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

Iowa Surveillance of Notifiable and Other Diseases

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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 2013, there were more than 71,000 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 68,000 children's and more than 3,000 adult's blood tests results were reported to IDPH in 2013.

In general, the number of reported cases of vaccine-preventable diseases decreased when compared to the previous three-year average (2010-2012); however, the number of reported hepatitis A cases increased.

Enteric diseases like cryptosporidiosis, cyclosporiasis, giardiasis, salmonellosis, and shigellosis increased when compared to the previous three year average. During the summer of 2013, 136 Iowans from 35 counties were diagnosed with cyclosporiasis and met the case definition as part of a multi-state outbreak linked to consumption of a bagged salad mix. Cyclospora is a rare coccidian parasite that can cause prolonged and relapsing watery diarrhea, which, if left untreated, can last weeks to months. Only 10 cases of Cyclospora had been reported in Iowa prior to 2013. In addition to the Cyclospora outbreak, 59 other outbreaks affecting more than 1,100 people were reported and investigated in 2013. The most common implicated pathogen was norovirus and outbreaks occurred most frequently in restaurants, long-term care/assisted living facilities, schools/child care facilities, and homes.

Diseases spread via insects continue to impact Iowans. In 2013, there were a notable number of these diseases reported to IDPH including Dengue fever, ehrlichiosis/anaplasmosis, Lyme disease, malaria, Rocky Mountain spotted fever, and West Nile virus. Of these diseases, Lyme disease, ehrlichiosis/anaplasmosis, and West Nile virus increased when compared to the previous three-year average.

While the number of gonorrhea and chlamydial diagnoses remain relatively stable, diagnoses of syphilis have increased substantially. HIV diagnoses in 2013 increased slightly from 2012, but remained below the peak of 126 in 2009. In 2013, 122 Iowans were diagnosed with HIV, five more than in 2012, and six more than the five-year average of 116. Of concern is over 40 percent of persons diagnosed in 2013 were considered to be late testers, that is, persons who met the criteria for AIDS within 12 months of their initial HIV diagnosis. Late testers have generally been infected and infectious for many years, and during that time have had the opportunity to unknowingly infect others with the virus. They generally have higher viral loads and are more infectious than are persons who have been diagnosed early, are in care, and have a very low viral load as the result of successful treatment with antiretroviral medications. In 2012, only 21 females were diagnosed with HIV; in 2013 the number increased to 34, a 62 percent jump from both 2012 and the five-year average. It is, however, important to keep in mind that large percentage increases in relatively small numbers must always be viewed with caution. Several years of data will be needed to establish if 2013 marks the beginning of a trend.

Diagnoses among Iowans 45 years and older reached an all-time high of 50 diagnoses in 2013. Iowans 25 to 44 years of age accounted for 44 percent of all diagnoses; those 45 and older made up 41 percent; and youths ages 15 to 24 years made up the remaining 15 percent. When compared to their proportions in the general population of the state, racial and ethnic minorities continued to be over-represented

Table 1. Summary of notifiable diseases 2010-2013 and percent change in number of cases reported compared to a three-year average

	2010	2011	2012	3-yr average 2010-2012	2013	Percent change†
	Number of cases ‡					
Campylobacteriosis	751	747	534	677	610	-9.9%
Chlamydia	10542	10928	11139	10870	11006	1.3%
Cryptosporidiosis	397	364	328	363	1505	314.6%
E. coli and other shiga-toxin producing	173	189	181	181	171	-5.5%
Giardiasis	284	271	251	269	275	2.4%
Gonorrhea	1804	1966	1982	1917	1473	-23.2%
Hepatitis A	11	8	7	9	17	96.2%
Hepatitis B, acute	15	15	12	14	11	-21.4%
HIV (new diagnoses)	115	119	117	117	122	4.3%
lead poisoning (child)	*	*	*	*	321	*
lead poisoning (adult)	736	832	818	795	856	7.7%
Legionellosis	16	11	13	13	11	-17.5%
Listeriosis	3	5	3	4	2	-45.5%
Lyme disease	87	100	165	117	247	110.5%
Meningococcal invasive disease	10	14	2	9	1	-88.5%
Mumps	38	8	6	17	3	-82.7%
Pertussis (whooping cough)	705	232	1736	891	308	-65.4%
Salmonellosis	530	448	622	533	575	7.8%
Shigellosis	57	18	91	55	342	518.1%
Syphilis	68	70	138	92	226	145.7%

†The percent change is calculated by subtracting the 3-year average from the total cases for 2012 and dividing by the absolute value of the 3-year average.

‡ Table includes all confirmed and probable cases.

* Due to current changes in determining cases of lead poisoned children, case counts prior to 2013 are being revised and were not available at the time this report was published.

among Iowans diagnosed with HIV. Non-Hispanic black/African-American persons, 3 percent of Iowa's population, represented 23 percent of new diagnoses. Hispanics, 5 percent of the general population, represented 7 percent of new diagnoses. Non-Hispanic Asians, 2 percent of the general population, made up 7 percent of new diagnoses. Of the 45 diagnoses among racial and ethnic minorities, 27 (60 percent) were among foreign-born persons. Regardless of such disparities, it is important to remember that non-Hispanic white Iowans accounted for over 60 percent of new HIV diagnoses and persons living with HIV/AIDS. The number of Iowans living with HIV or AIDS (HIV disease prevalence) continues to increase. As of December 31, 2013, there were 2,100 persons living with HIV, a prevalence of 68 per 100,000 population. In 2012, there were 2,023 persons, a prevalence of 66 per 100,000 population.

Crucial partners contributing to the surveillance and reduction of these diseases include the State Hygienic Laboratory (SHL) at the University of Iowa, clinical laboratories, hospitals, city and county public health agencies, long-term health care facilities, schools, as well as healthcare providers, infection preventionists and other health professionals. The Iowa Department of Public Health would like to take this opportunity to thank all of its partners for their continued support of disease surveillance in Iowa.

Introduction

The purpose of this report is to provide a 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, strains or groups were prevalent, and which caused outbreaks. Comparisons to national rates are also provided whenever possible. Aggregated county-level data are provided in a table at the end of the report. The report is intended for use by the public, media, public health, and health care.

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 five divisions and of those, two contributed disease data to this report, including Behavioral Health (BH) and Acute Disease Prevention and Emergency Response and Environmental Health (ADPER & EH). The Division of Behavioral Health includes the Bureau of HIV, Sexually Transmitted Disease (STD), and Hepatitis which identifies, monitors, and supports persons with HIV/AIDS, STDs, and viral hepatitis. Disease reporting and tracking are a large component of the work accomplished by this bureau, as well as locating, counseling, and testing partners of persons with sexually transmitted diseases.

The Division of Acute Disease Prevention and Emergency Response, and Environmental Health (ADPER & EH) has six bureaus and of those, three bureaus contributed data to this report. Two bureaus 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 for 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 third ADPER & EH reporting bureau is the Bureau of Environmental Health Services (EHS), which is responsible for environmental health conditions investigation. Certain health conditions of environmental origin are required to be reported to IDPH per Iowa Administrative Code 641, Chapter 1. This report includes disease/outbreak surveillance, carbon monoxide poisoning, methemoglobinemia, child and adult blood lead levels, reports of other heavy metal poisonings, and fatal work-related traumatic injuries.

Public health emergency response planning plays a major role in preparing IDPH to respond to events of public health significance. In the past several years, the department used the incident management system in response to several events, including severe weather in 2008 and the 2009 H1N1 pandemic. Preparedness planning at both the state and local levels has greatly improved the ability of public health to respond to large-scale disease outbreaks as well as natural disasters.

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 implementation of interventions.

Support for the initiatives of the ADPER & EH division comes from a variety of 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. CADE tracks reports of disease in Iowa residents; however, acquisition or exposure to some illnesses may have occurred in Iowa, 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 IDPH via IDSS daily.

Cases of acute infectious disease are typically referred to local public health agencies for patient investigations and interviews. Agencies primarily use IDSS to report information back to IDPH. Local public health agencies are also 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 for transmitting data to program-specific staff at CDC. These diseases include influenza and West Nile virus. The National Outbreak Reporting System (NORS) 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. The enteric disease five-year averages were calculated by taking the average of the previous five years' case counts for each disease. This is in contrast to previous methods utilized in this report which included adding the five year average to two times the standard deviation (5-year average + 2(SD)). All case counts include cases that were and were not considered to be part of an outbreak investigation. This also differs from previous methods utilized in this report. Calculations were performed with SPSS® 16, SAS® 9.3, 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 www.cdc.gov/epo/dphsi/casedef/case_definitions.htm.CSTE/CDC definitions are used to classify each 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 April 2014. Case reports and additional information received after this date that may have altered the disease counts were not included in this report. In addition, the data file was generated using MMWR (Morbidity Mortality Weekly Report) year 2013. Therefore, case counts in this report may vary slightly from counts generated using the calendar year of 2013.

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 based on real-time polymerase chain reaction (RT-PCR) test results sent from SHL. SHL also surveyed clinical and reference labs throughout the state for the weekly number of rapid influenza tests performed and number of positives. Influenza-associated hospitalizations were reported from the sentinel hospitals that participated in the Iowa 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 through the collaboration of the Council of State and Territorial Epidemiologists (CSTE) and the Centers for Disease Control and Prevention (CDC). Surveillance is conducted according to detailed guidelines developed by CDC. 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 CDC-developed software program called the enhanced HIV and AIDS Reporting System (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.

Environmental Health Services began using IDSS in 2010 for surveillance of heavy metals, carbon monoxide, and methemoglobinemia. The results of all blood lead testing done on Iowa residents are required to be reported to the EHS bureau. Data are entered into a CDC-designed database called STELLAR, with separate databases maintained for child and adult data. Data analysis is performed periodically for reporting to state and national partners.

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 today. In 1991, Hib vaccine was recommended for all infants after age 2 months. Since then, the incidence of Hib in children less than 5 years of age declined by greater than 99 percent; in 2013, only one case of *Haemophilus influenzae* type B reported to IDPH.

HEPATITIS A

See Summary Enteric Disease Section.

HEPATITIS B (ACUTE AND CHRONIC)

Hepatitis B is caused by infection with the Hepatitis B virus. Hepatitis B is usually spread when blood, semen, or another body fluid from a person infected with the Hepatitis B virus enters the body of someone who is not infected. This can happen through sexual contact with an infected person or sharing needles, syringes, or other drug-injection equipment. Hepatitis B can also be passed from an infected mother to her baby at birth.

Hepatitis B 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 11 cases or 0.4 cases for every 100,000 persons of acute hepatitis B were reported to CADE in 2013. Sixty-four percent of the cases were females. 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, and between 800,000 and 1.4 million people living with chronic hepatitis B disease in the US.

There were 276 confirmed or probable chronic hepatitis B cases reported in 2013 in Iowa. Fifty-five percent of the cases were males and 45 percent were females.

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 2013-2014 season, more than 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 www.idph.state.ia.us/IdphArchive/Archive.aspx?channel=FluReports.

The 2013-2014 influenza season in Iowa started earlier and was less severe than in 2012-13. The first case of seasonal influenza was confirmed by the State Hygienic Laboratory (SHL) in September, 2013. Influenza activity increased in December and peaked in early January, 2014 (Figure 1-3). SHL identified three seasonal influenza viruses circulating in Iowa for the season: influenza A (H3N2), influenza A (2009 H1N1) and influenza B. Influenza A (H1N1) viruses were predominant in Iowa, accounting for 87 percent of all positive influenza specimens tested. Four hundred ninety influenza-associated hospitalizations

were reported from 33 sentinel hospitals for the season and 51 percent of the hospitalizations were among people between 25 to64 years of age.

Figure 1. Laboratory-confirmed cases of influenza reported to IDPH, 2013-2014

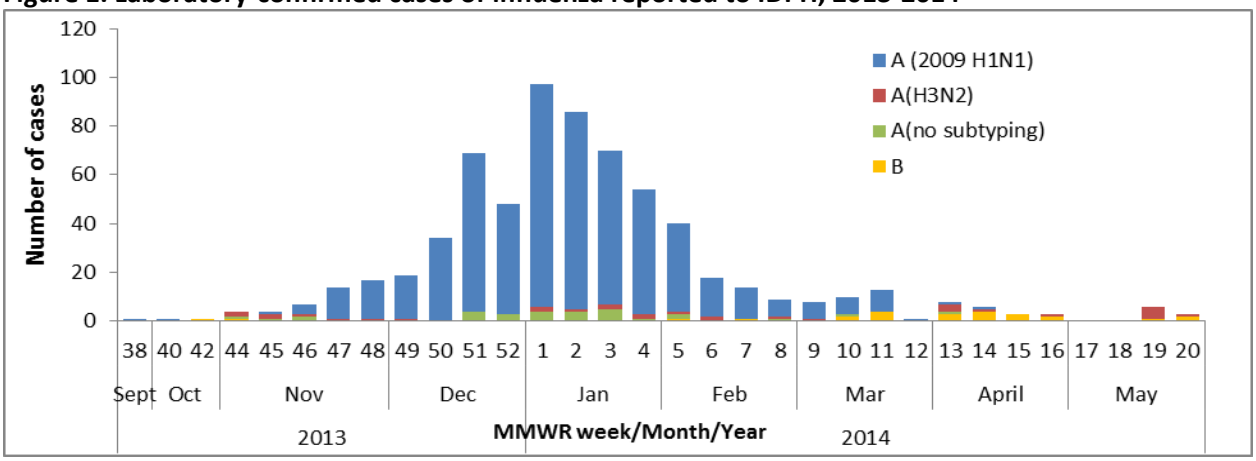


Figure 2. Percent of rapid influenza tests positive and number of tests performed, 2013-2014

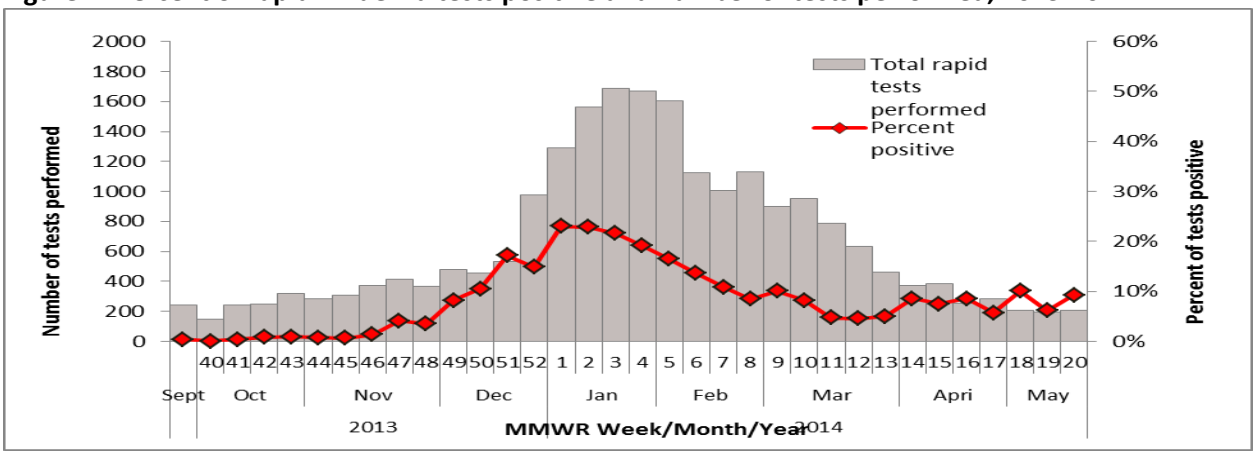
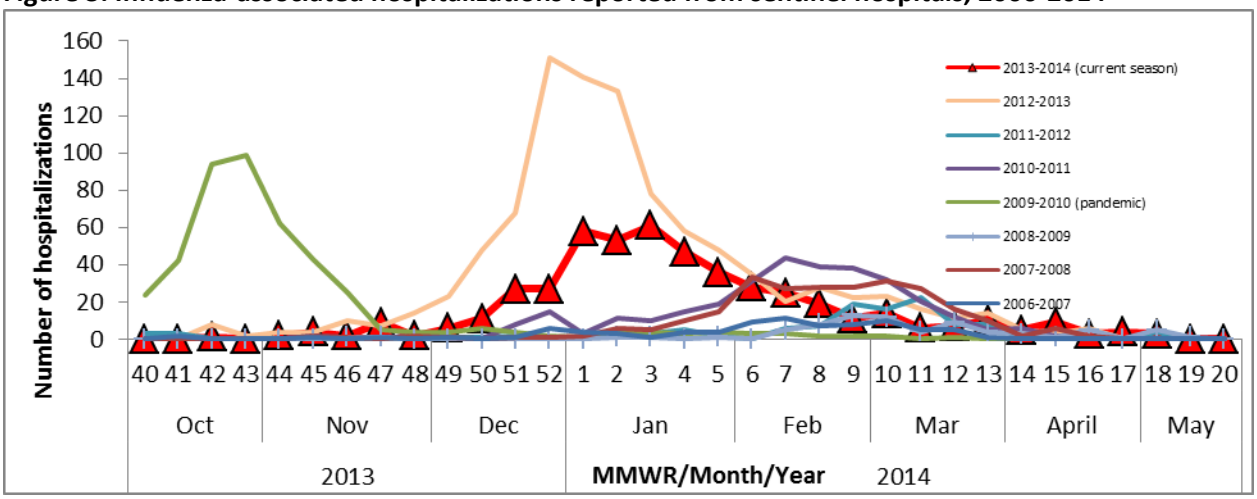


Figure 3. Influenza-associated hospitalizations reported from sentinel hospitals, 2006-2014



LEGIONELLOSIS

The average number of Legionella cases reported to IDPH annually from 2010 to 2012 was 13 cases. There were 11 cases of legionellosis reported to IDPH in 2013. Most of the cases occurred in Central and Eastern Iowa. Cases ranged from ages 30 to 92 years with a median age of 64 years. All of the 11 cases that occurred in 2013 were hospitalized, and there were no reported deaths.

Legionellosis disease summary amended 9/25/2014

MEASLES

There was one confirmed case reported in 2011, but there were no cases of measles reported to IDPH in 2012 and 2013.

MENINGOCOCCAL INVASIVE DISEASE

There was one confirmed case of meningococcal invasive disease reported to IDPH in 2013, which occurred in an elderly female. The case was group C (Table 2). Nationally, there are 0.36 cases for every 100,000 persons.

Table 2. Cases of meningococcal disease by serogroups, 2013

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

*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, are not close contacts of each other, and 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 2013.

Meningococcal invasive disease is fatal in 10-14 percent of cases; however, no Iowa case was fatal in 2013.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 2013, there were three cases of mumps or 0.1 cases per 100,000 persons, an 83 percent decrease over the previous three-year average of 17. Case ages in 2013 ranged from 3 to 27 years with a median age of 12 years. There were no outbreaks in Iowa in 2013.

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 before the vaccine era, typically caused epidemics every three to five years. In 2013, there were 308 confirmed and probable cases reported to IDPH or 10.1 cases for every 100,000 persons in Iowa, as compared to 1,736 cases or 57 cases for every 100,000 persons in Iowa in 2012, which was at the highest level since 2003 (Figure 4).

Seventy-four percent of 2013 cases occurred in children ages 0 to 14. Five percent of pertussis cases were hospitalized, and no deaths were reported. The year's highest rates occurred in Davis, Adams, Taylor, Wayne, and Carroll counties (Figure 5).

The most common symptoms are paroxysms (fits of coughing, 78 percent), followed by post-tussive vomiting (43 percent), whooping (26 percent) and apnea (14 percent). Rare, but serious secondary conditions reported included pneumonia, and encephalopathy.

Figure 4. Number of pertussis cases reported to IDPH by month and year, 2003-2013

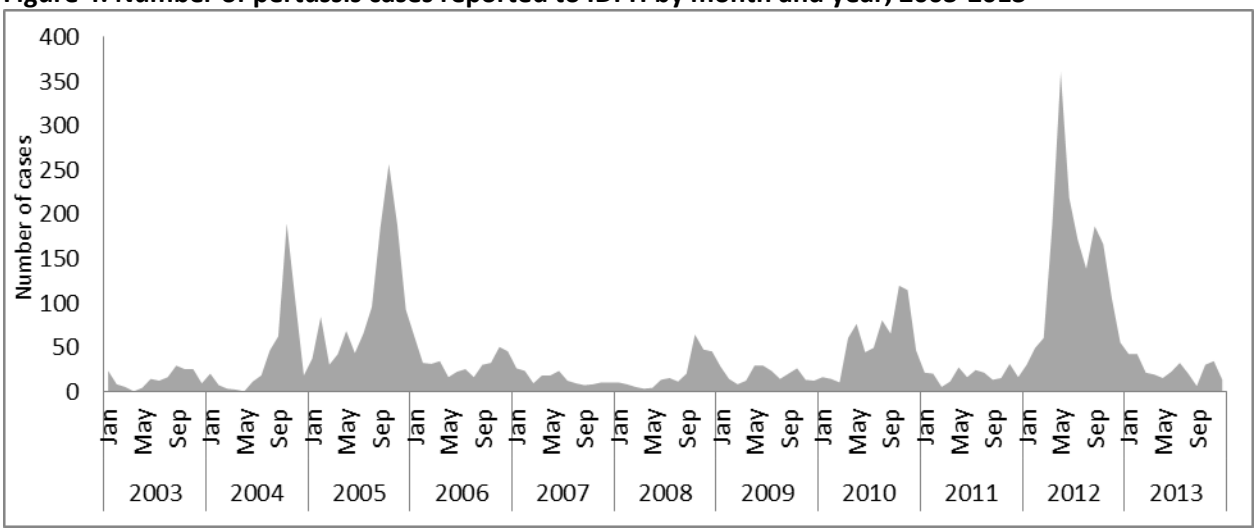
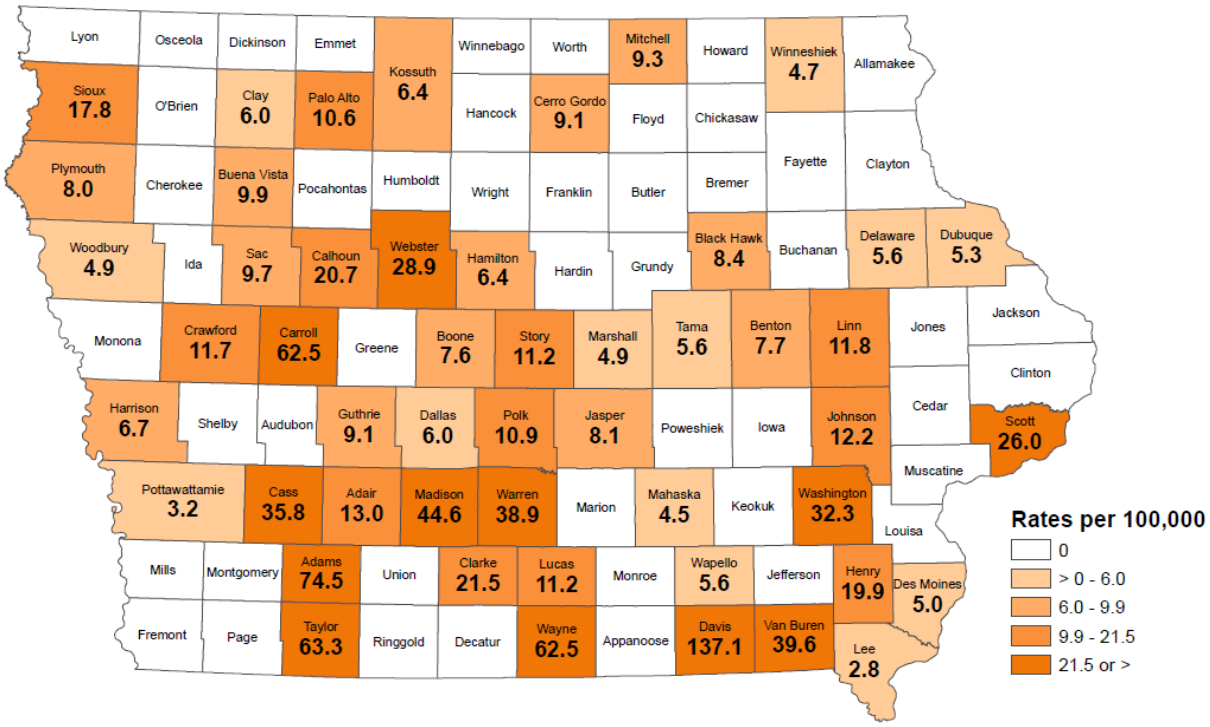


Figure 5. Pertussis rates by county, 2013



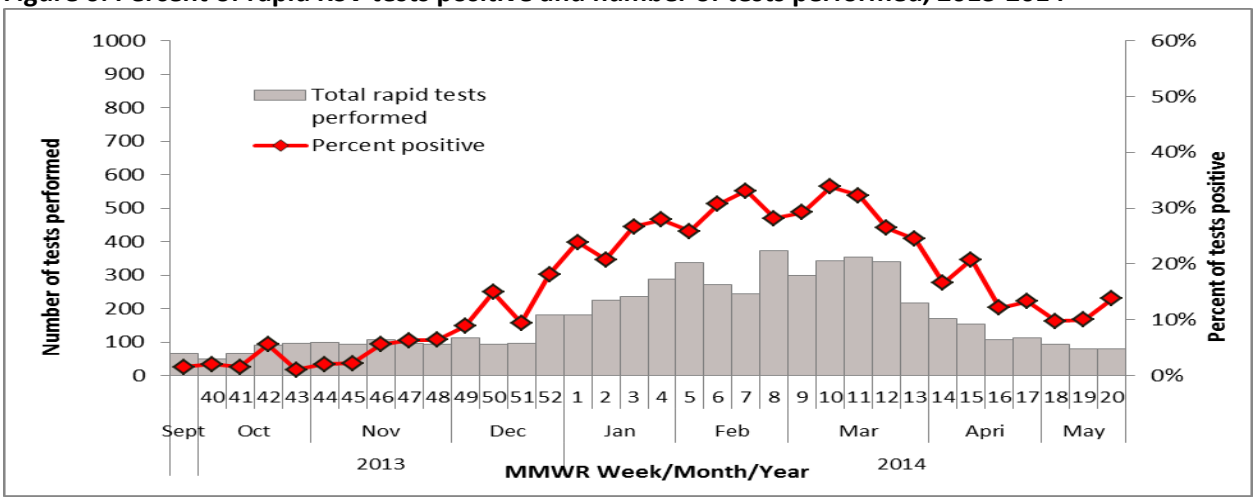
RESPIRATORY SYNCYTIAL VIRUS (RSV)

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 6). 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 CDC considers RSV widespread in the population when the percent of rapid antigen tests that are

positive exceeds 10 percent. During the 2013-2014 season in Iowa, this occurred in mid-December, and the activity peaked in Week 10 ending March 8, 2014.

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].

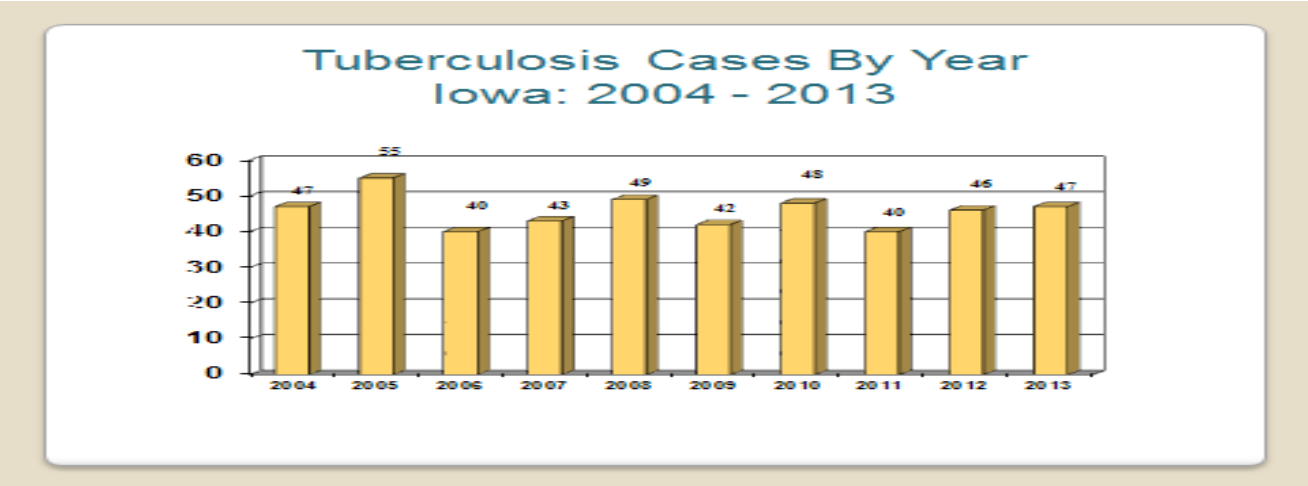
Figure 6. Percent of rapid RSV tests positive and number of tests performed, 2013-2014



TUBERCULOSIS (TB)

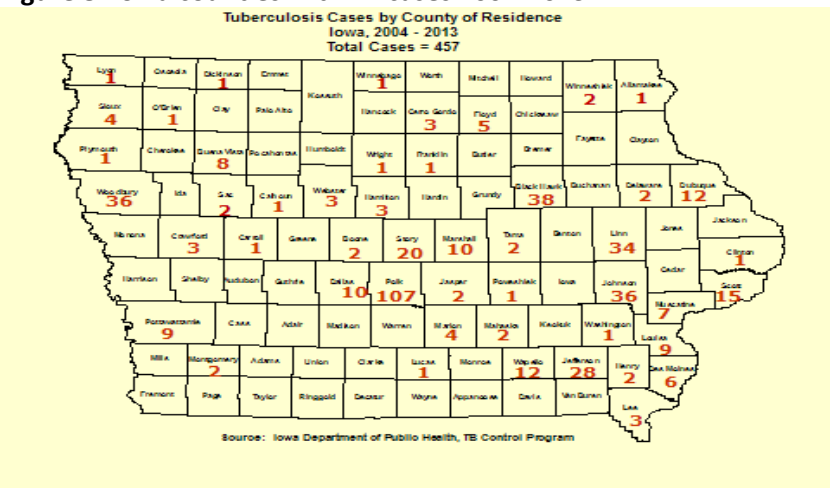
In 2013, Iowa reported 47 cases of active TB disease. Since 2004, Iowa has averaged 45 cases of TB each year (Figure 7). Many cases have existing co-morbidities that make TB treatment considerably more complex and require extensive care, including the use of second-line drugs. Treatment with second-line drugs is complicated and expensive, requiring expert consultation and extended treatment durations.

Figure 7. Number of Iowa TB cases by year, 2004-2013



Counties with larger population centers such as Polk, Woodbury, and Black Hawk report the majority of TB cases. However, as Figure 8 illustrates, many (52/99) Iowa counties reported TB cases during calendar years 2004-2013.

Figure 8. Iowa counties with TB cases 2004-2013

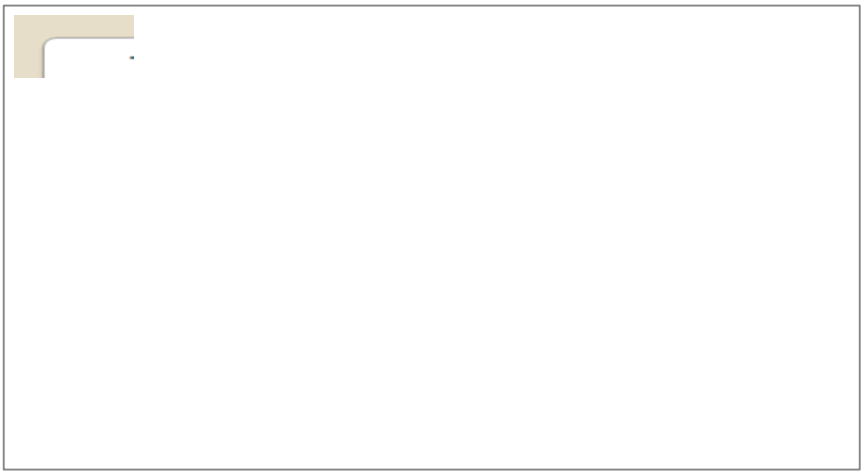


The 2013 TB case rate for Iowa is 1.5 cases per 100,000 persons; this is significantly lower than the 2012 national average of 3.2 cases per 100,000 persons. Iowa owes its low TB case rate in part to proficient contact investigations, healthcare providers observance of treatment guidelines, adherence to DOT for active disease cases, and the provision of medication for LTBI to thousands of Iowans annually.

The proportion of reported TB cases in non-U.S. 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 in Iowa. From 2004 to 2013, non-U.S. born persons accounted for 67 percent of reported TB cases in Iowa (figure 14).

Non-U.S. born persons account for only four percent of the Iowa population, highlighting the disparity. The decreasing numbers of U.S. born cases are due in part to effective TB control practices in this country.

Figure 9. Percent of US-born versus non-US-born TB cases in Iowa, 2004-2013



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 how what happens in one part of the world can directly impact 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.

Country of Origin Data

For 2013, 33 individuals emigrating from 18 countries (excluding the U.S.) developed TB in Iowa. Figure 15 represents 308 individuals, emigrating from 52 countries (excluding the U.S.) that developed TB disease after their arrival to Iowa during 2004 to 2013. 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 www.idph.state.ia.us/ImmTB/TB.aspx?prog=Tb&pg=TbHome.

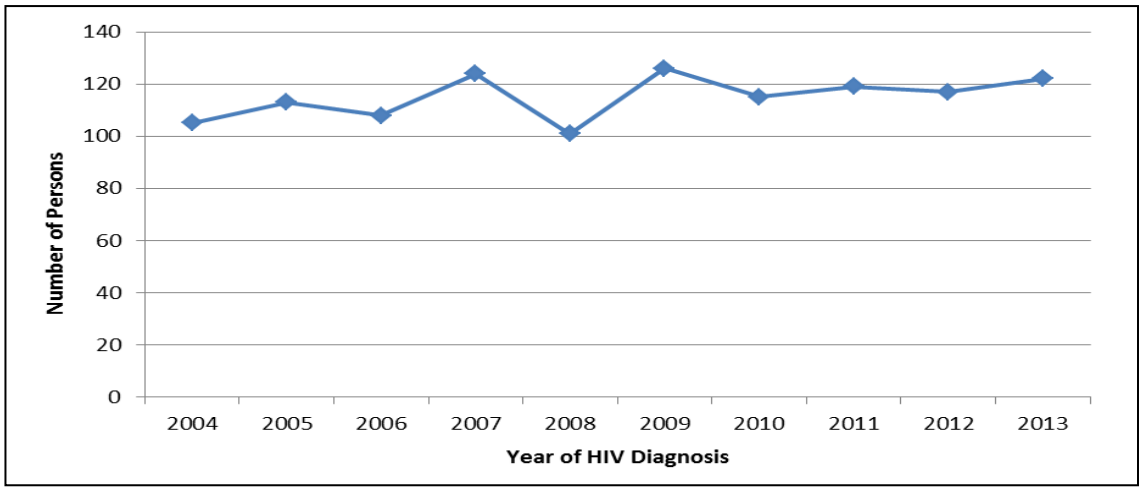
Figure 10. Iowa TB cases by country of origin 2004-2014

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

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

Although there has been year-to-year variability, HIV diagnoses have been increasing at a rate of about 1.4 per year since 2004. There were 122 HIV diagnoses in 2013, an increase of five (4 percent) from the 117 diagnoses reported in 2012, and six (5 percent) more than the average of 116 for the previous five years. In 2013, there were 4.0 HIV diagnoses per 100,000 population, compared to 3.HIV diagnoses per 100,000 population in 2012 and 2011, respectively. Figure 11 charts the number of HIV diagnoses by year for the years 2004 through 2013.

Figure 11. Number of Iowans diagnosed with HIV by year, 2004-2013



A person who is diagnosed with AIDS within 12 months of initial HIV diagnosis is termed a “late tester.” Given this definition, 2012 is the most recent year for which complete late tester analysis is available. After peaking at 61percent in 2001, late testers as a proportion of all HIV diagnoses for a given year declined over time to 35 percent in 2011, only to climb again to 39 percent in 2012. Late testers have generally been infected for many years and during that time have had the opportunity to unknowingly infect others with the virus. They generally have higher viral loads and are more infectious than are persons who have been diagnosed early, are in care, and have a very low viral load as the result of successful treatment with antiretroviral medications. While preliminary analysis of 2013 data indicates late testers already account for 48 percent of the 122 persons diagnosed, final analysis can’t be completed until December 2014. Late tester status may be more an indication of prevention failure than of treatment failure or access to care.

Diagnoses of HIV among the foreign-born reached a 10-year high in 2010, when 28 (24 percent) of the 119 persons diagnosed with HIV were foreign-born. In 2012, there were 20 (17 percent) diagnoses among the foreign-born, matching the average for the five years from 2008 through 2012. By comparison, 27 (22 percent) of the 122 persons diagnosed in 2013 were born in a country other than the United States or one of its dependencies. While IDPH does not monitor the immigration status of persons diagnosed with HIV, resettlement of refugees in Iowa and secondary migration of immigrants from areas of the world with higher prevalence of HIV may be contributing to diagnoses among Iowa’s population of foreign-born.

While males have always accounted for the majority of HIV diagnoses; the disproportionation peaked in 2009 and the gap has since begun to narrow Diagnoses among males increased steadily from 78 in 2004 to 105 in 2009. After that they remained relatively steady, averaging 97 per year from 2010 through 2012. Then, in 2013, diagnoses in males dropped to 88, accounting for 72 percent of HIV diagnoses. In contrast, diagnoses among females decreased from 27 in 2004 to 20 in 2006, hovered around that mark through 2012, and then climbed from 21 in 2012 to 34 in 2013, a 62 percent jump. Several years of data needed to establish if 2013 marks the start of a trend that warrants action. From 2006 through 2012, there were about five male diagnoses for every one female diagnosed. This is in contrast to a ratio of three males to one female in 2013.

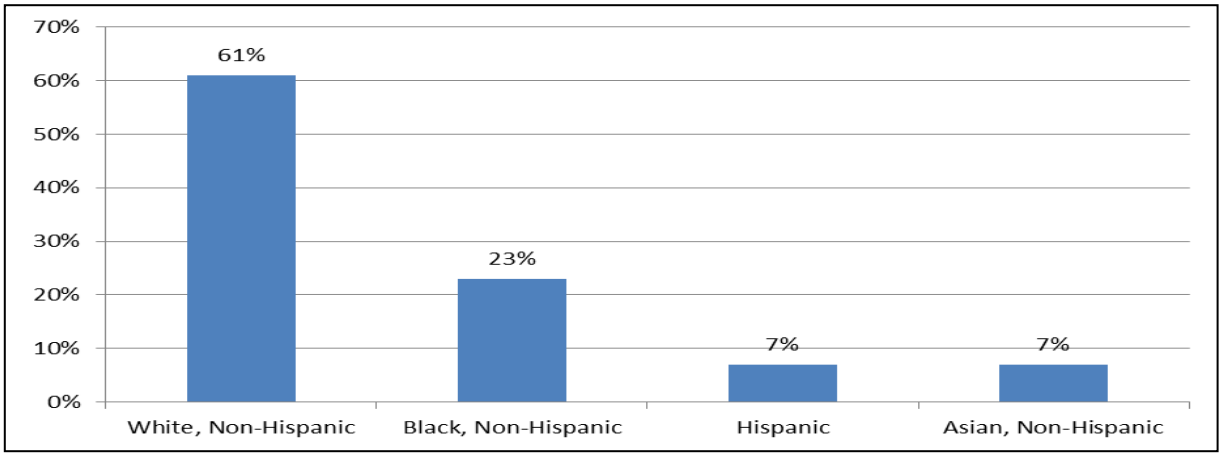
The data for 2013 notwithstanding, the gradual increase in HIV diagnoses since 2004 can be attributed to increases in diagnoses among males. The increases have been most remarkable among persons 15 to 24 years of age and 45 years and older. For the past five years (2009 through 2013), diagnoses among persons 15 to 24 years of age have averaged 22 per year, compared to the previous five-year average of 14 diagnoses per year from 2004 to 2008. Eighteen persons aged 15 to 24 years were diagnosed in 2013, down from the peak of 28 in 2008 and the 21 diagnosed in 2012. Encouragingly, 2013 was the first year since 2006 in which diagnoses among 15 to 24 year olds numbered less than 20. Not so encouraging, however, was the 52 percent jump in diagnoses among persons 45 years and older, from 33 in 2012 to 50 in 2013. Diagnoses in this age group had increased steadily from 24 in 2004 to a peak of 39 in 2007, and then stabilized at an average of 32 diagnoses per year from 2008 through 2012, before accelerating in 2013 to their highest number ever. While diagnoses in the aforementioned groups are concerning, it is important not to lose sight of the fact that diagnoses among persons 25 to 44 years of age accounted for nearly half of all diagnoses, with 54 (44 percent) persons diagnosed in 2013. Persons ages 45 and older accounted for 41 percent of all diagnoses, while persons ages 15 to 24 years accounted for the remaining 15 percent.

For persons 13 years of age and older (adults and adolescents), the median age at diagnosis in 2013 was 39.5 years, more than three years above the five-year average of 36 years for the years from 2008 to 2012. In 2013, adult/adolescent males had a median age at diagnosis of 40 years, somewhat older than the median of 38.5 years for females.

There were 28 diagnoses in 2013 among non-Hispanic black/African-American persons, the same as in 2012, but five more than the five-year average of 23 from 2008 through 2012. Thirteen (46 percent) were foreign-born. While non-Hispanic blacks/African Americans made up almost three percent of Iowa's population in 2013, they accounted for 23 percent of the new HIV diagnoses. This equates to 30.2 diagnoses per 100,000 non-Hispanic black/African-American persons. Hispanics were also overrepresented among persons diagnosed with HIV. While making up five percent of Iowa's population, Hispanics accounted for seven percent of new HIV diagnoses in 2013. A total of nine Hispanic persons were diagnosed in 2013, equating to 5.5 per 100,000 Hispanic persons. Six (67 percent) of the Hispanics were foreign-born. While the numbers are small, there was a substantial increase in diagnoses among non-Hispanic Asians. Diagnoses increased from three in 2012 to eight in 2013, equating to 13.6 per 100,000 non-Hispanic Asian persons. All eight Asians were born in foreign countries. While making up two percent of Iowa's population, non-Hispanic Asians were seven percent of new HIV diagnoses in 2013, the same proportion as Hispanics. Despite the racial and ethnic disparities noted above, the largest proportion of new diagnoses continued to be among non-Hispanic white persons, who accounted for 61 percent of new HIV diagnoses in 2013. A total of 75 non-Hispanic whites were diagnosed in 2013, equating to 2.8 per 100,000 non-Hispanic white persons. When the numbers of persons diagnosed per 100,000 population are compared, non-Hispanic blacks/African Americans were

11 times more likely to have been diagnosed with HIV in 2013 than non-Hispanic whites. Non-Hispanic Asians were almost five times more likely, and Hispanic persons two times more likely, to have been diagnosed with HIV in 2013 than non-Hispanic white persons. Figure 12 shows the percentage distribution of new HIV diagnoses by race and ethnicity in 2013.

Figure 12. Percentage distribution of Iowa HIV diagnoses by race and ethnicity, 2013



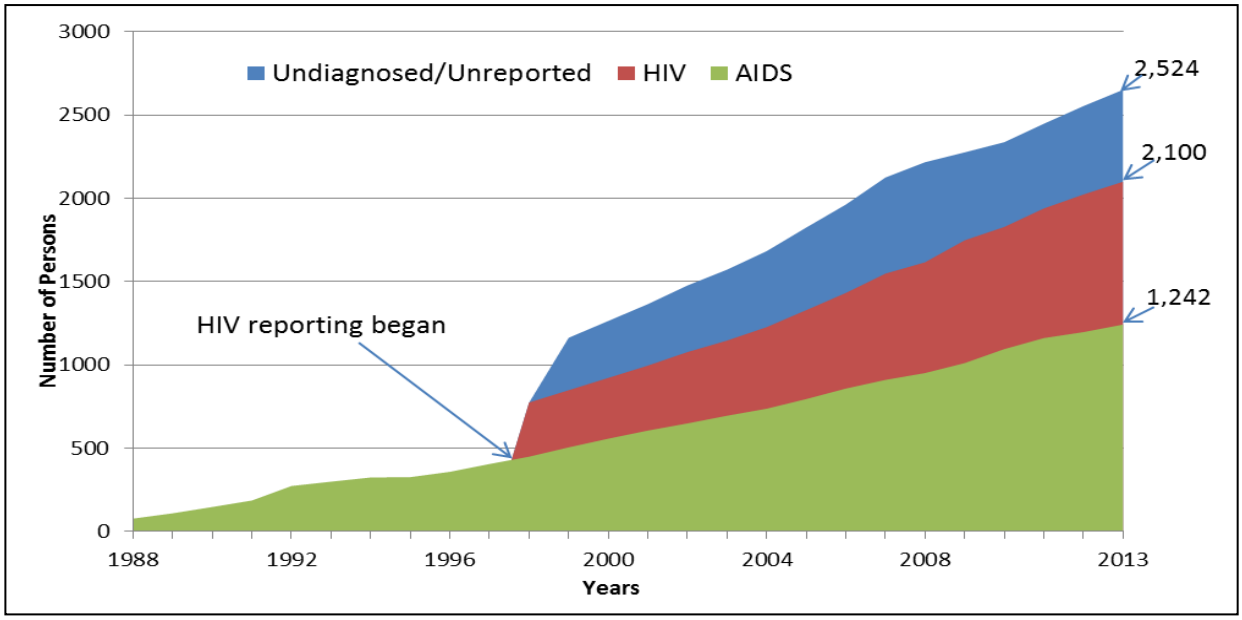
Men who have sex with men (MSM) remained the leading category for mode of exposure to HIV infection. Diagnoses among MSM in 2013 numbered 72, higher than the five-year average of 66 from 2008 to 2012. In 2013, MSM accounted for 59 percent of all diagnoses, compared to a five-year (2008 to 2012) average of 57 percent. It is important to note that 12 (67 percent) of the 18 diagnoses in young men between the ages of 15 and 24 were among MSM.

Numbers (and proportions) of other modes of HIV exposure in 2013 were as follows: injection drug use (IDU), eight (7 percent); men-who-have-sex-with-men and inject drugs (MSM/IDU), two (2 percent); heterosexual contact, 35 (29 percent); and no identified risk (NIR), five (4 percent). Experience has shown that while newly diagnosed persons may initially be reluctant to disclose risk to their health care provider or to health department staff, they become less reticent as they come to trust their providers. Such knowledge led to a successful reduction of NIR cases accomplished through follow-up calls to care providers. By the end of 2014, risk will have been ascertained for almost all of the remaining persons diagnosed in 2013. There were no reported infections passed from mother-to-child during pregnancy or labor and delivery in 2013. Such infections are termed “perinatal” or “vertical” transmission.

Eighty-two persons were diagnosed with AIDS in 2013, compared to 71 in 2012, and down from 91 (the highest number since 1996) in 2009. The 82 diagnoses in 2013 are higher than the average of 75 for the five years 2008 through 2012.

HIV/AIDS prevalence continues to increase. As of December 31, 2013, there were 2,100 persons living with HIV or AIDS who were Iowa residents at time of diagnosis of HIV or AIDS, a prevalence of 68 per 100,000 people. This compares to 2,023 persons living with HIV/AIDS on the same date in 2012, a prevalence of 66 per 100,000. Figure 13 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 completeness 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 2,100 is adjusted for underreporting (1 percent) of diagnosed HIV and AIDS and for CDC’s estimated percentage of undiagnosed infections (15.8 percent), there may have been as many as 2,524 Iowans living with HIV or AIDS at the end of 2013.

Figure 13. Estimated number of Iowans living with HIV or AIDS as of December 31 of each year, 1988-2013



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 are an estimated 3.2 million people chronically infected with hepatitis C in the United States. According to the 2013 census population estimate for Iowa, there were 3,090,416 people residing in the state. CDC estimates that 1.3 to 1.9 percent of the state's population, or 40,175 to 58,717 Iowans have potentially been infected with the hepatitis C virus.

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.

Hepatitis C disease summary amended 9/25/2014

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 70 public sites throughout Iowa. IDPH also works with private health care providers to increase screening.

IDPH provides free treatment to eligible individuals at public testing sites who test positive for chlamydia, gonorrhea, syphilis, or trichomoniasis. Sexual partners can 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 for the treatment of chlamydia or gonorrhea to their patients to give to exposed partners, particularly when the partner is unable or unwilling to come in to a clinic for examination. These medications may also be distributed to exposed partners via public health professionals.

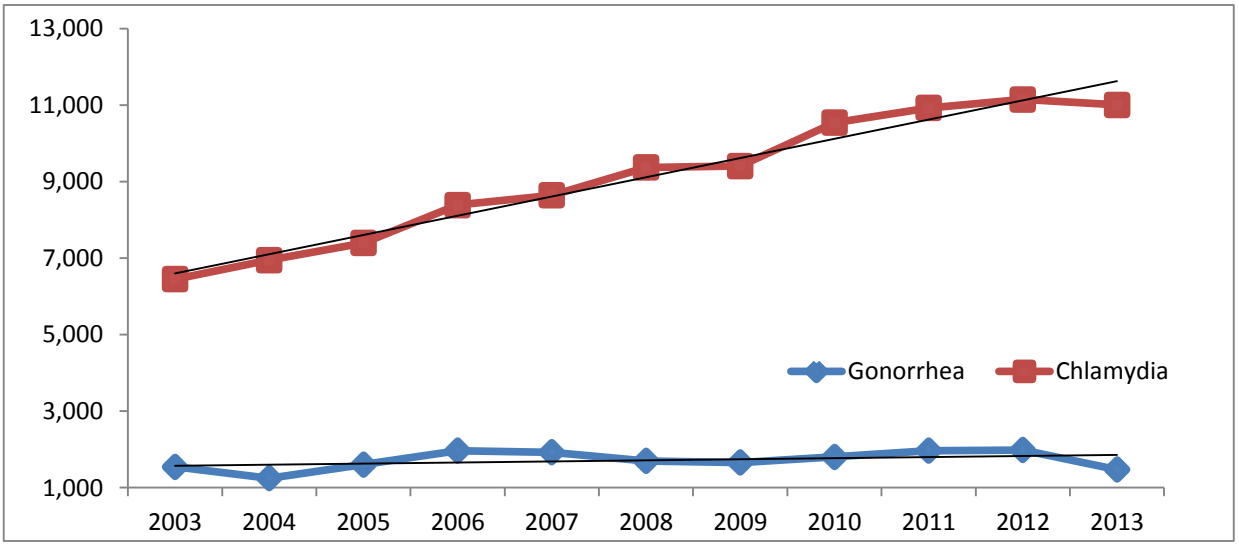
Chlamydia

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. One 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-2000s. 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 screening has increased, the number of cases reported has also increased.

In 2013, 11,006 cases of chlamydia were reported to IDPH (Figure 14). This corresponds to a rate of 361 cases per 100,000 population. Iowa is lower than the U.S. average of 457 cases per 100,000 population. Both nationally and in Iowa, adolescents and young adults are the most impacted populations. In Iowa, 69 percent of reported infections occurred in persons 15 to 29 years of age.

Chlamydia also disproportionately affects people of color in Iowa. Although black, non-Hispanic persons accounted for three percent of the population in Iowa, 18 percent of chlamydial infections were diagnosed in this population. In fact, according to national data from CDC[6], Iowa ranks number two in the nation for the rate of chlamydia among black, non-Hispanic populations in the US.

Figure 14. Number of cases of chlamydia and gonorrhea by year, 2003-2013



Gonorrhea

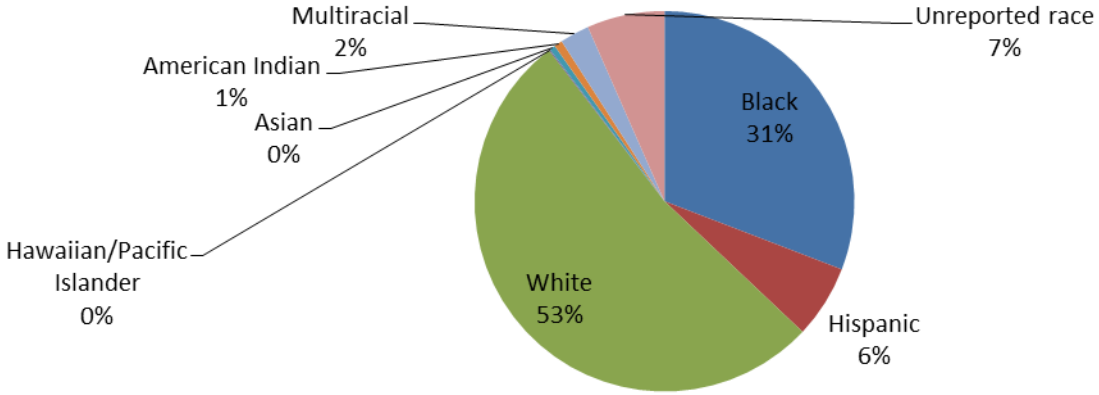
Nationally, the number of reported cases of gonorrhea has slowly increased over the past decade. Trends in Iowa had mirrored this until 2013, when the number of cases decreased. NAATs have been utilized for gonorrhea as they have been for chlamydia. The most widely used tests incorporate gonorrhea and chlamydia testing into a single specimen collection. Thus, patients are typically tested for both infections simultaneously.

In 2013, 1,473 cases of gonorrhea were reported to IDPH (Figure 14), which corresponds to 48 cases per 100,000 population. This is well below the national average of 107.5 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. Fifty-five percent of reported cases in Iowa were among persons 15 to 24 years of age. Black, non-Hispanic persons are even more disproportionately affected by gonorrhea than they are by chlamydia in Iowa. Thirty-one percent of reported cases were among black persons (Figure 15). Iowa ranks number two for its rate of gonorrhea among black persons 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. Antimicrobials in other classes 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. Furthermore, dual therapy likely slows the development of resistance to cephalosporins. Treatment failures with the last remaining effective oral cephalosporin have been confirmed in North America.[8] It is anticipated that *N. gonorrhoeae* will develop resistance to all cephalosporins, at which time treatment will become much more difficult. Currently, no new antimicrobials are available to treat gonorrhea. Researchers are investigating the use of other drug combinations to cure gonococcal infections but it is unknown if and when new options will be available for population-wide clinical use.

The significant disparities among black populations, 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.

Figure 15. Percentage of gonorrhea rates in Iowa by race, 2013



Syphilis

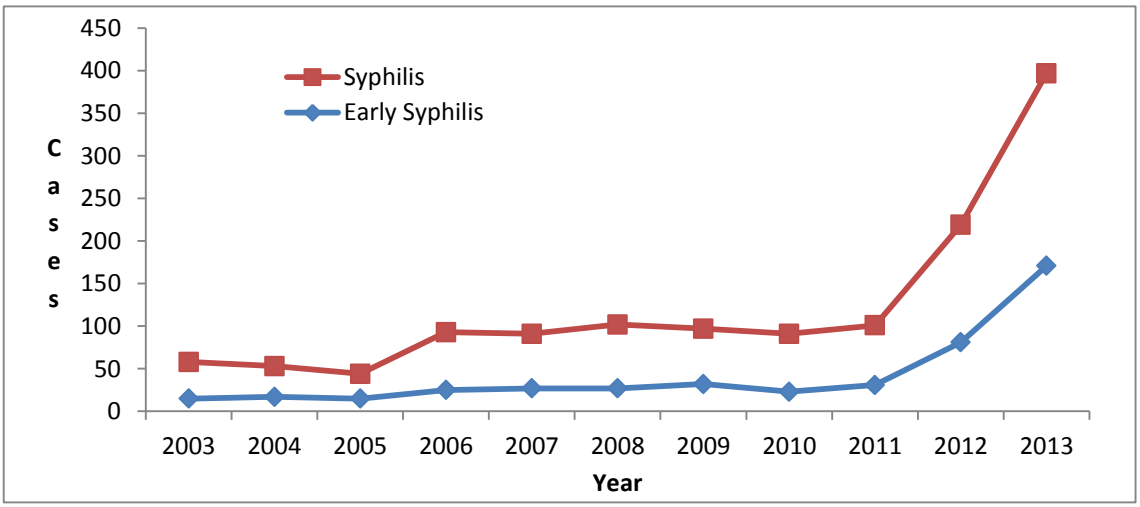
Iowa is considered a low-morbidity state for syphilis; however, the number of reported cases has spiked in the last two years (Figure 16). In 2013, 226 cases of syphilis were reported to IDPH. Of these, 171 were cases of early syphilis (primary, secondary, or early latent), which are of greatest concern to the public's health because these are the infectious stages of the disease. In 2013, the rate of early syphilis in Iowa was 5.6 per 100,000 population; approximately 60 percent of the U.S. average of 9.6 per 100,000 population. The preponderance of syphilis cases occurred in men. In terms of early syphilis, 91 percent of cases were among men. 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.

The black population in Iowa is disproportionately affected by syphilis. Fourteen percent of reported cases of early syphilis were among this population, corresponding to a rate of 26 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. The more recent outbreak among Iowa's MSM populations have complicated elimination efforts further, with challenging investigations and inadequate resources being significant contributing factors. IDPH follows up on every case of syphilis in Iowa and ensures that partner services and treatment are offered whenever they are appropriate and possible.

Figure 16. Number of cases of syphilis by year 2003-2013



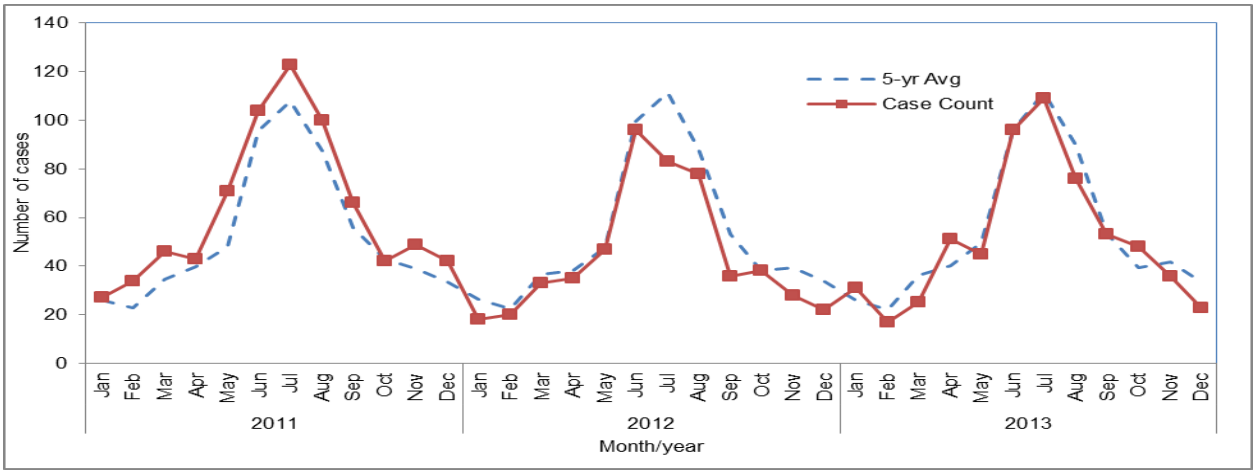
Summary of enteric diseases

CAMPYLOBACTERIOSIS

The total number of *Campylobacter* cases reported in 2013 was 610. Campylobacteriosis incidence was 20 cases for every 100,000 people in 2013.

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.

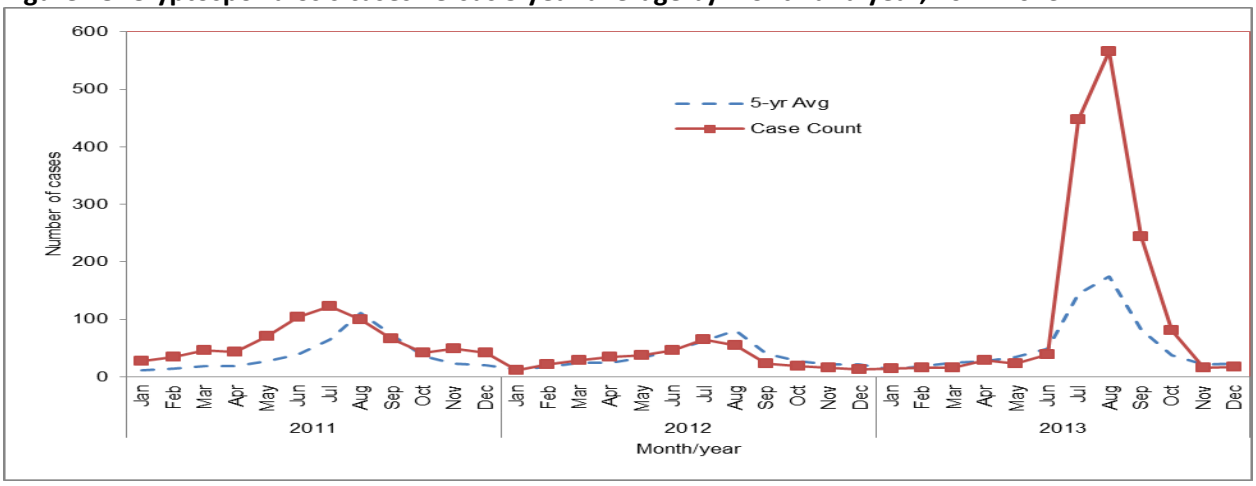
Figure 17. Campylobacteriosis cases versus 5 year average by month and year, 2011-2013



CRYPTOSPORIDIOSIS

Cryptosporidiosis activity in 2013 increased significantly from activity in 2012. There were 49.4 cases for every 100,000 Iowans in 2013, compared to 10.8 in 2012. Three separate outbreaks were investigated in June and July associated with recreational water exposure. In addition, an outbreak was investigated in October associated with the consumption of unpasteurized apple cider. These outbreaks accounted for the majority of the increase seen in the incidence of Cryptosporidiosis in 2013.

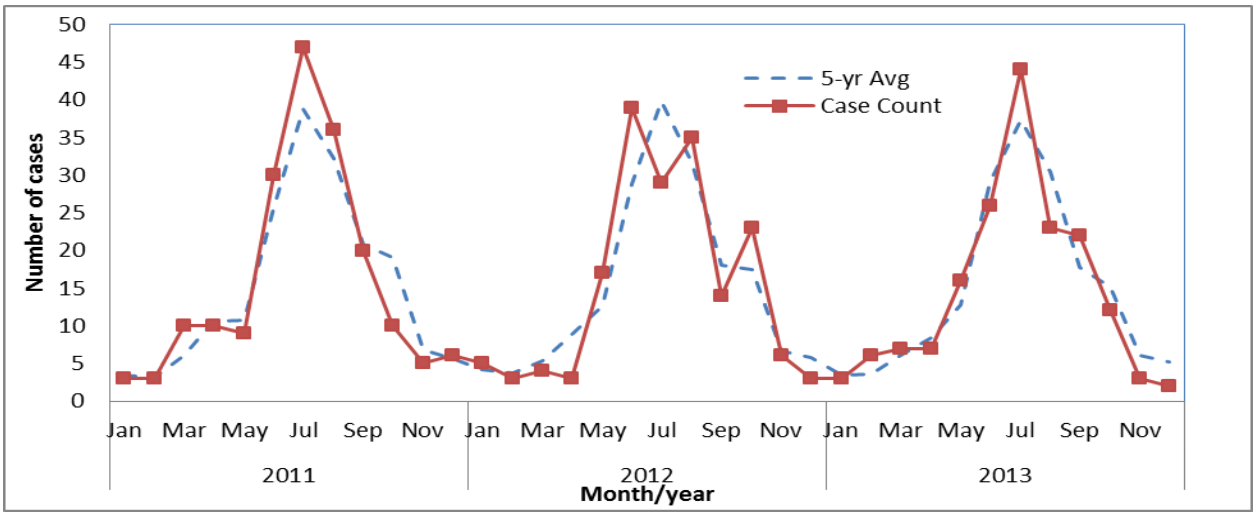
Figure 18. Cryptosporidiosis cases versus 5 year average by month and year, 2011-2013



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

The incidence of *E. coli* shiga-toxin cases in Iowa decreased slightly from 5.9 cases/100,000 Iowans in 2012 to 5.6 cases/100,000 Iowans in 2013. There were 171 total cases reported in 2013. Most types of *E. coli* are harmless and live in the gut but some *E. coli* including O157:H7 can cause illness. *E. coli* is spread by a person eating or drinking food or water that was contaminated with feces from infected people or animals. Other sources of *E. coli* include consumption of raw milk, unpasteurized cider or other juices, or poorly cooked meat.

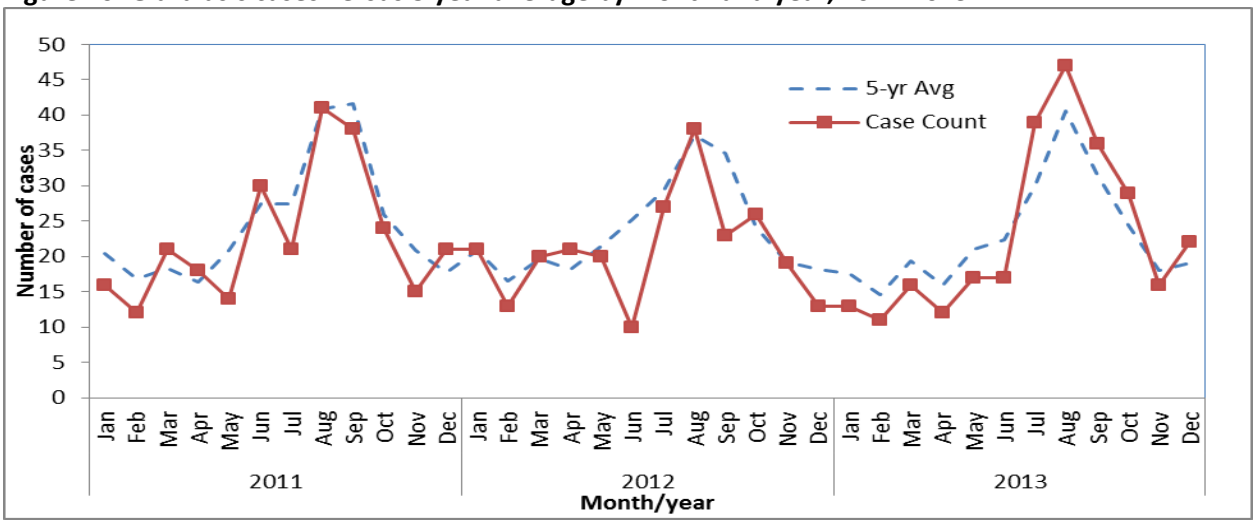
Figure 19. *E. coli* O157:H7 and other shiga-toxin producing strains cases versus 5 year average by month and year, 2011-2013



GIARDIASIS

Giardiasis activity typically peaks in late summer or early fall. In 2013, there were 275 cases reported in Iowa. There were 9.0 cases for every 100,000 Iowans in 2013 compared to 8.2 cases for every 100,000 Iowans the previous year.

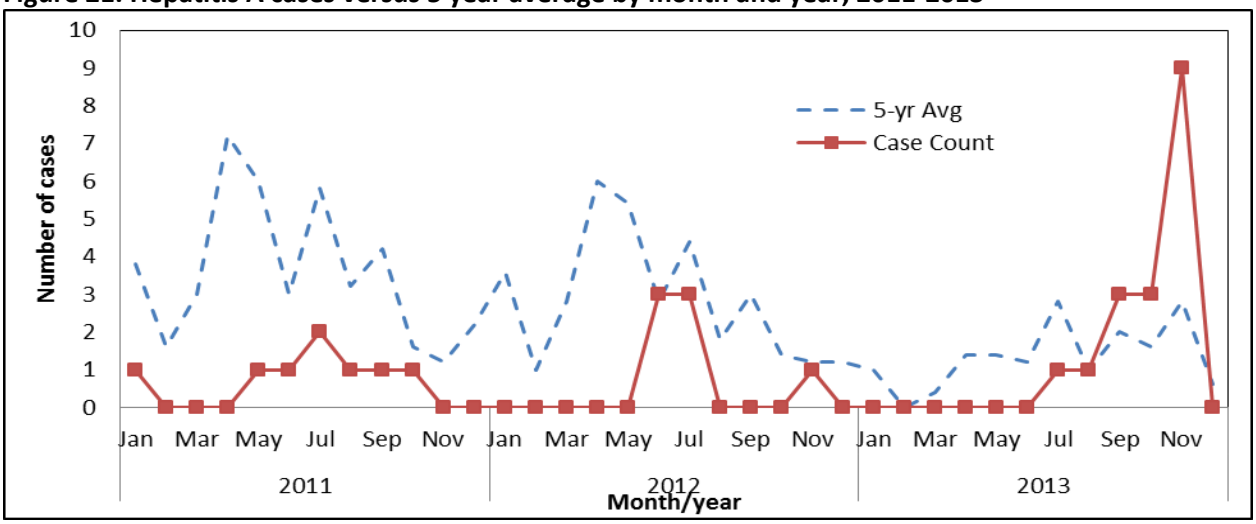
Figure 20. Giardiasis cases versus 5 year average by month and year, 2011-2013



HEPATITIS A

In 2013, 17 cases of hepatitis A were reported in Iowa. The three-year average from 2011 to 2013 was 11 cases, which represents a 22 percent increase over the previous three-year average of nine cases. Cases ranged in age from 4 to 84 years of age, with three cases younger than 25. Fifty-three percent of cases were female. None of the cases were associated with outbreaks.

Figure 21. Hepatitis A cases versus 5 year average by month and year, 2011-2013



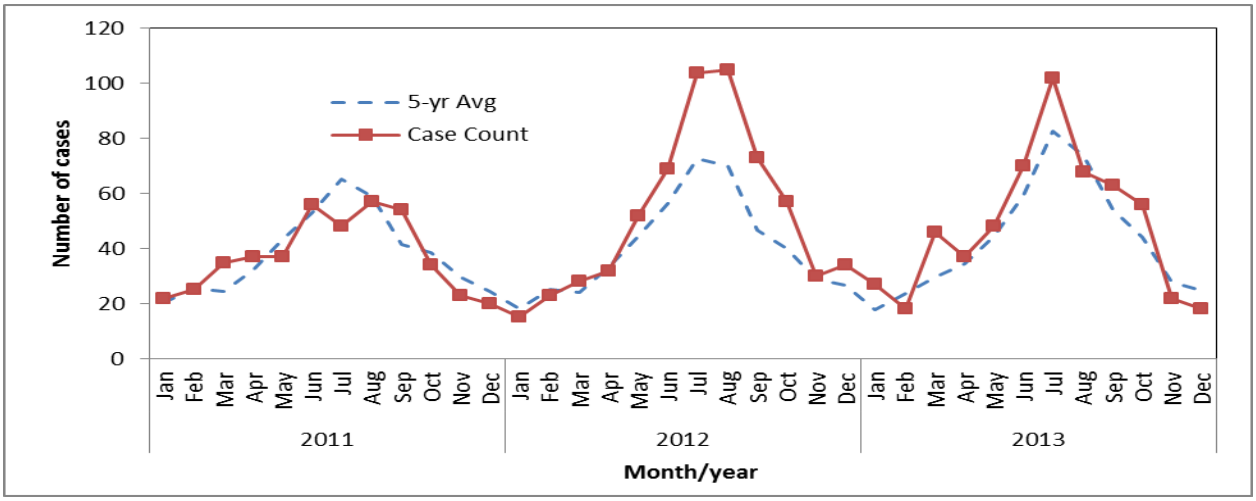
LISTERIOSIS

There were two cases of *Listeria monocytogenes* reported in 2013. Neither was associated with a national outbreak.

SALMONELLOSIS

Salmonellosis incidence in 2013 decreased to 18.9 cases per 100,000 Iowans from 20.4 cases per 100,000 Iowans in 2012. The total number of cases reported was 575. Local public health departments and IDPH investigated five Iowa-specific outbreaks: two associated with animal contact, one associated with a restaurant, one associated with a local festival and one with an unknown cause. Two national outbreaks involving contact with baby chicks were also investigated.

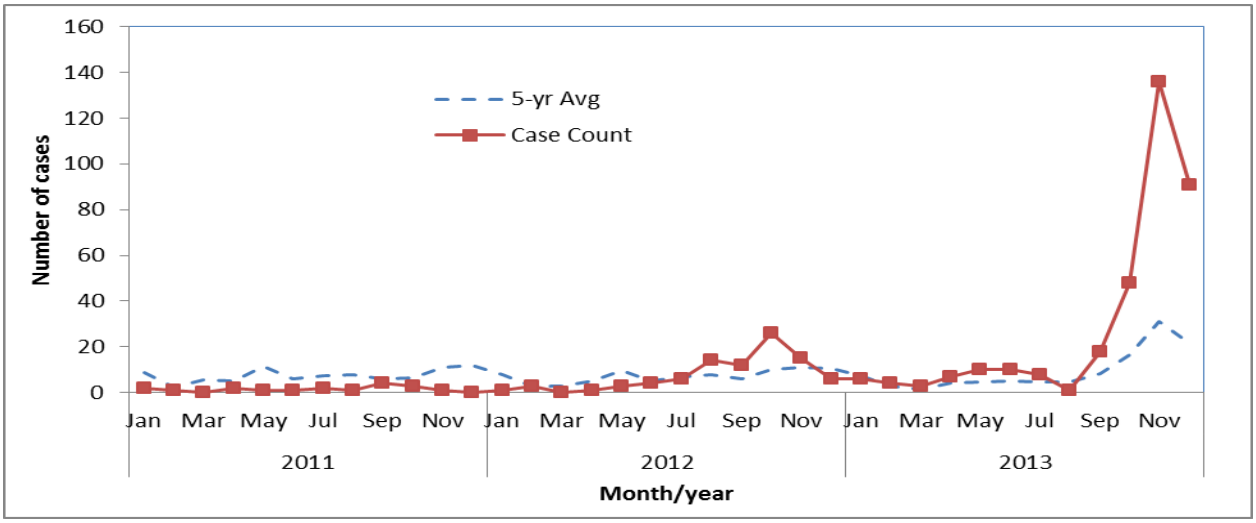
Figure 22. Salmonellosis cases versus 5 year average by month and year, 2011-2013



SHIGELLOSIS

In 2013, 342 cases of *Shigella* were reported in Iowa, an approximately 522 percent increase over the average number of cases for the past three years. The majority of cases were associated with a community-wide outbreak in western Iowa beginning in September and lasting through the end of the year. Of the outbreak cases, 63 percent were under the age of 10 and approximately 21 percent were in persons aged 20 to 49 years. This reflects that children and their parents or caretakers are at most risk of infection.

Figure 23. Shigellosis cases versus 5 year average by month and year, 2011-2013



Summary of zoonotic and vectorborne diseases

DENGUE FEVER

In 2013, three cases of Dengue fever were reported to IDPH; one was female and the other two were males. Cases ranged from ages 13 to 38 with a median age of 32 years. All three cases were acquired outside of the United States.

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 and symptoms of these infections are similar.

In 2013, there were eight cases of ehrlichiosis/anaplasmosis reported to IDPH, an increase of two from the six cases reported in 2012. Cases ranged from ages 16 to 86 with a median age of 59 years and five cases were located in the northeast and two were in the southeast part of the state.

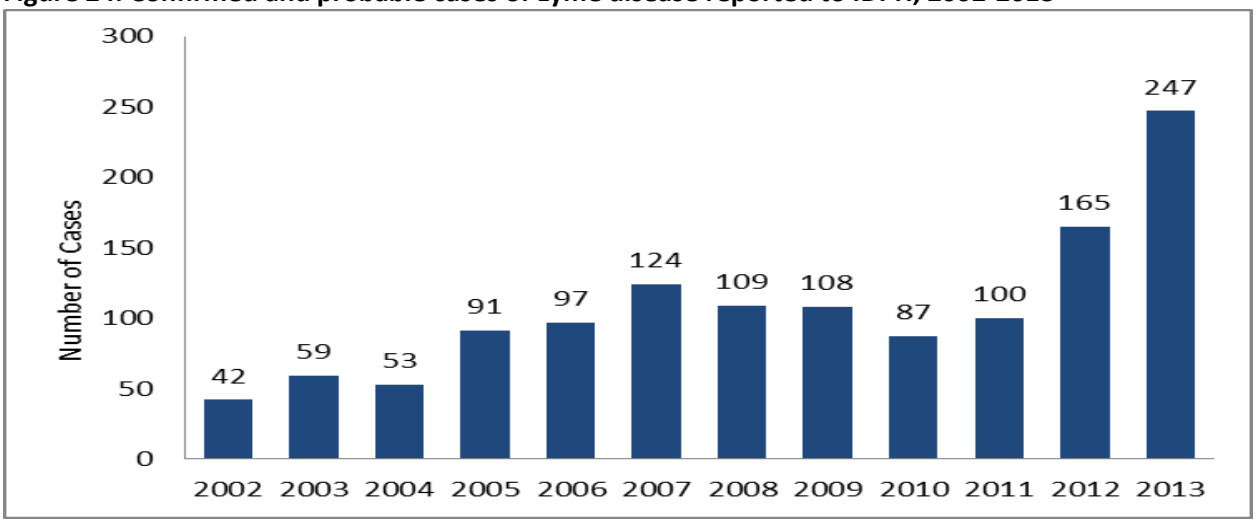
HANTAVIRUS

There were no reports of hantavirus pulmonary syndrome (HPS) in Iowa in 2013. There have been nine cases of HPS reported in Iowa since the disease was first identified in 1993. Substantial rodent exposure was identified in most of these cases.

LYME DISEASE

Lyme disease is caused by *Borrelia burgdorferi,* is transmitted to humans by the bite of an infected tick, primarily the blacklegged tick. Symptoms of Lyme disease can include fever, headache, fatigue, and a "bull's-eye" skin rash also known as erythema migrans. There were 247 cases of Lyme disease reported to IDPH in 2013, a 110.5 percent increase over the previous three-year average and the highest number of cases recorded since 2002 when reporting first began (Figure 24). The 2013 Iowa case rate for Lyme disease was 8.1 cases per 100,000 persons. Cases ranged from ages two to 85 with a median age of 39 years.

Figure 24. Confirmed and probable cases of Lyme disease reported to IDPH, 2002-2013



MALARIA

Twelve cases of malaria were identified in Iowa in 2013, an increase of six from the six cases reported in 2012. Cases ranged from ages 3 to 70 with a median age of 36 years and all infections were acquired outside of the United States.

RABIES, ANIMAL

In 2013, 12 cases of animal rabies were reported in Iowa, which is a significant decrease from 2012 (Table 4). Rabies was identified most frequently in wildlife species, including six bats and four skunks. Two cases were diagnosed in cows.

During 2013, 1420 animals in Iowa were tested for rabies and 12 were confirmed positive (0.85 percent).The percent positive varies greatly by species, see Table 3. It is important to note that this data is greatly influenced by the number of animals tested. Many animals are tested because they have contact with humans or domestic animals and 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, 2013

Species	Positive	Total Tested	% Positive
Cow	2	68	2.94%
Bat	4	480	0.83%
Skunk	6	10	60.00%

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 State Hygienic Laboratory (SHL) can differentiate the strain of rabies virus that infected the animal (the strain typing procedure is only effective in samples that are strongly positive). In 2013, SHL was able to identify the rabies strain in seven of the positive rabies cases; bat strain rabies was identified in four bats and skunk strain rabies was identified in two skunks and one cow. For more information about rabies, visit www.idph.state.ia.us/Rabies/Resources.aspx.

Table 4. Number of animals positive for rabies by species and by year, 2003-2013

Species	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bat	47	47	60	28	13	11	11	10	12	17	6
Skunk	38	28	33	13	5	7	13	13	7	9	4
Cat	8	11	5	7	7	9	3	1	3	1	0
Cow	3	10	7	4	0	1	5	1	3	4	2
Dog	6	3	2	2	5	1	2	1	0	0	0
Horse	3	0	1	3	1	0	0	0	0	0	0
Fox	0	1	0	0	0	0	0	1	0	0	0
Squirrel	0	0	0	0	0	0	1	0	0	0	0
Badger	1	0	0	0	0	0	0	0	0	0	0
Total	**106**	**100**	**108**	**57**	**31**	**29**	**35**	**27**	**25**	**31**	**12**

RABIES, HUMAN

Iowa's most recent human rabies case occurred in 2002 and was caused by bat strain rabies. Prior to that, the last reported human case in Iowa 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 400 Iowans receive rabies preventive treatment each year.

ROCKY MOUNTAIN SPOTTED FEVER (RMSF)

In 2013, eight cases of Rocky Mountain spotted fever (RMSF) were reported in Iowa. American dog ticks are carriers of *Rickettsia rickettsii*, the bacteria 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 2013 had symptom onset dates from March to September. Cases ranged from ages 14 to 83, with a median age of 55. Four cases were female and four were male. Three of the eight cases were hospitalized.

WEST NILE VIRUS

There were 44 human cases of West Nile virus reported to IDPH in 2013. Thirty-four of the 44 cases were hospitalized, and no deaths were reported. Cases ranged from age 18 to 83, with a median age of 55. Twenty-three cases were male and 21 were female. The highest numbers of cases were reported in the northwest region of the state. For more information about this disease, visit www.idph.state.ia.us/CADE/DiseaseIndex.aspx?disease=West Nile Virus.

Table 5. Iowa West Nile virus activity by species and outcome, 2003-2013

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Human cases	147	23	37	37	30	5	5	9	9	31	44
Human deaths	6	2	2	0	3	1	0	2	0	0	0
Sentinel chickens	15	9	19	18	18	3	6	14	14	17	15
Mosquito (pools)	27	0	7	15	5	5	9	7	5	14	66
Horses	96	18	15	12	10	4	3	2	1	35	11

Summary of Rare and Unusual Diseases

Toxic Shock Syndrome

There was one case of Toxic Shock Syndrome reported to IDPH in 2013, which occurred in a female child (0-17 years of age).

Tularemia

There were four case of tularemia reported to IDPH in 2013. All of the cases were males and cases ranged from ages eight to 66, with a median age of 19.

Hansen's disease (Leprosy)

There was one case of Hansen's disease reported to IDPH in 2013, which occurred in a male child (0-17 years of age).

Tetanus

There was one case of tetanus reported to IDPH in 2013, which occurred in a male child (0-17 years of age).

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

Hepatitis E
Psittacosis
Yellow Fever

Summary of environmental health conditions

CARBON MONOXIDE (CO) POISONING SURVEILLANCE

According to the CDC, more than 400 people in the US die from unintentional CO poisoning each year; 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.

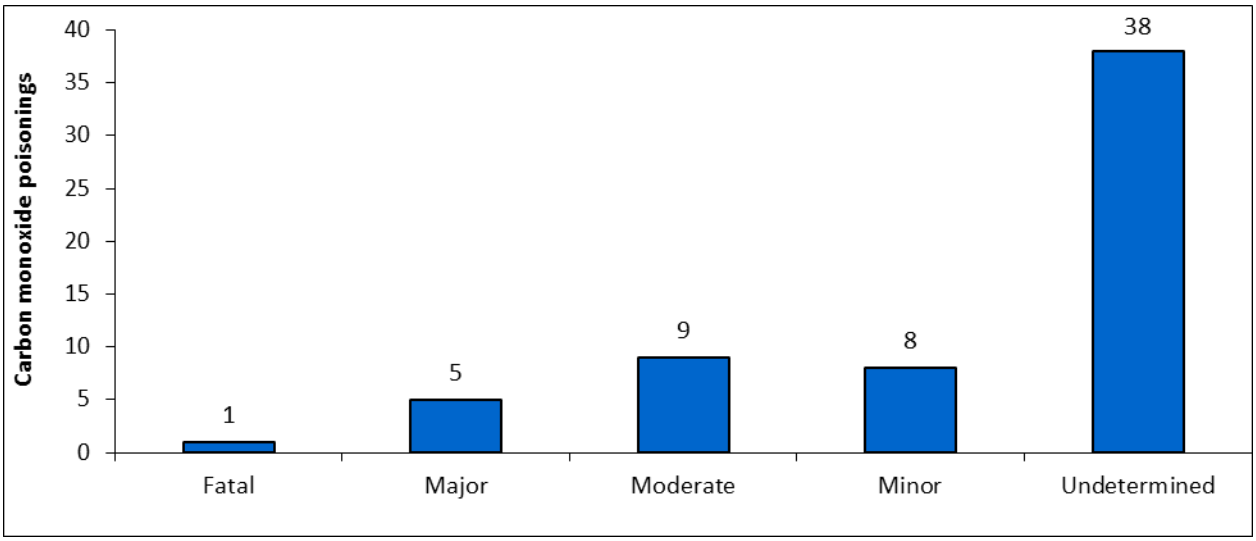
Information collected includes basic demographics (age, gender, county of residence), diagnosis, blood carboxyhemoglobin test results, exposure (circumstance, source, location), and severity of health impact. Reports are reviewed to identify clusters and possible occupational exposures for further investigation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

In 2013, there was one reported death from CO exposure in Iowa. Sixty-one individual reports of CO poisoning were received by IDPH.

Table 6. Gender of cases with carbon monoxide poisoning meeting case definition, 2013

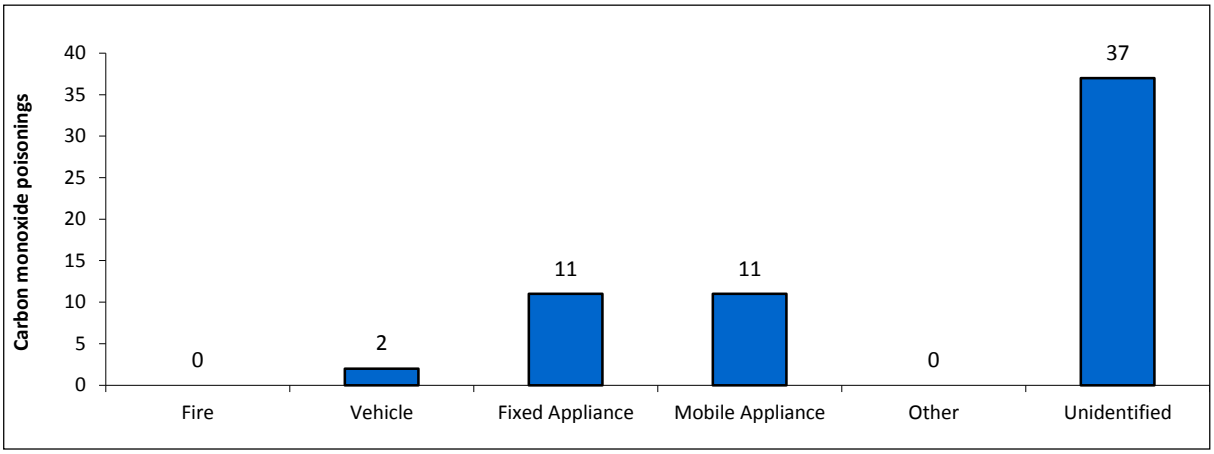
	Number of cases
Male	34
Female	27
Total Cases	61

Figure 25. Severity of health impact among case patients with CO poisoning, 2013



Fatal – Patient died due to Carbon monoxide poisoning
Major – Patient experienced major symptoms (loss of consciousness, long-term complications)
Moderate – Patient experienced moderate symptoms such as nausea, vomiting, confusion
Minor – Patient experienced minor symptoms such as headache, dizziness

Figure 26. Sources of exposure among case patients with CO poisoning, 2013



Vehicles include automobiles and other fuel-powered recreational vehicles (e.g., boats, four-wheelers, Zamboni Ice Resurfacing machines, etc.).
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, 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, and the condition is also known as 'Blue Baby Syndrome'. Sources of nitrite include nitrate in drinking water, from preservatives in food, specific drugs, and other sources.

In 2013, there were four cases of methemoglobinemia reported in Iowa. There were no cases reported in an infant.

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 those that do are most often 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 2013, there was one case of arsenic poisoning, and no cases of cadmium or mercury 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 6. At very high blood lead levels, children can have severe brain damage or even die. Recent research suggests that there is no level of lead exposure at which adverse health and developmental effects do not occur. At blood lead levels as low as 1 microgram 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. The Centers for Disease Control and Prevention recommends that public health actions be initiated at blood lead levels above 5 µg/dL, and has a goal to eliminate blood lead levels greater than or equal to 10 µg/dL in children.

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 2008, Iowa law has required that all children have proof of a blood lead test when enrolling in kindergarten. Currently, the percentage of children in Iowa receiving at least one blood lead test by kindergarten is above 98 percent.

There are two types of specimens for blood lead tests completed in Iowa. These specimen types include a finger or heel stick (capillary test) and blood drawn from a vein (venous test). The venous test is more accurate, and is required to confirm the result of an abnormal capillary test result of 10 µg/dL or greater. There were 67,772 children under the age of 6 in Iowa that had their blood lead tested for lead in 2013. Of these 67,772 children tested in Iowa, 67,217 (99.18 percent) had blood lead levels below the 10 µg/dL level. There were 321 children with confirmed elevated blood lead levels in 2013. A confirmed elevated blood lead level is defined as 1) any venous blood level test result greater than or equal to 10 µg/dL , or 2) a set of two capillary blood lead test results greater than or equal to 10 µg/dL conducted less than 12 weeks apart. There were 234 children with unconfirmed elevated blood lead levels in 2013. An unconfirmed elevated blood lead level is any capillary blood lead test result greater than or equal to 10 µg/dL that is not confirmed by a follow-up capillary or venous blood lead test within 12 weeks. More detailed information of the confirmed blood lead tests completed in children during 2013 is included in Table 7.

Table 7. Children with Confirmed Elevated Blood Lead Levels by Highest Confirmed Level:

Blood Lead Level Range	Number of Children Confirmed Elevated	Percent of Children with Confirmed Elevated in Range (Number of Children Confirmed Elevated / 321 x 100)
10-14 µg/dL	141	43.93
15-19 µg/dL	80	24.92
20-24 µg/dL	47	14.64
25-44 µg/dL	47	14.64
45-69 µg/dL	5	1.56
>70 µg/dL	1	0.31

ADULT LEAD POISONING

A total of 5,866 blood lead level (BLL) test results on 3,173 Iowans were recorded by the Iowa Adult Blood Lead Epidemiology and Surveillance (ABLES) program for adults 16 years or older as of the date of collection with a residence in Iowa tested in calendar year 2013. All blood lead test results for Iowa residents are reportable to IDPH under Iowa Administrative Code 641, Chapter 1. Additional information is available at www.idph.state.ia.us/LPP/ABLES.aspx.

Blood lead tests of 10 micrograms per deciliter (µg/dL) or higher are currently defined as an elevated blood lead level (EBL) for an adult. Based on the highest BLL for each Iowa adult tested in 2013, there were 856 people (27 percent of those tested) who had blood lead levels of 10 µg/dL or higher; 19 people with levels 40 µg/dL or higher, 183 people with levels 25-39 µg/dL, and 654 people with levels 10-24 µg/dL. The remaining Iowa adults tested (2,317, 73 percent) had results less than 10 µg/dL, with an average BLL less than 3 µg/dL.

Females accounted for 13 percent (111) of the 856 EBLs in 2013. This is an increase from 2012 when 11 percent (92) of the 2012 EBLs were female. The blood lead levels for EBL females ranged from 10-73 µg/dL with an average blood lead level of 20 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 1969 or later) accounted for 43 of the 111 female cases (39 percent), an increase from 28 females (30 percent) in 2012.The 2013 data also showed an increase in EBL females 35 years of age or younger, with 24 or 21.6 percent of the 111 EBLS women in this age range compared to 11 (12 percent of 92) in 2012. It is unknown if any of these women were pregnant at the time of their exposure. Most of the women with EBLs (107 of 111, 96 percent) had work-related lead exposure,

almost entirely in battery manufacturing.

Prior exposure to lead from Ayurvedic products purchased overseas was known as the reason for repeat testing of 18 Iowans in 2013, with nine individuals still exhibiting a persistent elevated blood lead level since diagnosis in 2011. Current blood lead levels ranged from 11-23 µg/dL.

Lead exposure due to the use of firearms, making or reloading of ammunition, or making fishing jigs was identified in 15 Iowans in 2013. Their EBLs ranged from 10 to 57 µg/dL, with an average BLL of 20 µg/dL. While the 2013 data for this type of exposure shows an increase of two persons compared to 2012, the blood lead level range and average BLL were much lower (2012: EBL range 10 to 91 µg/dL, with a mean of 28 µg/dL). Many of the same people had exposures in past years, and have been provided with information regarding options for lowering their exposure.

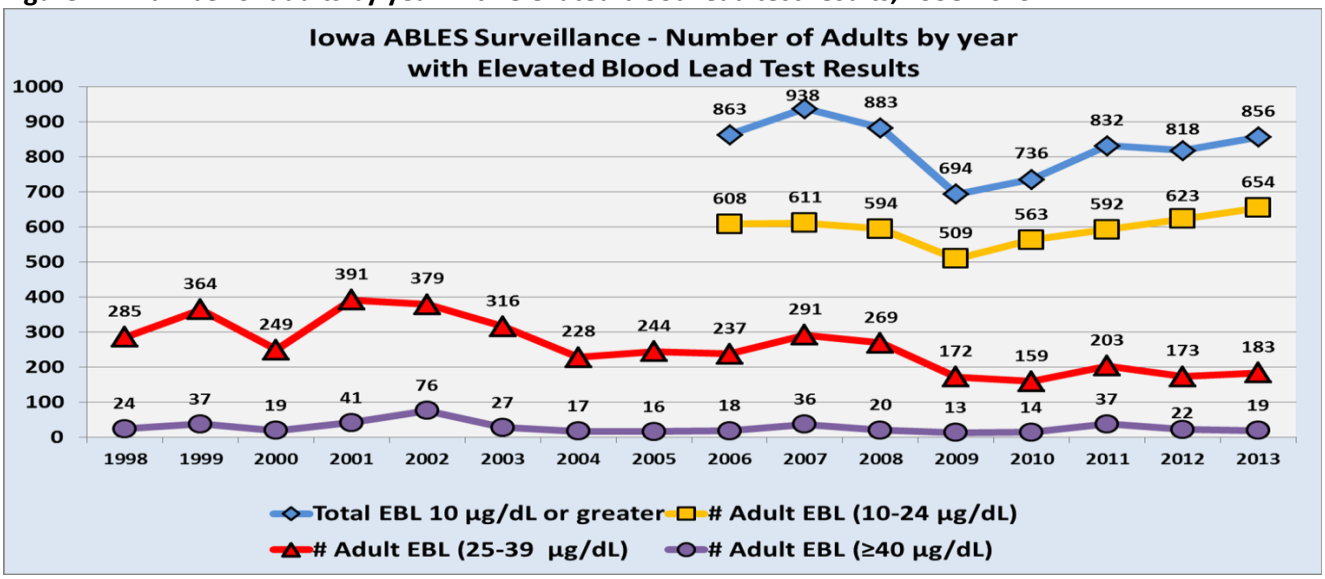
Iowa's high risk industries in 2013 remain consistent with data from previous years, with the majority (770 of 856 or 90 percent) of EBL adults working in manufacturing plants that use lead or metal products that contain lead. Ten employers accounted for 786 workers with EBLs or almost 92 percent of the EBL Iowans in 2013. These workers are also the most likely to be tested for lead exposure because of regulatory oversight or concerns about the risk of exposure in a fixed worksite environment. The second highest industry group was construction with 23 of 856 or 2.7 percent, which includes industrial, commercial, and residential construction, painting, maintenance, and renovation projects. It is known that many workers in construction are not routinely tested for lead exposure. Other work-related cases in 2013 included exposures from electronic and scrap metal recycling, materials wholesalers and retailers, automotive or radiator repair, leaded glass workers and installers, transportation maintenance shops, and a variety of other work types. Additional workers, especially those working for smaller companies or those who are self-employed, may have lead exposure but were never tested during the 2013.There were 23 known exposures (2.7 percent) from hobby or non-work situations, including the highest exposure of the year (EBL of 73 µg/dL). A total of seven exposures did not have a source of exposure identified, although 2 were known to be work-related.

Table 8. Iowa adult blood lead test results, 2010-2013 and changes from 2012-2013

	Number of Iowa Adults Tested by Highest BLL/Year						Percent of all Iowa Adults Tested by BLL Range for Year		
IA ABLES DATA	**2013**	**Prior 3-yr Ave**	**2012**	**2011**	**2010**	**2013 change in numbers from 2012**	**2012**	**2011**	**2010**
BLL 40 µg/dL or higher	19	21	22	37	14	-3	0.7%	1.1%	0.5%
BLL 25-39 µg/dL	183	178	174	203	159	9	5.8%	6.5%	5.5%
BLL 10-24 µg/dL	654	555	622	592	563	32	20.7%	18.8%	19.4%
BLL 0-9 µg/dL	2317	2068	2187	2323	2169	130	72.8%	73.6%	74.7%
All BLL 10+ (Total EBLS)	856	754	818	832	736	38	27.2%	26.4%	25.3%
Total Individuals Tested	3173	2822	3005	3155	2905	168			

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 May 30, 2014. Later data entries are not included at this time.

Figure 27. Number of adults by year with elevated blood lead test results, 1998-2013



TRAUMATIC WORK-RELATED FATALITIES SURVEILLANCE

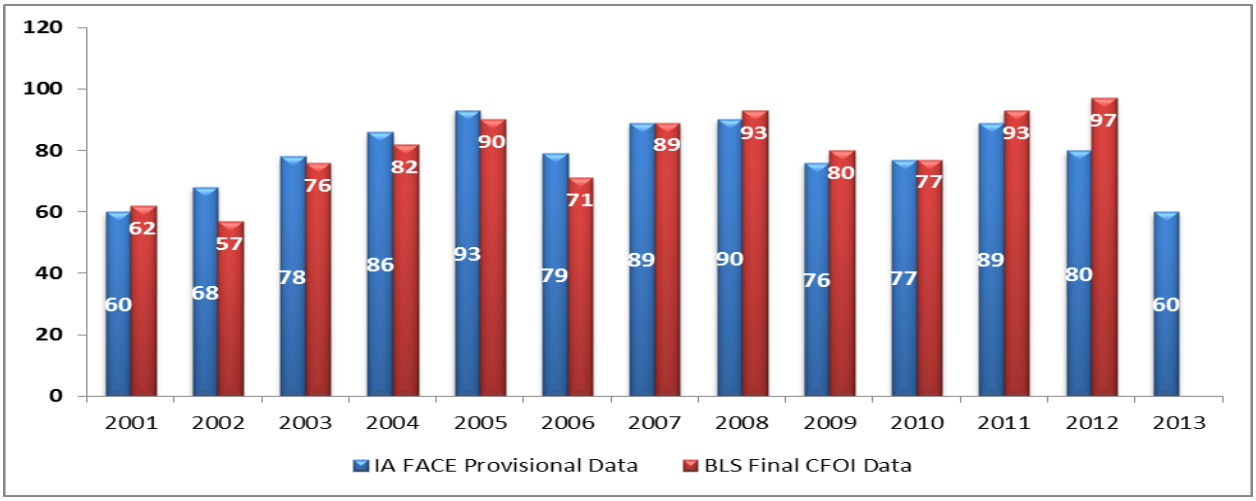
The IDPH Occupational Health and Safety Surveillance Program (OHSSP) includes the Iowa Fatality Assessment and Control Evaluation (FACE) program, with work subcontracted to the University of Iowa College of Public Health and collaboration with the Iowa Office of the State Medical Examiner. The FACE program receives funding from the National Institute of Occupational Safety and Health (NIOSH).

Iowa FACE has identified 60 work-related fatalities for 2013 (provisional data). Transportation incidents of all types were the largest single type of event causing work-related fatalities in Iowa (29 of 60; 48 percent) including 15 roadway fatalities and 11 off-roadway fatalities. Agriculturally-related (ag-related) activities involved 23 of the 60 deaths (38 percent), including 11 (38 percent) of the transportation incidents. Of the 11 ag-related transportation incidents, four involved tractors, two involved ATVs or 4-wheel utility vehicles, and two involved pedestrians struck by a moving vehicle or equipment. Ages for work-related traumatic fatalities ranged from 16 to 81 years of age with a median age of 50. Females accounted for 3 percent of the known work-related deaths.

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. 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). Some cases are not identified until months after the incident. Case definition may also vary between agencies involved in worker surveillance. 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/ and www.idph.state.ia.us/LPP/OHSSP.aspx.

Figure 28. Iowa FACE work-related death, 2001-2013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IA FACE Provisional Data
BLS Final CFOI Data

2013 Iowa summary of reported outbreak investigations

Table 9. Norovirus/Suspect Norovirus Outbreaks, 2013

Type	Nature of Episode	Event/Place	County	Month	Number Affected/Number Exposed (if known)	Agent Involved, Number of Positive Tests, if known
1. Norovirus	Diarrhea, Vomiting, Chills	Conference	Dallas	January	31/120	Norovirus - 3
2. Norovirus	Diarrhea, Vomiting, Chills	Restaurant	Jefferson	January	10	Norovirus - 1
3. Norovirus	Diarrhea, Vomiting, Chills	School	Linn	February	30	Norovirus - 3
4. Norovirus	Diarrhea, Vomiting, Chills	Hospital	Johnson	February	8/9	Norovirus - 2
5. Norovirus	Diarrhea, Vomiting, Nausea	Restaurant	Johnson	February	10	Norovirus -2
6. Norovirus	Diarrhea, Vomiting, Chills	Hospital	Emmet	February	20	Norovirus -2
7. Norovirus	Diarrhea, Vomiting, Chills	Restaurant	Woodbury	February	2/2	Suspect Norovirus
8. Norovirus	Diarrhea, Vomiting, Chills	Long-Term Care	Cerro Gordo	February	60/85	Norovirus - 3
9. Norovirus	Diarrhea, Vomiting, Chills	Long-Term Care	Buchanan	February	49	Norovirus -3
10. Norovirus	Diarrhea, Vomiting, Chills	Elementary School	Scott	February	157/596	Norovirus - 2
11. Norovirus	Diarrhea, Vomiting, Chills	Hospital	Poweshiek	February	9	Norovirus -2

12.	Norovirus	Diarrhea, Vomiting, Chills	Restaurant	Woodbury	March	5/5	Suspect Norovirus
13.	Norovirus	Diarrhea, Vomiting, Chills	Child Care	Dallas	March	8	Suspect Norovirus
14.	Norovirus	Diarrhea, Vomiting, Chills	Hospital	Jasper	March	8	Norovirus - 5
15.	Norovirus	Diarrhea, Vomiting, Chills	Conference	Out of State	March	16/25	Norovirus – 3 Campylobacter - 1
16.	Norovirus	Diarrhea, Vomiting, Chills	Family Gathering	Black Hawk	March	6/10	Norovirus - 1
17.	Norovirus	Diarrhea, Vomiting, Nausea	Hospital	Buena Vista	March	10	Norovirus - 2
18.	Norovirus	Diarrhea, Vomiting, Nausea	Long-Term Care	Delaware	March/April	16/60	Suspect Norovirus
19.	Norovirus	Diarrhea, Vomiting, Chills	Long-Term Care	Delaware	April	26/60	Norovirus - 4
20.	Norovirus	Diarrhea, Vomiting, Chills	Retirement Community	Dubuque	April	13	Suspect Norovirus
21.	Norovirus	Diarrhea, Vomiting, Chills	Restaurant	Clarke	April	4/5	Suspect Norovirus
22.	Norovirus	Diarrhea, Vomiting, Chills	Wedding	Story	April	6/100	Suspect Norovirus
23.	Norovirus	Vomiting, Diarrhea	Long-term Care Facility	Grundy	April	11	Suspect Norovirus
24.	Norovirus	Diarrhea, Vomiting, Nausea	Elementary School	Woodbury	May	50/500	Norovirus - 6
25.	Norovirus	Diarrhea, Vomiting, Nausea	Elementary School	Butler	May	34	Suspect Norovirus

26.	Norovirus	Diarrhea, Abd Cramps, Vomiting	Long-term Care Facility	Tama	October	20/56	Suspect Norovirus
27.	Norovirus	Diarrhea, Vomiting, Abd Cramps	Elementary School	Linn	November	103/425	Norovirus - 3
28.	Norovirus	Diarrhea, Vomiting, Abd Cramps	Wedding	Delaware/ Linn/Johnson	November	30/150	Norovirus - 7
29.	Norovirus	Vomiting, Diarrhea, Abd Cramping	High School	Hancock	September	30/300	Suspect Norovirus
30.	Norovirus	Diarrhea, Vomiting	Elementary School	Lyon	Nov/Dec	27	Suspect Norovirus
31.	Norovirus	Diarrhea, Vomiting	Elementary School	Webster	December	36/358	Suspect Norovirus
32.	Norovirus	Diarrhea, Vomiting	Family Gathering	Dubuque	December	12/20	Suspect Norovirus
33.	Norovirus	Diarrhea, Vomiting	Restaurant	Linn	December	9/12	Suspect Norovirus
34.	Norovirus	Diarrhea, Vomiting, Nausea	Restaurant	Polk	December	3/5	Suspect Norovirus
35.	Norovirus	Nausea, Vomiting	School	Linn	December	26/193	Norovirus - 1
36.	Norovirus	Vomiting, Diarrhea	Inpatient Unit	Black Hawk	December	10/20	Norovirus - 1
37.	Norovirus	Diarrhea, Vomiting, Nausea	Long-Term Care	Scott	December	47/136	Norovirus - 3
38.	Norovirus	Diarrhea, Vomiting	Funeral Luncheon	Lyon	December	25/175	Norovirus - 2
39.	Norovirus	Diarrhea, Vomiting, Cramps	Restaurant	Woodbury	December	7/13	Norovirus - 2

Table 10. Non-Norovirus, Non-Foodborne or Unknown Cause Outbreaks, 2013

Type	Nature of Episode	Event/Place	County	Month	Number Affected/Number Exposed (if known)	Vehicle of Transmission	Agent Involved, Number of Positive Tests, if known
40. Person-to-Person	Vomiting, Fever	Long-Term Care	Clinton	January	38/70	Person-to-Person	Unknown
41. Person-to-Person	Diarrhea, Vomiting, Chills	Long-Term Care	Madison	February	11/60	Person-to-Person	Unknown
42. Vaccine Preventable	Diarrhea, Vomiting, Fever	Long-Term Care	Johnson	February	4	Person-to-Person	Suspect Influenza
43. Person-to-Person	Diarrhea, Vomiting, Nausea	School	Pottawattamie	April	2/16	Waterborne	*Vibrio* Cholera - 1
44. Animal-to-Person	Vomiting, Diarrhea, Fever	Home/Farm Store	Multi-county	April	6	Animal-to-Person	*Salmonella* Typhimurium 1304MLJPX-1
45. Animal-to-Person	Vomiting, Diarrhea, Fever	Home/Farm Store	Multi-county	April	5	Animal-to-Person	*Salmonella* Infantis 1306MLJFX-3
46. Water-to-Person	Vomiting, Diarrhea, Fever	Public Pool	Webster	July	7 + 1 epi-link	Water-to-Person	*Cryptosporidium*
47. Water-to-Person	Vomiting, Diarrhea, Fever	Public Pool	Polk	July	2 + 3 epi-link	Water-to-Person	*Cryptosporidium*
48. Water-to-Person	Vomiting, Diarrhea, Fever	Splash Pad	Polk	June	5 + 5 epi-link	Water-to-Person	*Cryptosporidium*
49. Animal-to-Person	Vomiting, Diarrhea, Fever	Child Care	Marion	September	4/15	Person-to-Person	*Cryptosporidium*
50. Person-to-Person	Diarrhea, Abd Cramping	Religious Retreat	Dallas	October	3/16	Person-to-Person	*Cryptosporidium - 2*
51. Person-to-Person	Diarrhea, Abd Cramps	Community-wide	Woodbury	Sept-March	332	Person-to-Person	*Shigella* - 214

52. Person-to-Person	Vomiting, Diarrhea, Nausea	Long-term Care Facility	Muscatine	December	16/77	Person-to-Person	*Shigella* - 1

Table 11. Foodborne Outbreaks, 2013

Type	Nature of Episode	Event/Place	Location of Food Preparation	Location of Food Consumption	County	Month	Number Affected/Number Exposed (if known)	Food Vehicle of Transmission	Agent Involved Number of Positive Tests, if known
53. Foodborne	Vomiting	Catered Meal	Caterer	Childcare	Black Hawk	January	15/54	Chicken Tetrazzini	Staphylococcus aureus toxin - 3
54. Foodborne	Diarrhea, Fever, Vomiting	Restaurant	Restaurant	Restaurant	Multi-county	March	3	Unknown	*Salmonella* Typhimurium - 2
55. Foodborne	Diarrhea, Fatigue, Anorexia, Wt. loss	Restaurant	Restaurant	Restaurant	Multi-County	June	136	Pre-packaged Salad Mix	Cyclospora – 136
56. Foodborne	Diarrhea, Nausea, Vomiting	Unknown	Unknown	Unknown	Multi-County	June/July	31	Unknown	*Salmonella* Enteriditis – 31
57. Foodborne	Diarrhea, Nausea, Fever	Festival	Church	Festival	Henry	Aug/Sept	4	Unknown	*Salmonella* Hartford - 4
58. Foodborne	Diarrhea, Nausea	Private Residence	Private Residence	Private Residence	Johnson	Oct	10	Unpasteurized Apple Cider	*Cryptosporidium* - 3
59. Foodborne	Diarrhea, Cramps	Workplace	Unknown	Workplace	Van Buren	March	3/10	Unknown	*Salmonella* Typhimurium – 1; *Salmonella* Subsp. I - 1

Table 12. Cases and rates per 100,000 population for 2013 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	4	0.6	14	3.4	22	6.1	38	3.8	4	0.9	0	82	2.7
Botulism	3	1.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	3	0.1
Campylobacteriosis	81	40.1	111	17.9	98	23.8	83	22.9	186	18.6	51	11.3	0	610	20.0
Chlamydia	9	4.5	2641	427.1	6925	1684.1	1162	321.1	265	26.5	4	0.9	0	11006	361.3
Cryptosporidiosis	283	140.0	419	67.8	276	67.1	269	74.3	199	19.9	59	13.0	0	1505	49.4
Dengue fever	0	0.0	1	0.2	0	0.0	2	0.6	0	0.0	0	0.0	0	3	0.1
E. coli/shg toxin producing	42	20.8	54	8.7	15	3.6	14	3.9	22	2.2	24	5.3	0	171	5.6
Ehrlichiosis/anaplasmosis	0	0.0	2	0.3	0	0.0	0	0.0	3	0.3	3	0.7	0	8	0.3
Giardiasis	52	25.7	60	9.7	33	8.0	36	9.9	69	6.9	25	5.5	0	275	9.0
Gonorrhea	0	0.0	266	43.0	854	207.7	224	61.9	129	12.9	0	0.0	0	1473	48.4
Hemolytic uremic syndrome	4	2.0	1	0.2	0	0.0	0	0.0	1	0.1	0	0.0	0	6	0.2
Hepatitis A	1	0.5	2	0.3	2	0.5	1	0.3	8	0.8	3	0.7	0	17	0.6
Hepatitis B, acute	0	0.0	0	0.0	3	0.7	2	0.6	4	0.4	2	0.4	0	11	0.4
Hepatitis B, chronic	2	1.0	24	3.9	75	18.2	66	18.2	94	9.4	15	3.3	0	276	9.1
HIV (diagnoses)	0	0.0	6	1.0	27	6.6	28	7.7	56	5.6	5	1.1	0	122	4.0
Legionellosis	0	0.0	0	0.0	0	0.0	2	0.6	4	0.4	5	1.1	0	11	0.4
Listeriosis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.4	0	2	0.1
Lyme disease	12	5.9	63	10.2	24	5.8	26	7.2	85	8.5	37	8.2	0	247	8.1
Malaria	2	1.0	2	0.3	1	0.2	3	0.8	3	0.3	1	0.2	0	12	0.4
Meningococcal Inv. Disease	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	0	1	0.0
Mumps	1	0.5	1	0.2	1	0.2	0	0.0	0	0.0	0	0.0	0	3	0.1
Pertussis (whooping cough)	74	36.6	179	28.9	13	3.2	10	2.8	24	2.4	8	1.8	0	308	10.1
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	1	0.2	0	0.0	2	0.6	2	0.2	3	0.7	0	8	0.3
Salmonellosis	90	44.5	102	16.5	75	18.2	60	16.6	164	16.4	84	18.5	0	575	18.9
Shigellosis	97	48.0	142	23.0	32	7.8	27	7.5	34	3.4	10	2.2	0	342	11.2
Syphilis	0	0.0	9	1.5	67	16.3	55	15.2	86	8.6	9	2.0	0	226	7.4
Tuberculosis	0	0.0	4	0.6	12	2.9	11	3.0	13	1.3	7	1.5	0	47	1.5
Typhoid fever	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0	0	0.0	0	1	0.0
West Nile virus	0	0.0	1	0.2	1	0.2	4	1.1	24	2.4	14	3.1	0	44	1.4

Table 13. Cases and rates per 100,000 population for 2013 by sex, Iowa

	Sex						
	Female		Male		Unk	Total	
Disease	Cases	Rate	Cases	Rate	Cases	Cases	Rate
AIDS (diagnosis)	22	1.4	60	4.0	0	82	2.7
Botulism	0	0.0	3	0.2	0	3	0.1
Campylobacteriosis	260	16.9	349	23.1	1	610	20.0
Chlamydia	7921	515.0	3085	204.5	0	11006	361.3
Cryptosporidiosis	836	54.4	669	44.4	0	1505	49.4
Dengue fever	1	0.1	2	0.1	0	3	0.1
E. coli and other shiga-toxin producing	74	4.8	96	6.4	1	171	5.6
Ehrlichiosis/anaplasmosis	3	0.2	5	0.3	0	8	0.3
Giardiasis	124	8.1	149	9.9	2	275	9.0
Gonorrhea	806	52.4	667	44.2	0	1473	48.4
Hemolytic uremic syndrome	2	0.1	4	0.3	0	6	0.2
Hepatitis A	9	0.6	8	0.5	0	17	0.6
Hepatitis B, acute	7	0.5	4	0.3	0	11	0.4
Hepatitis B, chronic	124	8.1	152	10.1	0	276	9.1
HIV (diagnoses)	34	2.2	88	5.8	0	122	4.0
Legionellosis	2	0.1	9	0.6	0	11	0.4
Listeriosis	1	0.1	1	0.1	0	2	0.1
Lyme disease	108	7.0	139	9.2	0	247	8.1
Malaria	4	0.3	8	0.5	0	12	0.4
Meningococcal invasive disease	1	0.1	0	0.0	0	1	0.0
Mumps	1	0.1	2	0.1	0	3	0.1
Pertussis (whooping cough)	174	11.3	133	8.8	1	308	10.1
Q fever	1	0.1	3	0.2	0	4	0.1
Rocky Mountain spotted fever	4	0.3	4	0.3	0	8	0.3
Salmonellosis	309	20.1	266	17.6	0	575	18.9
Shigellosis	179	11.6	162	10.7	1	342	11.2
Syphilis	29	1.9	197	13.1	0	226	7.4
Tuberculosis	19	1.2	28	1.9	0	47	1.5
Typhoid fever	0	0.0	1	0.1	0	1	0.0
West Nile virus	21	1.4	23	1.5	0	44	1.4

Table 14. Notifiable diseases by year, 1993-2013

Notifiable diseases	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
AIDS (diagnosis)	103	110	104	97	75	60	77	80	80	75	75	70	78	79	68	66	91	73	73	71	82
Anthrax																					
Botulism							1					1		1	1	1	0				3
Brucellosis	2	1	2	4	4	1	6		2	1			1	2	0	2	2		1	0	2
Campylobacteriosis	292	280	274	339	425	455	467	499	467	427	458	559	537	449	524	591	552	751	747	534	610
Chlamydia	5214	5412	5088	4165	4906	5173	5511	5989	5716	6241	6462	6958	7390	8399	8643	9372	9406	10542	10928	11139	11006
Cholera		1					1														1
Cryptosporidiosis		71	21	75	71	66	56	77	82	49	122	90	122	230	610	284	232	397	364	328	1505
Cyclospora				3	1	3			1								1		1	0	148
Dengue Fever													1	1	6	5	2	2	5	2	3
Diphtheria																					
Ehrlichiosis										1	1		4	7	7	7	8	2	8	6	8
Encephalitis (arboviral except WNV)	4	1	13	19	3	3	3	4	3	3		2		1							
E. coli/other shiga-toxin producing	27	54	64	123	114	93	114	180	81	122	103	124	108	161	185	208	163	173	189	181	171
Hemolytic uremic syndrome*																			13	10	6
Giardiasis	340	339	391	410	358	429	377	420	345	315	277	301	280	302	301	326	291	284	270	251	275
Gonorrhea	1824	1645	1723	1144	1309	1615	1365	1394	1424	1496	1544	1249	1606	1981	1928	1700	1658	1804	1966	1982	1473
Haemophilus influenzae Type B	5	6	3	4	6	5	2					1		2	1	2	1	1	3	0	1
Hansen's disease (Leprosy)						1		2	1				1	1		1		1			1
Hantavirus syndromes					2	1	2				1					1			1	1	
Hepatitis A (viral, infectious)	58	64	106	346	490	400	161	67	41	72	40	50	22	13	48	109	38	11	8	7	17
Hepatitis B (serum) acute /chronic	36	27	46	74	44	54	44	38	24	20	27	17	32	21/35	269	25/226	293	15/183	15/182	12/227	11/276
Hepatitis B (perinatal)														1		1		1			
Hepatitis C or unspecified	12	25	1	43						1	1						262	156	48	297	3

Notifiable diseases	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
HIV (diagnosis)					70	73	64	92	95	105	89	105	113	108	124	101	126	115	119	117	122
Legionellosis	19	34	21	11	12	11	17	15	8	13	12	8	8	13	12	21	24	16	11	13	11
Listeria monocytogenes				1		2	6	2	3	5		3	7	6	8	1	4	3	5	3	2
Lyme disease	8	17	16	19	8	27	24	34	36	42	58	56	91	97	124	109	108	87	100	165	247
Malaria	5	5	3	3	10	8	11	2	9	4	6	5	9	2	3	12	10	14	22	6	12
Measles (Rubeola)		7		1								3					1		1	0	
Meningococcal invasive disease	28	25	31	56	47	46	42	37	32	29	28	17	19	20	15	19	16	10	14	2	1
Mumps	11	16	11	3	10	11	8	8	1	1	2	2	6	1,963	27	24	15	38	8	6	3
Pertussis (whooping cough)	38	23	11	32	207	78	111	67	167	230	182	1066	1106	342	150	257	235	705	232	1736	308
Plague																					
Poliomyelitis																					
Psittacosis	2								3				1								
Rabies, animal	78	90	141	237	160	153	159	81	83	74	105	100	108	57	31	29	35	27	25	31	12
Rabies, human										1											
Rocky Mountain spotted fever	7	1		1	2	2	1	2	5	7	3	2	7	5	17	8	5	5	7	8	8
Rubella (German Measles)							30		1												
Salmonellosis	242	404	433	335	296	375	260	373	339	509	413	435	410	475	477	425	408	530	448	622	575
Shigellosis	68	338	351	151	90	69	74	569	367	122	93	64	103	134	109	214	53	57	18	91	342
Syphilis	175	235	171	91	65	25	31	55	45	56	43	36	29	68	64	75	65	68	70	138	226
Tetanus	1	1			1	1		1		1			1					1			1
Toxic Shock Syndrome	7	8	5	4	3	4	4	4	1	3	5	5	5			1	2	1	1	1	1
Trichinosis		1	6						3				1								
Tuberculosis	58	66	67	70	74	55	58	37	42	31	40	47	55	36		46	42	48	40	46	47
Tularemia																	1		3	1	4
Typhoid fever				1	1		1				2				1	6		3	4	3	1
West Nile virus										52	147	23	37	37	30	5	5	9	9	31	44
Yellow Fever																	2				

* includes cases starting 2011

** Hep C cases were not all entered due to limited staffing

Table 15. *Salmonella* serotypes reported, 2013

Salmonella	**Serotype**	**Cases**		**Serotype**	**Cases**
Salmonella	Agona	6	*Salmonella*	Ohio	1
Salmonella	Anatum	2	*Salmonella*	Oranienburg	8
Salmonella	Bareilly	1	*Salmonella*	Panama	1
Salmonella	Berta	10	*Salmonella*	Paratyphi A	1
Salmonella	Bonariensis	1	*Salmonella*	Poona	3
Salmonella	Bovismorbificans	6	*Salmonella*	Putten	1
Salmonella	Braenderup	11	*Salmonella*	Reading	8
Salmonella	Derby	2	*Salmonella*	Saintpaul	10
Salmonella	Enteritidis	95	*Salmonella*	Sandiego	1
Salmonella	Hadar	1	*Salmonella*	Schwarzengrund	4
Salmonella	Hartford	8	*Salmonella*	Thompson	10
Salmonella	Heidelberg	6	*Salmonella*	Typhi	1
Salmonella	Infantis	11	*Salmonella*	Typhimurium	84
Salmonella	Javiana	6	*Salmonella*	Uganda	2
Salmonella	London	1	*Salmonella*	Species	2
Salmonella	Mbandaka	3	*Salmonella*	Subspecies I	71
Salmonella	Montevideo	17	*Salmonella*	Subspecies IIIb	4
Salmonella	Muenchen	7	*Salmonella*	Subspecies IV	2
Salmonella	Muenster	2	*Salmonella*	Subspecies V	1
Salmonella	Newmexico	1		Unknown	139
Salmonella	Newport	24	**Total**		**575**

Table 16. *Shigella* serogroups, 1991-2013

Shigella Serogroups	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Boydii		1			1	1				4	6	2		3	1	1	0	1	1	2	1	0	0
Dysenteriae	1	1				1										1	0	0	0	0	0	0	2
Flexneri	8	8	8		3	13	12	6	7	10	7	11	5	8	7	15	9	11	7	6	4	5	3
Group B						3		1	1						3		2	0	0	0	0	0	0
Group C				1													2	0	0	0	0	0	0
Group D		1		4	3	5		1					1				1	1	0	0	0	10	0
Sonnei	24	33	50	199	119	116	62	44	55	514	306	63	62	41	58	110	97	136	45	49	10	73	184
Unknown										41	46	46	25	12	7	7	0	0	0	0	3	3	153
TOTAL CASES	33	46	68	338	351	151	90	69	74	569	365	122	93	64	78	134	109	214	53	57	18	91	342

Table 17. 2013 Iowa adult blood testing summary by county

COUNTY	# tested	# BLL result ≥ 10 µg/dL	COUNTY	# tested	# BLL result ≥ 10 µg/dL	COUNTY	# tested	# BLL result ≥ 10 µg/dL
Adair	4	0	Floyd	4	0	Monona	5	0
Adams	5	2	Franklin	3	0	Monroe	14	9
Allamakee	6	0	Fremont	7	2	Montgomery	48	26
Appanoose	55	39	Greene	11	0	Muscatine	71	4
Audubon	4	2	Grundy	9	1	O'Brien	6	0
Benton	13	3	Guthrie	7	0	Osceola	1	0
Black Hawk	89	3	Hamilton	13	0	Page	24	8
Boone	20	0	Hancock	8	1	Palo Alto	6	0
Bremer	14	0	Hardin	16	0	Plymouth	6	0
Buchanan	57	38	Harrison	10	0	Pocahontas	4	1
Buena Vista	5	2	Henry	13	0	Polk	288	3
Butler	7	1	Howard	4	0	Pottawattamie	38	1
Calhoun	8	0	Humboldt	3	0	Poweshiek	15	0
Carroll	22	0	Ida	1	0	Ringgold	4	0
Cass	6	2	Iowa	6	0	Sac	10	0
Cedar	17	1	Jackson	23	5	Scott	340	20
Cerro Gordo	25	0	Jasper	21	0	Shelby	2	1
Cherokee	3	0	Jefferson	61	17	Sioux	6	1
Chickasaw	4	0	Johnson	83	3	Story	54	2
Clarke	4	2	Jones	19	5	Tama	10	0
Clay	2	0	Keokuk	18	4	Taylor	5	0
Clayton	71	52	Kossuth	7	0	Union	4	1
Clinton	78	4	Lee	29	1	Van Buren	5	0
Crawford	4	0	Linn	167	16	Wapello	51	12
Dallas	27	0	Louisa	15	2	Warren	29	4
Davis	3	1	Lucas	48	34	Washington	19	0
Decatur	13	8	Lyon	3	0	Wayne	146	109
Delaware	288	250	Madison	9	1	Webster	33	1
Des Moines	17	1	Mahaska	53	9	Winnebago	4	0
Dickinson	9	0	Marion	12	0	Winneshiek	16	0
Dubuque	180	112	Marshall	25	1	Woodbury	65	7
Emmet	7	0	Mills	17	4	Worth	2	0
Fayette	36	15	Mitchell	4	2	Wright	7	0
						Total including suppressed data	**3170**	**856**

Based on highest test result in 2013 per adult (16 yo at time of test) residing in Iowa.1An elevated blood lead level (EBL) is considered a venous result greater than or equal to 10 micrograms per deciliter (µg/dL).

Table 18. Common notifiable diseases by county, 2013

	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	3	9	10	2	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
ADAMS	0	0	1	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
ALLAMAKEE	0	0	10	14	5	0	0	0	0	0	0	0	1	0	0	9	0	0	0	0	0	7	1	0	0	0
APPANOOSE	0	0	0	28	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
AUDUBON	0	0	0	21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
BENTON	1	1	12	62	13	2	0	7	1	0	0	0	1	0	0	4	0	0	2	0	0	9	0	1	0	0
BLACK HAWK	5	11	16	878	17	2	1	8	89	0	0	0	26	1	0	6	0	0	11	0	1	26	1	9	4	0
BOONE	0	0	3	68	19	0	0	3	6	0	0	0	0	0	0	4	1	0	2	1	0	8	0	1	0	0
BREMER	0	0	3	76	12	1	1	5	4	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0
BUCHANAN	0	1	9	46	6	0	0	1	5	0	0	0	0	0	0	3	0	0	0	0	0	3	0	3	0	0
BUENA VISTA	2	5	8	49	0	1	0	1	1	0	0	0	5	0	0	0	0	0	2	1	0	4	0	0	1	0
BUTLER	0	0	4	41	3	2	0	1	2	0	0	0	0	0	0	2	0	0	0	0	0	1	0	1	0	0
CALHOUN	0	0	0	29	8	0	0	2	6	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0
CARROLL	0	1	2	51	11	6	0	1	2	0	0	0	2	0	0	0	0	0	13	0	0	4	0	0	0	0
CASS	0	0	4	32	0	1	0	1	1	0	0	0	0	0	0	1	0	0	5	0	0	3	0	0	0	1
CEDAR	0	1	5	43	2	1	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	3	0	1	0	0
CERRO GORDO	0	1	8	71	10	0	0	3	6	0	0	0	1	0	0	1	0	0	4	0	0	12	0	0	1	0
CHEROKEE	0	0	1	28	1	3	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
CHICKASAW	0	0	5	15	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0
CLARKE	1	1	1	33	7	1	0	1	1	0	0	0	1	0	0	0	0	0	2	0	0	0	1	0	0	0
CLAY	0	0	3	35	1	1	0	0	4	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0
CLAYTON	0	0	5	25	3	3	0	2	0	0	0	0	0	0	0	17	0	0	0	0	0	4	0	0	0	0
CLINTON	0	1	1	172	4	1	0	2	12	0	3	1	1	0	0	2	0	1	0	1	0	7	1	3	0	0
CRAWFORD	0	0	5	55	2	1	0	1	0	0	0	0	3	0	0	0	0	0	2	0	0	2	1	0	0	2
DALLAS	1	2	5	117	42	4	0	10	13	0	0	2	5	0	0	1	0	0	4	0	0	8	1	5	2	2

	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	0	17	3	1	0	1	2	1	0	0	0	0	0	1	0	0	12	0	0	2	0	0	0	0
DECATUR	0	0	4	15	4	1	0	2	2	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
DELAWARE	0	0	14	58	25	4	0	2	3	0	1	0	0	0	0	7	0	0	1	0	0	1	0	0	1	0
DES MOINES	0	0	9	189	13	3	0	6	32	0	0	0	3	0	0	5	0	0	2	0	0	5	0	1	0	0
DICKINSON	0	0	1	24	1	1	0	2	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1
DUBUQUE	5	6	49	377	38	10	0	11	45	0	0	0	3	0	0	29	0	0	5	0	0	25	1	4	2	0
EMMET	0	0	1	30	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FAYETTE	0	0	14	27	4	0	1	1	3	0	0	0	0	0	0	1	0	0	0	1	0	3	0	0	0	1
FLOYD	0	0	4	32	7	2	0	1	1	0	0	0	1	0	0	1	0	0	0	0	0	4	0	0	0	0
FRANKLIN	0	0	0	27	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
FREMONT	0	0	0	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	1
GREENE	1	1	0	20	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
GRUNDY	0	0	5	23	8	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
GUTHRIE	2	1	1	15	2	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0
HAMILTON	0	0	7	45	6	2	0	1	5	0	0	0	2	0	0	1	0	0	1	0	0	10	0	1	0	1
HANCOCK	0	0	4	7	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HARDIN	0	0	2	43	3	1	0	0	6	0	0	0	1	0	0	3	0	0	0	0	0	1	0	0	0	0
HARRISON	0	0	5	41	4	2	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	4	2	0	0	1
HENRY	0	0	2	56	3	0	0	0	1	0	2	0	0	0	0	1	0	0	4	0	0	7	0	0	0	0
HOWARD	0	0	1	9	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0
HUMBOLDT	0	0	0	20	21	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2
IDA	0	0	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1
IOWA	0	0	3	45	0	3	0	1	1	0	0	0	0	0	0	5	0	0	0	0	0	3	0	2	0	0
JACKSON	0	0	22	42	7	3	0	2	3	0	0	0	1	0	0	12	0	0	0	0	0	2	0	1	0	0
JASPER	0	0	3	103	34	5	0	6	13	0	0	1	0	0	0	1	0	0	3	0	1	8	0	0	0	1

	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	1	31	2	3	0	2	3	0	0	0	2	0	0	0	0	0	0	0	0	2	0	2	2	0
JOHNSON	7	12	16	637	37	12	0	22	85	0	1	0	17	0	0	40	0	1	16	0	1	10	7	13	7	0
JONES	1	1	16	55	9	1	0	3	5	0	0	0	1	0	0	0	0	0	0	0	0	5	0	2	0	0
KEOKUK	0	1	1	16	6	0	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0
KOSSUTH	0	0	1	27	1	0	0	0	2	0	1	0	0	0	0	0	0	0	1	0	0	3	6	0	0	1
LEE	0	0	3	126	5	2	1	2	2	0	0	0	0	0	1	0	0	0	1	1	0	11	0	0	0	0
LINN	9	17	44	954	87	8	0	15	125	0	0	0	19	1	0	15	0	0	25	1	0	42	4	23	3	1
LOUISA	0	0	1	22	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0
LUCAS	0	0	3	16	7	0	0	0	5	0	0	0	2	0	0	1	0	0	1	0	0	0	0	2	0	0
LYON	0	0	14	15	1	2	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	2
MADISON	0	0	2	28	32	1	0	0	3	0	0	0	1	0	0	1	0	0	7	0	1	5	1	1	0	0
MAHASKA	0	1	4	70	6	4	0	0	4	0	0	0	1	0	0	1	0	0	1	0	0	4	0	2	0	0
MARION	1	1	5	40	20	1	0	0	1	0	0	0	5	0	0	4	0	0	0	0	0	7	1	1	0	0
MARSHALL	0	0	5	189	5	1	0	2	14	0	0	0	8	0	0	1	0	0	2	0	0	10	0	3	0	0
MILLS	0	0	1	23	0	1	0	2	6	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0
MITCHELL	0	0	2	6	7	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
MONONA	0	0	2	15	4	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4
MONROE	0	0	4	30	5	2	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
MONTGOMERY	0	0	3	20	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
MUSCATINE	0	1	6	146	1	2	0	1	9	0	0	0	5	1	0	8	0	0	0	0	0	6	1	1	1	0
O'BRIEN	0	0	6	21	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	0	0
OSCEOLA	0	0	1	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
PAGE	0	0	1	46	3	1	0	1	3	0	1	0	1	0	0	0	0	0	0	1	0	5	0	0	0	0
PALO ALTO	0	1	0	15	2	0	0	0	2	0	0	1	1	0	0	0	0	0	1	0	0	2	0	0	0	0
PLYMOUTH	0	1	10	42	14	2	0	2	2	0	0	0	0	0	0	0	0	0	2	1	0	6	2	2	0	1
POCAHONTAS	0	0	1	12	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	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	27	30	40	1,978	541	23	1	61	389	3	2	4	104	5	0	8	0	0	47	0	1	59	9	67	9	0
POTTAWATTAMIE	0	0	8	396	14	2	0	1	85	0	1	0	3	0	0	1	0	0	3	0	0	14	23	4	1	4
POWESHIEK	0	0	6	51	2	0	0	1	5	0	0	0	1	0	0	2	0	0	0	0	0	4	0	1	0	0
RINGGOLD	0	0	1	6	4	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1
SAC	0	0	8	8	9	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0
SCOTT	12	14	10	945	12	8	0	6	146	0	0	1	11	0	0	12	0	0	43	1	0	26	2	27	4	1
SHELBY	0	1	0	20	2	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	1	0	1
SIOUX	0	1	20	38	9	2	0	15	3	0	1	0	0	0	0	0	0	0	6	1	0	16	1	1	0	0
STORY	2	3	11	312	32	3	0	4	33	0	0	0	10	0	0	3	0	0	10	0	1	16	2	15	2	0
TAMA	0	0	2	62	3	0	0	0	3	0	0	0	2	0	0	0	0	0	1	0	0	4	0	0	1	0
TAYLOR	0	0	2	10	1	1	0	0	2	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	0
UNION	0	0	0	38	4	0	0	1	2	0	0	0	1	0	0	0	0	0	0	0	0	4	0	1	0	0
VAN BUREN	0	0	0	14	6	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	4	0	2	0	1
WAPELLO	0	0	18	260	33	0	0	6	35	0	0	0	4	0	0	2	0	0	2	0	0	2	0	0	2	0
WARREN	1	2	3	115	55	4	0	4	12	0	0	0	0	0	0	0	0	0	18	0	0	8	0	0	0	0
WASHINGTON	0	0	5	53	5	2	0	0	4	1	2	0	0	1	0	3	0	0	7	0	0	6	4	0	0	0
WAYNE	0	0	3	7	1	1	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0
WEBSTER	1	0	8	200	108	0	0	14	82	0	1	0	5	0	0	3	0	0	11	0	0	14	0	2	0	0
WINNEBAGO	0	0	0	9	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
WINNESHIEK	0	0	9	34	3	1	1	1	2	0	0	0	1	0	0	13	0	0	1	0	1	7	0	0	1	0
WOODBURY	3	2	28	523	14	5	0	4	89	1	0	0	7	0	1	3	0	0	5	1	0	34	262	12	1	9
WORTH	0	0	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WRIGHT	0	0	6	29	3	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	0	0
Total	82	122	610	11,006	1505	171	8	275	1,473	6	17	11	276	11	2	247	1	3	308	12	8	575	342	226	47	44

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