	2	*Salmonella*	Paratyphi B var Java	19
Salmonella	Dublin	3	*Salmonella*	Pomona	1
Salmonella	Edinburg	1	*Salmonella*	Poona	2
Salmonella	Enteritidis	121	*Salmonella*	Preston	1
Salmonella	Group B	7	*Salmonella*	Saintpaul	9
Salmonella	Group C	1	*Salmonella*	Sandiego	1
Salmonella	Group D	1	*Salmonella*	Senftenberg	1
Salmonella	Hadar	2	*Salmonella*	Species	6
Salmonella	Hartford	12	*Salmonella*	Subspecies I	6
Salmonella	Havana	1	*Salmonella*	Subspecies IIIa	1
Salmonella	Heidelberg	6	*Salmonella*	Subspecies IIIb	1
Salmonella	Infantis	12	*Salmonella*	Subspecies IV	2
Salmonella	Javiana	4	*Salmonella*	Thompson	10
Salmonella	Johannesburg	1	*Salmonella*	Typhi	1

Salmonella	Kentucky	1	*Salmonella*	Typhimurium	48
Salmonella	Lexington	1	*Salmonella*	Typhimurium Var Copenhagen	39
Salmonella	Litchfield	3	*Salmonella*	Uganda	1
Salmonella	Mbandaka	1		Unknown	28
			Total		530

Table 14. Shigella serogroups 1991-2010

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

Table 15. Iowa children born in 2004 and tested for blood lead levels before the age of 6 years by county (as of 12/31/2010)

COUNTY	2004 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl	COUNTY	2004 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl
Adair	60	60	100.0	1	1.7	Des Moines	523	523	100.0	47	9.0
Adams	38	38	100.0	2	5.3	Dickinson	178	178	100.0	-0	0.0
Allamakee	205	205	100.0	11	5.4	Dubuque	1203	1123	93.3	28	2.5
Appanoose	145	127	87.6	4	3.1	Emmet	129	129	100.0	5	3.9
Audubon	46	46	100.0	3	6.5	Fayette	209	209	100.0	9	4.3
Benton	315	315	100.0	8	2.5	Floyd	197	196	99.5	9	4.6
Black Hawk	1715	1715	100.0	84	4.9	Franklin	133	133	100.0	12	9.0
Boone	287	287	100.0	13	4.5	Fremont	74	74	100.0	1	1.4
Bremer	232	232	100.0	7	3.0	Greene	100	100	100.0	6	6.0
Buchanan	290	253	87.2	14	5.5	Grundy	112	112	100.0	2	1.8
Buena Vista	268	268	100.0	16	6.0	Guthrie	106	106	100.0	3	2.8
Butler	179	158	88.3	6	3.8	Hamilton	201	187	93.0	9	4.8
Calhoun	115	115	100.0	5	4.3	Hancock	117	117	100.0	4	3.4
Carroll	260	260	100.0	13	5.0	Hardin	200	200	100.0	15	7.5
Cass	151	151	100.0	2	1.3	Harrison	136	126	92.6	6	4.8
Cedar	205	205	100.0	8	3.9	Henry	255	255	100.0	17	6.7
Cerro Gordo	500	500	100.0	26	5.2	Howard	119	113	95.0	6	5.3
Cherokee	113	113	100.0	8	7.1	Humboldt	143	121	84.6	4	3.3
Chickasaw	131	131	100.0	7	5.3	Ida	80	62	77.5	6	9.7
Clarke	124	124	100.0	4	3.2	Iowa	190	190	100.0	9	4.7
Clay	209	209	100.0	4	1.9	Jackson	193	193	100.0	9	4.7
Clayton	207	203	98.1	8	3.9	Jasper	421	402	95.5	17	4.2
Clinton	599	599	100.0	27	4.5	Jefferson	152	142	93.4	7	4.9
Crawford	244	244	100.0	7	2.9	Johnson	1514	1339	88.4	22	1.6
Dallas	655	655	100.0	21	3.2	Jones	219	217	99.1	9	4.1
Davis	118	101	85.6	2	2.0	Keokuk	133	116	87.2	10	8.6
Decatur	103	97	94.2	4	4.1	Kossuth	175	175	100.0	2	1.1
Delaware	189	173	91.5	6	3.5	Lee	385	385	100.0	16	4.2

COUNTY	2004 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl	COUNTY	2004 BIRTHS	TESTED	%TESTED	>=10µG/dl	%>=10µG/dl
Linn	2760	2691	97.5	83	3.1	Poweshiek	183	183	100.0	10	5.5
Louisa	164	157	95.7	10	6.4	Ringgold	57	48	84.2	1	2.1
Lucas	89	89	100.0	9	10.1	Sac	123	123	100.0	7	5.7
Lyon	144	109	75.7	4	3.7	Scott	2292	2278	99.4	103	4.5
Madison	196	192	98.0	1	0.5	Shelby	115	115	100.0	2	1.7
Mahaska	268	268	100.0	17	6.3	Sioux	464	464	100.0	20	4.3
Marion	398	398	100.0	6	1.5	Story	902	902	100.0	23	2.5
Marshall	642	642	100.0	45	7.0	Tama	237	237	100.0	12	5.1
Mills	183	162	88.5	2	1.2	Taylor	68	68	100.0	10	14.7
Mitchell	111	81	73.0	5	6.2	Union	143	143	100.0	17	11.9
Monona	103	103	100.0	14	13.6	Van Buren	88	73	83.0	5	6.8
Monroe	82	82	100.0	2	2.4	Wapello	476	476	100.0	33	6.9
Montgomery	125	125	100.0	9	7.2	Warren	507	507	100.0	7	1.4
Muscatine	587	587	100.0	22	3.7	Washington	290	245	84.5	12	4.9
O'Brien	171	171	100.0	10	5.8	Wayne	81	81	100.0	5	6.2
Osceola	80	64	80.0	2	3.1	Webster	491	491	100.0	15	3.1
Page	168	168	100.0	11	6.5	Winnebago	101	101	100.0	4	4.0
Palo Alto	105	105	100.0	6	5.7	Winneshiek	186	186	100.0	5	2.7
Plymouth	324	324	100.0	10	3.1	Woodbury	1634	1634	100.0	106	6.5
Pocahontas	74	66	89.2	0	0.0	Worth	74	74	100.0	7	9.5
Polk	6320	6320	100.0	108	1.7	Wright	186	183	98.4	5	2.7
Pottawattamie	1221	967	79.2	17	1.8	**TOTALS**	**38,357**	**37,482**	**97.7**	**1,405**	**3.7**

Table 16. Adult[1] Blood Lead 2010 Data[2] Summary showing Percent Change[‡] of Number of Adults Tested and Number of Adult Lead Exposure Cases[3] for Counties with an average of 4 or more cases in 2007-2009

County	3-yr Average 2007-2009: Number Adults Tested	2010: Number Adults Tested	Percent Change: Number Adults Tested	3-yr Average 2007-2009: Number Adult Lead Cases	2010: Number Adult Lead Cases	Percent Change: Number Adult Lead Cases
Audubon	13	6	-54%	4	1	-73%
Monroe	9	6	-33%	4	2	-45%
Johnson	63	58	-7%	4	3	-18%
Van Buren	11	5	-56%	4	2	-50%
Muscatine	42	34	-19%	4	3	-25%
Clinton	89	110	23%	5	5	7%
Decatur	9	12	29%	5	8	60%
Woodbury	61	62	1%	6	3	-47%
Black Hawk	78	106	36%	7	9	29%
Polk	223	247	11%	8	5	-38%
Jones	21	17	-18%	8	4	-52%
Page	20	18	-10%	10	9	-7%
Jackson	24	21	-13%	11	8	-27%
Lucas	18	30	67%	12	21	75%
Wapello	46	42	-9%	13	12	-5%
Jefferson	35	31	-12%	13	9	-33%
Mahaska	59	57	-3%	13	12	-10%
Fayette	31	41	31%	14	10	-29%
Linn	168	158	-6%	17	19	10%
Scott	237	273	15%	18	14	-22%
Cass	44	21	-53%	20	10	-50%
Appanoose	33	48	44%	25	32	30%
Montgomery	54	37	-31%	30	25	-17%
Buchanan	65	83	28%	32	31	-4%
Clayton	60	64	7%	52	45	-14%
Wayne	112	116	4%	91	89	-3%
Dubuque	162	158	-3%	102	92	-10%
Delaware	293	256	-13%	267	217	-19%
State Total[4]	**2834**	**2905**	**3%**	**850**	**737**	**-13%**

[1] Adult data includes individuals who were 16 years of age or older at time of test. The person's highest blood lead level (BLL) in the calendar year was used for this report.

[2] Data is only reported for individuals with an Iowa residential address at the time of the test.

[3] Lead Exposure Cases are considered to be adults with a venous blood lead level of 10 µg/dL (micrograms per deciliter).

[4] Total includes for counties not shown in the table.

[‡] The percent change is calculated by subtracting the 3-year average from the 2010 data and dividing by the absolute value of the 3-year average

Table 17. Common notifiable diseases by county, 2010

	AIDS (diagnosis)	HIV (diagnosis)	Campy	Chlamydia	Cryptosporidiosis	E.coli shgt	Ehrlichiosis	Giardia	Gonorrhea	H uremic s	Hepatitis A	Hepatitis B	Hepatitis B, chronic	Legionellosis	Listeriosis	Lyme	Meningococcal	Mumps	Pertussis	Rabies animal	RMSF	Salmonellosis	Shigellosis	Syphilis	TB	West Nine Virus
ADAIR	0	*	3	9	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0
ADAMS	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0
ALLAMAKEE	0	*	14	28	2	2	0	3	1	0	0	0	0	0	0	1	0	0	3	0	0	2	0	0	0	0
APPANOOSE	0	0	4	21	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUDUBON	0	0	2	22	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
BENTON	0	0	11	45	7	3	0	2	4	0	0	1	0	0	0	0	0	0	0	0	0	9	0	1	0	0
BLACK HAWK	*	5	24	944	0	5	0	14	198	0	1	12	12	2	0	1	0	1	10	0	0	19	0	1	2	0
BOONE	*	0	3	51	1	3	0	3	11	0	0	1	0	0	0	1	0	1	0	0	0	5	0	0	0	0
BREMER	0	0	5	49	0	1	0	2	2	0	0	0	0	0	0	0	0	1	0	0	0	6	0	0	0	0
BUCHANAN	*	0	10	35	0	1	0	2	5	0	0	0	0	1	0	0	0	0	5	0	0	7	2	0	0	0
BUENA VISTA	0	0	6	67	3	2	0	2	6	0	0	3	3	0	0	0	0	0	0	0	0	5	2	1	0	0
BUTLER	0	0	3	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	0
CALHOUN	0	0	2	19	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1
CARROLL	0	0	2	32	2	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	5	0	0	0	0
CASS	0	0	1	31	3	2	0	0	1	0	0	0	0	0	0	0	0	0	26	1	0	0	0	0	0	0
CEDAR	0	0	6	31	1	3	0	2	3	0	0	1	1	0	0	1	0	0	3	0	0	1	0	1	0	0
CERRO GORDO	0	*	9	113	5	0	0	3	6	0	1	2	2	0	0	1	0	0	1	0	0	5	1	1	0	0
CHEROKEE	0	0	2	15	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	0	2	0	0	0	0
CHICKASAW	*	0	3	19	1	3	0	2	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0
CLARKE	*	*	0	18	3	0	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0
CLAY	0	0	13	47	0	3	0	0	5	1	0	1	1	0	0	0	1	0	2	0	0	1	0	0	0	0
CLAYTON	0	0	13	15	4	3	0	3	1	0	0	1	1	0	0	10	0	0	1	2	0	5	0	0	0	0
CLINTON	0	0	6	166	1	3	0	6	22	0	2	3	3	0	0	0	0	0	61	0	0	10	2	1	0	0
CRAWFORD	0	0	7	64	1	0	0	1	7	0	0	1	1	0	0	0	0	2	0	0	0	2	0	0	0	0
DALLAS	*	*	16	126	6	5	0	4	15	0	0	3	3	0	0	0	0	0	17	0	0	7	2	1	2	0

	AIDS (diagnosis)	HIV (diagnosis)	Campy	Chlamydia	Cryptosporidiosis	E.coli shgt	Ehrlichiosis	Giardia	Gonorrhea	H uremic s	Hepatitis A	Hepatitis B	Hepatitis B, chronic	Legionellosis	Listeriosis	Lyme	Meningococcal	Mumps	Pertussis	Rabies animal	RMSF	Salmonellosis	Shigellosis	Syphilis	TB	West Nine Virus
DAVIS	*	0	0	7	3	0	0	1	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
DECATUR	0	0	1	22	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
DELAWARE	0	0	11	23	2	6	0	1	0	1	0	1	1	0	0	1	0	0	3	1	1	5	0	0	0	0
DES MOINES	*	*	7	253	9	1	0	2	44	0	0	3	2	0	0	0	0	0	1	0	0	11	0	1	1	0
DICKINSON	0	0	1	27	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
DUBUQUE	*	*	40	288	11	14	0	13	64	1	0	4	4	0	0	5	1	0	7	0	0	15	16	1	0	1
EMMET	0	0	7	34	0	1	0	1	4	0	1	1	1	0	0	0	0	0	0	1	0	3	0	0	0	0
FAYETTE	*	*	16	45	1	1	0	1	2	0	0	2	2	1	0	2	0	1	0	0	0	2	1	0	0	0
FLOYD	0	0	3	47	2	1	0	0	7	0	0	0	0	0	0	0	0	0	2	0	0	2	1	0	2	0
FRANKLIN	0	0	4	30	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0
FREMONT	0	0	2	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
GREENE	0	0	2	23	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
GRUNDY	0	0	0	17	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
GUTHRIE	0	0	3	13	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAMILTON	0	0	5	37	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0	0	4	0	1	0	0
HANCOCK	0	0	6	17	1	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0
HARDIN	*	*	3	50	0	1	0	0	3	0	1	0	0	0	1	0	0	0	0	1	0	1	0	1	0	0
HARRISON	0	0	6	17	3	2	1	1	2	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0
HENRY	*	*	2	61	2	0	0	1	9	0	0	0	0	0	0	0	0	0	8	0	0	1	0	1	1	0
HOWARD	0	0	5	16	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
HUMBOLDT	0	0	1	19	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
IDA	0	0	1	12	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
IOWA	0	*	7	40	2	1	0	1	1	0	0	0	0	1	0	2	0	0	0	0	0	7	0	0	0	0
JACKSON	0	0	7	48	4	1	0	0	1	0	0	1	0	0	0	4	0	0	2	0	0	3	0	0	0	0
JASPER	*	0	7	73	12	2	0	1	3	0	0	1	1	0	0	1	0	1	1	1	0	7	1	0	0	0

	AIDS (diagnosis)	HIV (diagnosis)	Campy	Chlamydia	Cryptosporidiosis	E.coli shgt	Ehrlichiosis	Giardia	Gonorrhea	H uremic s	Hepatitis A	Hepatitis B	Hepatitis B, chronic	Legionellosis	Listeriosis	Lyme	Meningococcal	Mumps	Pertussis	Rabies animal	RMSF	Salmonellosis	Shigellosis	Syphilis	TB	West Nine Virus
JEFFERSON	*	*	1	23	5	0	0	4	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	6	0
JOHNSON	6	10	22	684	36	9	0	13	69	0	1	25	25	1	0	24	2	0	12	0	0	33	0	5	4	0
JONES	0	0	11	36	4	3	0	0	4	0	0	1	1	0	0	0	0	1	1	0	0	3	0	0	0	0
KEOKUK	*	0	6	15	4	0	0	0	1	0	0	1	1	0	0	0	0	0	4	0	0	0	0	0	0	0
KOSSUTH	0	0	3	21	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0	1	0	0
LEE	0	0	9	119	0	4	0	3	6	0	0	1	1	0	0	0	1	0	0	0	0	5	0	0	1	0
LINN	4	9	47	862	49	7	0	28	235	0	0	16	13	0	0	8	1	0	83	0	0	49	2	3	4	0
LOUISA	0	0	3	23	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	1	0
LUCAS	0	0	3	12	1	1	0	0	6	0	0	3	2	0	0	0	0	0	28	1	0	3	0	0	0	0
LYON	0	0	10	4	1	2	0	2	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	1	0
MADISON	0	0	8	30	2	1	0	0	0	0	0	1	0	0	0	0	0	0	5	0	0	0	0	0	0	0
MAHASKA	0	0	2	76	2	0	0	2	3	0	0	0	0	0	0	0	0	0	19	0	0	4	0	0	0	0
MARION	*	0	4	52	1	0	0	6	2	0	0	1	0	0	0	0	0	0	7	0	0	11	1	1	0	0
MARSHALL	0	0	5	153	0	1	0	3	8	0	0	2	1	0	1	0	0	1	2	0	0	5	4	2	1	0
MILLS	0	0	5	19	15	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0
MITCHELL	0	0	9	5	2	2	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0
MONONA	0	0	2	16	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
MONROE	0	0	1	12	2	0	0	0	2	0	0	1	1	0	0	0	0	0	0	0	0	3	0	0	0	0
MONTGOMERY	0	*	3	12	2	1	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
MUSCATINE	*	*	8	155	1	2	1	0	21	0	0	3	2	0	0	2	0	0	4	0	0	3	1	0	1	0
O'BRIEN	0	0	9	14	0	0	0	3	1	0	0	0	0	0	0	0	0	1	0	3	0	4	0	0	0	1
OSCEOLA	0	0	2	3	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
PAGE	0	0	5	17	0	2	0	0	0	0	0	1	1	1	0	0	0	0	5	0	1	2	0	0	0	0
PALO ALTO	0	0	4	13	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
PLYMOUTH	0	0	13	49	13	7	0	4	3	0	0	1	1	0	0	1	0	1	0	0	0	13	0	0	0	0

	AIDS (diagnosis)	HIV (diagnosis)	Campy	Chlamydia	Cryptosporidiosis	E.coli shgt	Ehrlichiosis	Giardia	Gonorrhea	H uremic s	Hepatitis A	Hepatitis B	Hepatitis B, chronic	Legionellosis	Listeriosis	Lyme	Meningococcal	Mumps	Pertussis	Rabies animal	RMSF	Salmonellosis	Shigellosis	Syphilis	TB	West Nine Virus
POCAHONTAS	0	0	2	12	0	1	0	0	2	0	0	1	1	1	0	0	0	0	1	1	0	1	0	0	0	0
POLK	25	36	85	2076	51	14	0	63	519	0	1	47	46	2	0	4	0	0	44	1	0	60	7	28	12	1
POTTAWATTAMIE	*	4	13	319	10	0	0	5	53	0	0	5	5	0	0	1	1	0	41	1	0	6	2	2	0	1
POWESHIEK	*	*	5	60	3	0	0	1	4	0	1	1	1	0	0	1	0	0	0	0	0	5	0	0	0	0
RINGGOLD	0	*	2	5	1	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	2	0	0	0	0
SAC	0	0	1	8	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0
SCOTT	6	11	22	945	11	4	0	12	276	0	0	9	8	0	1	3	1	1	178	2	0	11	0	9	2	0
SHELBY	0	0	4	17	4	2	0	1	0	0	0	1	1	0	0	0	0	0	3	0	0	2	0	0	0	0
SIOUX	0	0	12	30	13	4	0	3	0	0	0	0	0	0	0	0	0	18	0	2	0	23	1	0	0	0
STORY	*	*	15	299	10	1	0	9	34	1	1	11	11	0	0	0	1	0	2	1	0	14	0	2	1	0
TAMA	*	*	10	63	0	0	0	3	3	1	0	1	1	0	0	0	0	0	7	0	0	6	0	0	0	0
TAYLOR	0	0	4	15	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
UNION	0	0	1	25	2	1	0	1	1	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0	0	0
VAN BUREN	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
WAPELLO	0	4	8	133	19	2	0	1	7	0	0	1	1	0	0	0	0	0	11	0	0	7	0	0	0	0
WARREN	0	0	10	84	8	2	0	1	5	0	1	1	1	0	0	0	0	0	61	0	0	4	5	1	0	0
WASHINGTON	0	0	5	48	1	2	0	1	3	0	0	0	0	1	0	2	0	0	0	1	0	3	2	0	0	0
WAYNE	0	0	0	8	3	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0
WEBSTER	*	*	2	179	2	2	0	3	20	0	0	1	1	1	0	0	0	0	0	0	0	6	1	0	0	2
WINNEBAGO	0	0	4	14	0	0	0	1	2	0	0	1	1	0	0	0	0	2	0	0	0	1	0	0	1	0
WINNESHIEK	0	0	12	31	2	5	0	1	1	0	0	0	0	0	0	5	0	0	0	0	0	3	0	0	0	0
WOODBURY	*	4	17	476	10	4	0	9	65	0	0	14	1	1	0	0	0	4	2	0	1	26	1	0	4	2
WORTH	0	*	3	12	0	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	2	1	0	0	0
WRIGHT	0	0	7	27	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Total	71	112	751	10542	397	173	2	284	1804	5	11	198	171	16	3	87	10	38	705	27	5	530	57	68	48	9

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

References

[1] Diseases reportable to Iowa Department of Public Health. Iowa Administrative Code [641] Chapter 1.
[2] HIV/AIDS Program Information. http://www.idph.state.ia.us/adper/hiv_aids_programs.asp#surveillance
[3] Recommendations of the Advisory Committee on Immunization Practices. Prevention and Control of Meningococcal Disease. MMWR, May 27, 2005, 54(RR07);1-21.
[4] **Panozzo CA. *Pediatrics.* 2010;126:e116-e123.**