DIVISION OF ACUTE DISEASE PREVENTION AND EMERGENCY RESPONSE & ENVIRONMENTAL HEALTH

# Iowa Surveillance of Notifiable and Other Diseases

## Annual Report 2015

Amended 4/18/2017


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

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# 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 Center for Acute Disease Epidemiology (CADE) conducts surveillance for common and emerging infectious diseases, agents of bioterrorism, disease outbreaks, and occurrence of rare and unusual acute diseases [1].

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. Reports of diseases or exposures occurring outside of Iowa can be reported by other states or CDC to IDPH via the Epi-X system. 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 is electronically exchanged between IDSS and CDC.

The Iowa Department of Public Health is in the midst of implementing statewide electronic laboratory reporting (ELR). ELR from the State Hygienic Laboratory (SHL) has been in place since March 2010. The large national/regional reference labs (ARUP, Center for Disease Detection, LabCorp, MAYO, PAML,

QUEST – Wood Dale, and Tamarac) are all sending laboratory results by ELR. In total, 38 ELR connections have been established, all of which represent 160 different laboratory or hospital locations in Iowa, Minnesota, Nebraska, South Dakota, Wisconsin and many other states. Ongoing implementation plans include establishing 23 more ELR connections representing 38 different Iowa laboratories or hospitals. In addition, IDPH efforts to implement ELR with other state public health jurisdictions are ongoing; Iowa has live connections with Michigan, Nebraska, and Wisconsin. There are open projects with Illinois and South Dakota. ELR dramatically improves public health response time by slicing 3 to 9 days off of the lag time that occurs with mail and fax reporting methods.

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 unique reporting system used by IDPH for transmitting de-identified 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 EPI INFO® 7.1.5.2, and Microsoft® Excel. Maps were generated using ARC GIS ® 10.0.

CADE uses the most recent Council of State and Territorial Epidemiologists (CSTE)/CDC case definitions found at wwwn.cdc.gov/nndss/conditions/notifiable/2015/. 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 2016. 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 2015. Therefore, case counts in this report may vary slightly from counts generated using the calendar year of 2015.

Influenza surveillance data was collected from multiple sources, including sentinel outpatient health care providers, sentinel 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.

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 & EH programs to CDC are used to develop a composite picture of disease burden in the US.

| Iowa 2010 Population by Age Group, Gender, Race and Ethnicity | Number | Percent |
|---|---|---|
| Total population | 3,046,355 | 100.0 |
| Under 5 years | 202,123 | 6.6 |
| 5 to 9 years | 200,646 | 6.6 |
| 10 to 14 years | 200,904 | 6.6 |
| 15 to 19 years | 216,837 | 7.1 |
| 20 to 24 years | 213,350 | 7.0 |
| 25 to 29 years | 197,843 | 6.5 |
| 30 to 34 years | 184,740 | 6.1 |
| 35 to 39 years | 177,148 | 5.8 |
| 40 to 44 years | 187,400 | 6.2 |
| 45 to 49 years | 216,482 | 7.1 |
| 50 to 54 years | 223,244 | 7.3 |
| 55 to 59 years | 204,393 | 6.7 |
| 60 to 64 years | 168,357 | 5.5 |
| 65 to 69 years | 124,365 | 4.1 |
| 70 to 74 years | 100,291 | 3.3 |
| 75 to 79 years | 83,387 | 2.7 |
| 80 to 84 years | 70,187 | 2.3 |
| 85 years and over | 74,658 | 2.5 |

| Gender | 2010 Population |
|---|---|
| Female | 1,538,036 |
| Male | 1,508,319 |
| **Race** | **2010 Population** |
| White | 2,781,561 |
| Black | 89,148 |
| Asian | 53,094 |
| Other | 122,552 |
| **Ethnicity** | **2010 Population** |
| Non-Hispanic | 2,894,811 |
| Hispanic | 151,544 |

Iowa County Boundaries

# Section 1

# Tables of Select Reportable Diseases/Conditions

**Table 1. Common reportable diseases by county – Iowa 2015**

| | Infant botulism | Brucellosis | Campylobacteriosis | Cryptosporidiosis | Cyclosporiasis | Dengue fever | *E. coli* (STEC) | Ehrlichioses / Anaplasmosis | Giardiasis | *Haemophilis influenzae* type b | Hemolytic Uremic Syndrome (HUS) | Hepatitis A | Hepatitis B (Acute) | Hepatitis B (Chronic) | Legionellosis | *Listeriosia monocytogenes* | Lyme disease | Malaria | Meningococcal invasive disease | Mumps | Pertussis | Q Fever | Rocky Mountain spotted fever | Salmonellosis | Shigellosis | Typhoid fever | West Nile Virus | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Adair** | | | 2 | | | | | | 1 | | | | | | | | | | 1 | | | | | 2 | | | | 6 |
| **Adams** | | | 1 | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | 1 | 3 |
| **Allamakee** | | | 5 | 3 | | | 1 | | 1 | | | | | | | | 5 | | | | 1 | | | 2 | | | | 18 |
| **Appanoose** | | | 4 | 2 | | | | | 1 | | | 1 | | | | | | | | | 1 | | | 4 | 1 | | | 14 |
| **Audubon** | | | | | | | 2 | | | | | | | | | | | | | | | | | 1 | 1 | | | 4 |
| **Benton** | | | 9 | 2 | | | 2 | 1 | 1 | | | | | 1 | 1 | | 14 | | | | | | | 8 | 9 | | | 48 |
| **Black Hawk** | 1 | | 7 | 3 | | | 4 | | 6 | | | 1 | | 26 | 2 | | 8 | | 1 | 25 | 6 | | | 23 | 55 | 1 | | 169 |
| **Boone** | | | 5 | 1 | | | | | 1 | | | | | 1 | | | 5 | | | | | | | 5 | 2 | | | 20 |
| **Bremer** | | | 2 | 1 | | | | | 4 | | | | | | 1 | | | | | 1 | | | | 4 | 3 | | | 16 |
| **Buchanan** | | | 6 | 5 | | 1 | 1 | | | | | | | 1 | 1 | | 3 | | | | | | | 6 | 1 | | | 25 |
| **Buena Vista** | | | 7 | 2 | | | | | | | | | | 3 | | 1 | | | | | | | | 12 | 3 | | | 28 |
| **Butler** | | | 3 | 4 | | | 4 | | 3 | | | | | | | | 1 | | | 1 | 1 | | | 5 | 3 | | | 25 |
| **Calhoun** | | | 3 | 2 | | | 2 | | 1 | | | | | | | | | | | | | | | 1 | | | | 9 |
| **Carroll** | | | 4 | 3 | | 1 | 1 | | 1 | | | | | 1 | | | | | | | | | | 6 | 1 | | | 18 |
| **Cass** | | | 5 | 3 | | | 1 | | 1 | | | | | | | | | | | | 2 | | | 4 | | | | 16 |
| **Cedar** | | | 6 | 1 | | | | | 4 | | | | | | | | 1 | | | 3 | 1 | | | 4 | 1 | | | 21 |
| **Cerro Gordo** | | | 18 | 2 | | | | | 1 | | | | | 2 | | | 1 | | | 2 | 4 | | | 4 | | | | 34 |
| **Cherokee** | | | 2 | 1 | | | | | | | | | | | | | | | | | | | | 2 | | | | 5 |
| **Chickasaw** | | | 3 | 2 | | | | | 1 | | | | | | | | | | | | | | | 2 | | | | 8 |
| **Clarke** | | | 5 | 2 | | | | | 2 | | | | | 2 | | | | | | | | | | | | | 1 | 12 |
| **Clay** | | | 6 | 2 | | | | | 1 | | | | | | | | | | | | | | | 2 | | | | 11 |
| **Clayton** | | | 12 | 3 | | | 2 | 2 | 1 | | | | | | | | 14 | | | | 2 | | | 1 | 3 | | | 40 |
| **Clinton** | | | 3 | | | | 2 | | 2 | | | | 1 | 5 | 2 | | 5 | | | 1 | | | | 12 | | | | 33 |
| **Crawford** | | | 6 | 2 | | | 1 | | 2 | | | 1 | | 2 | | | | | | | | | | 1 | | | | 15 |
| **Dallas** | | | 9 | 14 | | | 4 | | 10 | | | 1 | | 6 | | | 4 | | | 1 | 2 | | | 19 | 12 | 1 | 1 | 83 |
| **Davis** | | | 4 | 2 | | | | 1 | | | | | | | | | | | | | | | | | | | | 7 |
| **Decatur** | | | 1 | 1 | | | | | 1 | | | | | | | | 1 | | | | 1 | | | 1 | | | | 6 |
| **Delaware** | | | 13 | 4 | | | 1 | | 1 | | | | | 1 | | | 9 | | | | | | | 6 | | | | 35 |
| **Des Moines** | | | 11 | 9 | | | | | 3 | | | | | 1 | | | 2 | | | | 1 | | | 8 | 4 | | | 39 |
| **Dickinson** | | | | 7 | | | | | 3 | | | | | | | | 1 | | | | | | | 7 | | | | 18 |
| **Dubuque** | | | 45 | 40 | | | 14 | | 12 | | | 1 | | 5 | 3 | | 27 | | 1 | 2 | | | | 23 | 71 | 1 | | 245 |

| | Infant botulism | Brucellosis | Campylobacteriosis | Cryptosporidiosis | Cyclosporiasis | Dengue fever | *E. coli* (STEC) | Ehrlichioses / Anaplasmosis | Giardiasis | *Haemophilis influenzae* type b | Hemolytic Uremic Syndrome (HUS) | Hepatitis A | Hepatitis B (Acute) | Hepatitis B (Chronic) | Legionellosis | *Listeriosia monocytogenes* | Lyme disease | Malaria | Meningococcal invasive disease | Mumps | Pertussis | Q Fever | Rocky Mountain spotted fever | Salmonellosis | Shigellosis | Typhoid fever | West Nile Virus | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Emmet** | | | 3 | 1 | | | | | | | | | | | | | | | | | | | | 2 | | | | 6 |
| **Fayette** | | | 12 | 2 | | | 2 | | | | | | | | | | 2 | | | 1 | 2 | | | 1 | | | | 22 |
| **Floyd** | | | 7 | | 1 | | 1 | | | | | | | | | | | | | | | | | 4 | 1 | | | 14 |
| **Franklin** | | | 3 | | | | 1 | | | | | | | | | | | | | | | | | 1 | | | | 5 |
| **Fremont** | | | 3 | | | | | | 1 | | | | | | | | | | | | | | | | | | | 4 |
| **Greene** | | | 2 | 1 | | | | | | | | | | | | | | | | | | | | 2 | 3 | | | 8 |
| **Grundy** | | | 2 | | | | 2 | | | | | 1 | | | | | | | | 1 | | | | 1 | 1 | | | 8 |
| **Guthrie** | | | 7 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | 1 | | | | 11 |
| **Hamilton** | | | 5 | | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | 8 |
| **Hancock** | | | 6 | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | 9 |
| **Hardin** | | | 7 | | | | 1 | | 2 | 1 | | | | | | | | | | | 2 | | | 4 | | | | 17 |
| **Harrison** | | | 1 | 1 | | | 3 | | | | | | | | | | | | | | 2 | | | 3 | 1 | | | 11 |
| **Henry** | | | 1 | 1 | | | | | 2 | | | | | 2 | | | 1 | | | | | 1 | | 3 | 1 | | | 12 |
| **Howard** | | | 4 | 1 | | | | | | | | | | | | | 1 | | 1 | | 1 | | | 1 | | | | 9 |
| **Humboldt** | | | 2 | 3 | | | 2 | | | | | | | | | | | | | | | | | | | | | 7 |
| **Ida** | | | | 1 | | | | | | | | | | | | | 1 | | | | | | | 1 | | | | 3 |
| **Iowa** | | | 5 | 3 | | | 3 | | 1 | | | | | | | | 1 | | | 1 | 3 | | | 4 | 1 | | | 22 |
| **Jackson** | | | 13 | 15 | | | 7 | | 1 | | | | | | 1 | | 8 | | | | | | | 2 | | | | 47 |
| **Jasper** | | | 13 | 9 | | | 2 | | 2 | | | 1 | | 2 | | | | | | | | | | 6 | | | | 35 |
| **Jefferson** | | | 3 | 7 | | | | 1 | 1 | | | | | 1 | | | 3 | | | | 9 | | | 2 | | | | 27 |
| **Johnson** | | | 15 | 5 | | | 11 | 1 | 9 | | | | 2 | 6 | 3 | | 66 | | | 316 | 13 | | | 48 | 31 | 2 | | 528 |
| **Jones** | | | 12 | 4 | | | 2 | | 3 | | 1 | | | | | | 3 | | | | | | | 5 | 9 | | | 39 |
| **Keokuk** | | | 1 | 7 | | | 2 | | 1 | | 1 | | | | | | 1 | | | | | | | 5 | 1 | | | 19 |
| **Kossuth** | | | 6 | 1 | | | 2 | | 1 | | | | | | | | | | | | | | | 3 | | | | 13 |
| **Lee** | | | 4 | | | | 2 | 1 | 1 | | 1 | | | | 1 | | 2 | | | 1 | 1 | | 1 | 6 | | | 1 | 22 |
| **Linn** | | | 48 | 21 | | | 7 | | 14 | | | 2 | 1 | 21 | 2 | | 39 | 4 | | 17 | 6 | | | 39 | 283 | 1 | | 505 |
| **Louisa** | | | 2 | | | | | | 1 | | | | | 4 | | | 1 | | | 1 | 1 | | | 2 | | | 1 | 13 |
| **Lucas** | | | 3 | | | | 1 | | | | | | | | | | | | | | 3 | | | 2 | | | | 9 |
| **Lyon** | | | 10 | 3 | | | 4 | | 8 | | | | | | | | | | | | | | | 8 | 1 | | 1 | 35 |
| **Madison** | | | 6 | 1 | | | 2 | | 1 | | | | | 1 | | | 2 | | | | | | | | | | | 13 |
| **Mahaska** | | | 3 | 2 | | | 1 | | 1 | | | | | | | | 4 | | | | | | | 7 | | | 2 | 19 |
| **Marion** | | | 11 | 3 | | | | 1 | 2 | 1 | | | | 1 | | | 6 | 1 | | 1 | | | | 7 | | | | 34 |
| **Marshall** | | | 8 | | | | 3 | | 2 | | | | | 12 | 1 | | 5 | | | 1 | 15 | | | 12 | | | | 59 |
| **Mills** | | | 4 | 2 | | | | 1 | 1 | | | | | 1 | | | | | | | | | 1 | 3 | 2 | | | 15 |
| **Mitchell** | | | 5 | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | 8 |

| | Infant botulism | Brucellosis | Campylobacteriosis | Cryptosporidiosis | Cyclosporiasis | Dengue fever | *E. coli* (STEC) | Ehrlichioses / Anaplasmosis | Giardiasis | *Haemophilis influenzae* type b | Hemolytic Uremic Syndrome (HUS) | Hepatitis A | Hepatitis B (Acute) | Hepatitis B (Chronic) | Legionellosis | *Listeriosia monocytogenes* | Lyme disease | Malaria | Meningococcal invasive disease | Mumps | Pertussis | Q Fever | Rocky Mountain spotted fever | Salmonellosis | Shigellosis | Typhoid fever | West Nile Virus | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Monona** | | | 3 | 10 | | | | | 4 | | | | 1 | | | | | | | | 2 | | | 4 | | | | 24 |
| **Monroe** | | | 7 | 1 | | | 1 | | 1 | | | | | | | | 1 | | | | | | | 1 | | | | 12 |
| **Montgomery** | | | 2 | | | | | | | | | | | | | | 2 | | 1 | | | | | 1 | 1 | | | 7 |
| **Muscatine** | | | 3 | 4 | | | 3 | | 7 | | | | | 2 | | | 11 | | | 10 | | | | 13 | 4 | | | 57 |
| **O'Brien** | | | 4 | 1 | | | 1 | | | | | | | | | | | | | | | | | 6 | | | | 12 |
| **Osceola** | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| **Page** | | | | | | | 1 | | | | | | | | | | 1 | | | | | | 1 | 2 | 2 | | | 7 |
| **Palo Alto** | | | 5 | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| **Plymouth** | | | 9 | 8 | | | 3 | | 3 | | | | | | | | | | | 1 | 1 | | | 9 | 11 | | 1 | 46 |
| **Pocahontas** | | | 3 | | | | | | | | | | | | | | | | | | | | | 2 | | | | 5 |
| **Polk** | 1 | 1 | 90 | 19 | 1 | 1 | 11 | | 36 | | | 3 | 7 | 98 | 6 | 2 | 17 | 8 | | 4 | 12 | | 1 | 59 | 76 | | 1 | 453 |
| **Pottawattamie** | | | 21 | 11 | 1 | | 4 | 1 | 5 | | | | 1 | 3 | 2 | | 1 | | | | 5 | | 1 | 18 | 3 | | | 77 |
| **Poweshiek** | | | 5 | | | | | | | | | | | | | | | | | | | | | 3 | | | | 8 |
| **Ringgold** | | | 1 | 1 | | | | | | | | | | | | | | | | | 2 | | | 1 | | | 1 | 5 |
| **Sac** | | | 8 | 1 | | | | | | | | | | | | | | | | 1 | | | | 7 | | | | 17 |
| **Scott** | | | 23 | 5 | 1 | | 3 | | 8 | | | 3 | 1 | 16 | 5 | | 14 | | | 3 | 42 | | 2 | 14 | 53 | 1 | | 194 |
| **Shelby** | | | 6 | 2 | | | 2 | | 1 | | | 1 | | | 1 | | | | | | | | | 1 | 3 | | | 17 |
| **Sioux** | | | 16 | 26 | | 1 | 6 | | 9 | | 2 | | | 2 | | | 3 | 1 | | 1 | | | | 24 | 4 | | | 95 |
| **Story** | | | 25 | 9 | | | 4 | | 2 | | | | 1 | 17 | | | 3 | 2 | | 4 | 1 | | | 15 | 4 | | | 87 |
| **Tama** | | | 10 | 1 | | | | | | | | | | 1 | | | | | | | 19 | | | 4 | | | 1 | 36 |
| **Taylor** | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| **Union** | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 |
| **Van Buren** | | | 5 | 6 | | | 2 | | | | | | | 1 | 1 | | | | | | | | | 4 | | | | 19 |
| **Wapello** | | | 11 | 18 | | | 2 | | 3 | | | | | 3 | 1 | | 3 | | | 1 | | | 1 | 7 | 1 | | | 51 |
| **Warren** | | | 11 | 4 | | | 1 | | 1 | | | | 1 | | 1 | | 1 | | | 7 | 3 | | | 8 | 3 | | 1 | 41 |
| **Washington** | | | 3 | | | | 2 | | 1 | | | | | | | | 4 | | | 3 | | | | 5 | 1 | | | 19 |
| **Wayne** | | | | 3 | | | | | | | | | | | | | 1 | | | | | | | 2 | | | | 6 |
| **Webster** | | | 8 | 2 | | | 2 | | 1 | | | | | 1 | | | 1 | | | | | | | 4 | 1 | | | 20 |
| **Winnebago** | | | 3 | | | | | | 1 | | | | | | | | 2 | | | | | | | 3 | | | | 9 |
| **Winneshiek** | | | 8 | 2 | | | 5 | 1 | 1 | | | | | | | | 6 | | | | 1 | | | 4 | | | | 28 |
| **Woodbury** | | | 23 | 16 | | | 5 | | 7 | | | | | 10 | 1 | | | 1 | | | 4 | | | 32 | 11 | | | 110 |
| **Worth** | | | 3 | | | | | | | | | | | | | | | | | | | | | 1 | | | | 4 |
| **Wright** | | | 4 | 2 | | | 1 | | 1 | | | | | 1 | | | | | | | | | | 1 | | | | 10 |
| **Total** | 2 | 1 | 769 | 373 | 4 | 4 | 164 | 11 | 213 | 2 | 5 | 16 | 16 | 266 | 36 | 3 | 318 | 17 | 5 | 411 | 173 | 1 | 8 | 618 | 683 | 7 | 14 | 4134 |

## Table 2. Confirmed and probable cases and incidence rate (Per 100,000 Population) of reportable diseases/conditions, Iowa 2010-2015

| Reportable Disease/Conditions | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate |
| Botulism - Infant | 0 | NA | 0 | NA | 0 | NA | 3 | NA | 0 | NA | 2 | NA |
| Brucellosis | 0 | NA | 1 | NA | 0 | NA | 2 | NA | 0 | NA | 1 | NA |
| Campylobacteriosis | 751 | 24.7 | 747 | 24.5 | 534 | 17.5 | 610 | 20.0 | 571 | 18.7 | 769 | 25.2 |
| Cholera | 0 | NA | 0 | NA | 0 | NA | 1 | NA | 0 | NA | 0 | NA |
| Cryptosporidiosis | 397 | 13.0 | 364 | 11.9 | 328 | 10.8 | 1505 | 49.4 | 264 | 8.7 | 373 | 12.2 |
| Cyclosporiasis | 0 | NA | 1 | NA | 0 | NA | 148 | 4.9 | 0 | NA | 4 | NA |
| Dengue fever | 2 | NA | 5 | NA | 2 | NA | 3 | NA | 4 | NA | 4 | NA |
| *E. coli* (shiga toxin producing) | 173 | 5.7 | 189 | 6.2 | 181 | 5.9 | 171 | 5.6 | 224 | 7.4 | 164 | 5.4 |
| Ehrlichioses / Anaplasmosis | 2 | NA | 8 | NA | 6 | NA | 8 | NA | 17 | NA | 11 | NA |
| Giardiasis | 284 | 9.3 | 271 | 8.9 | 251 | 8.2 | 275 | 9.0 | 205 | 6.7 | 213 | 7.0 |
| *Haemophilis influenzae* type b | 1 | NA | 3 | NA | 0 | NA | 1 | NA | 4 | NA | 2 | NA |
| Hansens disease | 1 | NA | 0 | NA | 0 | NA | 1 | NA | 0 | NA | 0 | NA |
| Hantavirus | 0 | NA | 1 | NA | 1 | NA | 0 | NA | 2 | NA | 0 | NA |
| Hemolytic Uremic Syndrome | 0 | NA | 0 | NA | 10 | NA | 0 | NA | 0 | NA | 0 | NA |
| Hemolytic Uremic Syndrome (HUS) | 5 | NA | 13 | NA | 0 | NA | 6 | NA | 6 | NA | 5 | NA |
| Hepatitis A | 11 | NA | 8 | NA | 7 | NA | 17 | NA | 12 | NA | 16 | NA |
| Hepatitis B (acute) | 15 | NA | 15 | NA | 13 | NA | 11 | NA | 9 | NA | 16 | NA |
| Hepatitis B (chronic) | 183 | 6.0 | 182 | 6.0 | 226 | 7.4 | 276 | 9.1 | 283 | 9.3 | 266 | 8.7 |
| Hepatitis D | 0 | NA | 0 | NA | 0 | NA | 1 | NA | 0 | NA | 0 | NA |
| Legionellosis | 16 | NA | 11 | NA | 13 | NA | 11 | NA | 33 | 1.1 | 36 | 1.2 |
| Listeriosis | 3 | NA | 5 | NA | 3 | NA | 2 | NA | 7 | NA | 3 | NA |
| Lyme disease | 87 | 2.9 | 100 | 3.3 | 165 | 5.4 | 247 | 8.1 | 194 | 6.4 | 318 | 10.4 |
| Malaria | 14 | NA | 22 | 0.7 | 6 | NA | 12 | NA | 17 | NA | 17 | NA |
| Measles | 0 | NA | 1 | NA | 0 | NA | 0 | NA | 0 | NA | 0 | NA |
| Meningococcal invasive disease | 10 | NA | 14 | NA | 2 | NA | 1 | NA | 2 | NA | 5 | NA |
| Mumps | 38 | 1.2 | 8 | NA | 6 | NA | 3 | NA | 10 | NA | 411 | 13.5 |
| Pertussis | 705 | 23.1 | 232 | 7.6 | 1736 | 57.0 | 308 | 10.1 | 222 | 7.3 | 173 | 5.7 |
| Q Fever | 4 | NA | 2 | NA | 2 | NA | 4 | NA | 7 | NA | 1 | NA |
| Rocky Mountain spotted fever | 5 | NA | 7 | NA | 8 | NA | 8 | NA | 10 | NA | 8 | NA |
| Salmonellosis | 530 | 17.4 | 448 | 14.7 | 622 | 20.4 | 575 | 18.9 | 527 | 17.3 | 618 | 20.3 |
| Shigellosis | 57 | 1.9 | 18 | NA | 91 | 3.0 | 342 | 11.2 | 208 | 6.8 | 683 | 22.4 |
| Tetanus | 1 | NA | 0 | NA | 0 | NA | 1 | NA | 0 | NA | 0 | NA |
| Toxic Shock Syndrome | 1 | NA | 1 | NA | 1 | NA | 1 | NA | 1 | NA | 0 | NA |
| Tularemia | 0 | NA | 3 | NA | 1 | NA | 4 | NA | 1 | NA | 0 | NA |
| Typhoid fever | 3 | NA | 4 | NA | 3 | NA | 1 | NA | 1 | NA | 7 | NA |
| West Nile virus | 9 | NA | 9 | NA | 31 | 1.0 | 44 | 1.4 | 15 | NA | 14 | NA |

NA Not applicable. Rates calculated for case counts less than 2o are unreliable and therefore not included in this table.

**Table 3: Confirmed and probable cases and incidence rate (Per 100,000 Population) of reportable diseases/conditions by gender, Iowa 2010-2015**

| Disease | Female | | Male | | Unk | Total | |
|---|---|---|---|---|---|---|---|
| | Cases | Rate | Cases | Rate | Unk | Cases | Rate |
| Botulism | 2 | N/A | 0 | N/A | 0 | 2 | N/A |
| Brucellosis | 1 | N/A | 0 | N/A | 0 | 1 | N/A |
| Campylobacteriosis | 351 | 22.8 | 409 | 27.1 | 9 | 769 | 25.2 |
| Crytpospridiosis | 199 | 12.9 | 172 | 11.4 | 2 | 373 | 12.2 |
| Cyclosporiasis | 2 | N/A | 2 | N/A | 0 | 4 | N/A |
| Dengue fever | 4 | N/A | 0 | N/A | 0 | 4 | N/A |
| *E. coli* and other shiga-toxin producing | 86 | 5.6 | 78 | 5.2 | 0 | 164 | 5.4 |
| Ehrlichiosis/anaplasmosis | 6 | N/A | 5 | N/A | 0 | 11 | N/A |
| Giardiasis | 101 | 6.6 | 112 | 7.4 | 0 | 213 | 7.0 |
| *Haemophilus influenzae* type b | 1 | N/A | 1 | N/A | 0 | 2 | N/A |
| Hemolytic uremic syndrome | 1 | N/A | 4 | N/A | 0 | 5 | N/A |
| Hepatitis A | 6 | N/A | 10 | N/A | 0 | 16 | N/A |
| Hepaitis B, acute | 7 | N/A | 9 | N/A | 0 | 16 | N/A |
| Hepatitis B, chronic | 119 | 7.7 | 147 | 9.7 | 0 | 266 | 8.7 |
| Legionellosis | 8 | N/A | 28 | 1.9 | 0 | 36 | 1.2 |
| Listeriosis | 1 | N/A | 2 | N/A | 0 | 3 | N/A |
| Lyme disease | 129 | 8.4 | 188 | 12.5 | 1 | 318 | 10.4 |
| Malaria | 5 | N/A | 12 | N/A | 0 | 17 | N/A |
| Meningococcal invasive disease | 3 | N/A | 2 | N/A | 0 | 5 | N/A |
| Mumps | 194 | 12.6 | 214 | 14.2 | 3 | 411 | 13.5 |
| Perussis (whooping cough) | 87 | 5.7 | 82 | 5.4 | 4 | 173 | 5.7 |
| Q fever | 1 | N/A | 0 | N/A | 0 | 1 | N/A |
| Rocky Mountain spotted fever | 3 | N/A | 5 | N/A | 0 | 8 | N/A |
| Salmonellosis | 320 | 20.8 | 295 | 19.6 | 3 | 618 | 20.3 |
| Shigellosis | 378 | 24.6 | 298 | 19.8 | 7 | 683 | 22.4 |
| Typhoid fever | 4 | N/A | 3 | N/A | 0 | 7 | N/A |
| West Nile virus | 9 | N/A | 5 | N/A | 0 | 14 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

## Table 4. Reportable diseases by year - Iowa, 1994-2015

| Notifiable Disease | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Anthrax** | | | | | | | | | | | | | | | | | | | | | | |
| **Botulism** | | | | | | 1 | | | | | 1 | | 1 | 1 | 1 | | | | | | | 2 |
| **Brucellosis** | 1 | 2 | 4 | 4 | 1 | 6 | | 2 | 1 | | | 1 | 2 | | 2 | 2 | | 1 | | 2 | | 1 |
| **Campylobacteriosis** | 280 | 274 | 339 | 425 | 455 | 467 | 499 | 467 | 427 | 458 | 559 | 537 | 449 | 524 | 591 | 552 | 751 | 747 | 534 | 610 | 571 | 769 |
| **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 | 264 | 373 |
| **Cyclosporiasis** | | | 3 | 1 | 3 | | | 1 | | | | | | | | 1 | | 1 | | 148 | | 4 |
| **Dengue Fever** | | | | | | | | | | | | 1 | 1 | 6 | 5 | 2 | 2 | 5 | 2 | 3 | 4 | 4 |
| **Diphtheria** | | | | | | | | | | | | | | | | | | | | | | |
| **Ehrlichiosis / Anaplasmosis** | | | | | | | | | 1 | 1 | | 4 | 7 | 7 | 7 | 8 | 2 | 8 | 6 | 8 | 17 | 11 |
| **Encephalitis (arboviral, except WNV)** | 1 | 13 | 19 | 3 | 3 | 3 | 4 | 3 | 3 | | 2 | | 1 | 1 | | | | | | | | |
| ***E. coli*** | 54 | 64 | 123 | 114 | 93 | 114 | 180 | 81 | 122 | 103 | 124 | 108 | 161 | 185 | 208 | 163 | 173 | 189 | 181 | 171 | 224 | 164 |
| **Hemolytic uremic syndrome*** | | | | | | | | | | | | | | | | | | 13 | 10 | 6 | 6 | 5 |
| **Giardiasis** | 339 | 391 | 410 | 358 | 429 | 377 | 420 | 345 | 315 | 277 | 301 | 280 | 302 | 301 | 326 | 291 | 284 | 270 | 251 | 275 | 205 | 213 |
| ***Haemophilus influenzae* Type b** | 6 | 3 | 4 | 6 | 5 | 2 | | | | | 1 | | 2 | 1 | 2 | 1 | 1 | 3 | | 1 | 4 | 2 |
| **Hansen's disease (Leprosy)** | | | | | 1 | | 2 | 1 | | | | 1 | 1 | | 1 | | 1 | | | 1 | | |
| **Hantavirus** | | | | 2 | 1 | 2 | | | | 1 | | | | | 1 | | | 1 | 1 | | | |
| **Hepatitis A** | 64 | 106 | 346 | 490 | 400 | 161 | 67 | 41 | 72 | 40 | 50 | 22 | 13 | 48 | 109 | 38 | 11 | 8 | 7 | 17 | 12 | 16 |
| **Hepatitis B acute /chronic **** | 27/X | 46/X | 74/X | 44/X | 54/X | 44/X | 38/X | 24/X | 20/X | 27/X | 17/X | 32/X | 21/35 | 26/269 | 24/226 | 37/293 | 15/183 | 15/182 | 13/227 | 11/276 | 9/283 | 16/266 |
| **Legionellosis** | 34 | 21 | 11 | 12 | 11 | 17 | 15 | 8 | 13 | 12 | 8 | 8 | 13 | 12 | 21 | 24 | 16 | 11 | 13 | 11 | 33 | 36 |
| **Listeriosis** | | | 1 | | 2 | 6 | 2 | 3 | 5 | | 3 | 7 | 6 | 8 | 1 | 4 | 3 | 5 | 3 | 2 | 7 | 3 |
| **Lyme disease** | 17 | 16 | 19 | 8 | 27 | 24 | 34 | 36 | 42 | 58 | 56 | 91 | 97 | 124 | 109 | 108 | 87 | 100 | 165 | 247 | 194 | 318 |

| Notifiable Disease | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Malaria | 5 | 3 | 3 | 10 | 8 | 11 | 2 | 9 | 4 | 6 | 5 | 9 | 2 | 3 | 12 | 10 | 14 | 22 | 6 | 12 | 17 | 17 |
| Measles (Rubeola) | 7 | | 1 | | | | | | | | 3 | | | | | 1 | | 1 | | | | |
| Meningococcal invasive disease | 25 | 31 | 56 | 47 | 46 | 42 | 37 | 32 | 29 | 28 | 17 | 19 | 20 | 15 | 19 | 16 | 10 | 14 | 2 | 1 | 2 | 5 |
| Mumps | 16 | 11 | 3 | 10 | 11 | 8 | 8 | 1 | 1 | 2 | 2 | 6 | 1.963 | 27 | 24 | 15 | 38 | 8 | 6 | 3 | 10 | 411 |
| Pertussis | 23 | 11 | 32 | 207 | 78 | 111 | 67 | 167 | 230 | 182 | 1066 | 1106 | 342 | 150 | 257 | 235 | 705 | 232 | 1736 | 308 | 222 | 173 |
| Plague | | | | | | | | | | | | | | | | | | | | | | |
| Poliomyelitis | | | | | | | | | | | | | | | | | | | | | | |
| Psittacosis | | | | | | | | 3 | | | | 1 | | | | | | | | | | |
| Rabies, animal | 90 | 141 | 237 | 160 | 153 | 159 | 81 | 83 | 74 | 105 | 100 | 108 | 57 | 31 | 29 | 35 | 27 | 25 | 31 | 12 | 15 | |
| Rabies, human | | | | | | | | | | 1 | | | | | | | | | | | | |
| Rocky Mountain Spotted Fever | 1 | | 1 | 2 | 2 | 1 | 2 | 5 | 7 | 3 | 2 | 7 | 5 | 17 | 8 | 5 | 5 | 7 | 8 | 8 | 10 | 8 |
| Rubella (German Measles) | | | | | | 30 | | 1 | | | | | | | | | | | | | | |
| Salmonellosis | 404 | 433 | 335 | 296 | 375 | 260 | 373 | 339 | 509 | 413 | 435 | 410 | 475 | 477 | 425 | 408 | 530 | 448 | 622 | 575 | 527 | 618 |
| Shigellosis | 338 | 351 | 151 | 90 | 69 | 74 | 569 | 367 | 122 | 93 | 64 | 103 | 134 | 109 | 214 | 53 | 57 | 18 | 91 | 342 | 208 | 683 |
| Tetanus | 1 | | | 1 | 1 | | 1 | | 1 | | | 1 | | | | | 1 | | | 1 | | |
| Toxic Shock Syndrome | 8 | 5 | 4 | 3 | 4 | 4 | 4 | 1 | 3 | 5 | 5 | 5 | | | 1 | 2 | 1 | 1 | 1 | 1 | | |
| Trichinosis | 1 | 6 | | | | | | 3 | | | | 1 | | | | | | | | | | |
| Tularemia | | | | | | | | | | | | | | | | 1 | | 3 | 1 | 4 | | |
| Typhoid fever | | | 1 | 1 | | 1 | | | | 2 | | | | 1 | 6 | | 3 | 4 | 3 | 1 | 1 | 7 |
| West Nile virus | | | | | | | | | 52 | 147 | 23 | 37 | 37 | 30 | 5 | 5 | 9 | 9 | 31 | 44 | 15 | 14 |
| Yellow Fever | | | | | | | | | | | | | | | | 2 | | | | | | |

**Table 5. Reportable disease cases and rates per 100,000 population by age group - Iowa, 2015**

| | 0-4 | | 5 to 19 | | 20 to 29 | | 30 to 39 | | 40 to 64 | | >64 | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate |
| Botulism | 2 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 2 | N/A |
| Brucellosis | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 1 | N/A | 0 | N/A | 1 | N/A |
| Campylobacter | 83 | 41.1 | 125 | 20.2 | 107 | 26.0 | 82 | 22.7 | 260 | 26.0 | 112 | 24.7 | 769 | 25.2 |
| Cryptosporidiosis | 59 | 29.2 | 76 | 12.3 | 60 | 14.6 | 59 | 16.3 | 82 | 8.2 | 37 | 8.2 | 373 | 12.2 |
| Cyclospora | 0 | N/A | 0 | N/A | 1 | N/A | 0 | N/A | 3 | N/A | 0 | N/A | 4 | N/A |
| Dengue fever | 0 | N/A | 1 | N/A | 2 | N/A | 1 | N/A | 0 | N/A | 0 | N/A | 4 | N/A |
| *E. coli* (shiga-toxin producing) | 42 | 20.8 | 55 | 8.9 | 18 | N/A | 17 | N/A | 23 | 2.3 | 9 | N/A | 164 | 5.4 |
| Ehrlichioses / Anaplasmosis | 0 | N/A | 0 | N/A | 1 | N/A | 2 | N/A | 5 | N/A | 3 | N/A | 11 | N/A |
| Giardiasis | 30 | 14.8 | 42 | 6.8 | 28 | 6.8 | 27 | 7.5 | 63 | 6.3 | 23 | 5.1 | 213 | 7.0 |
| *Haemophilis influenzae* type b | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 2 | N/A | 2 | N/A |
| Hemolytic Uremic Syndrome (HUS) | 3 | N/A | 2 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 5 | N/A |
| Hepatitis A | 0 | N/A | 0 | N/A | 3 | N/A | 3 | N/A | 9 | N/A | 1 | N/A | 16 | N/A |
| Hepatitis B (acute) | 0 | N/A | 0 | N/A | 3 | 0.7 | 4 | 1.1 | 8 | 0.8 | 1 | N/A | 16 | 0.5 |
| Hepatitis B (chronic) | 3 | N/A | 14 | N/A | 66 | 16.1 | 77 | 21.3 | 92 | 9.2 | 14 | N/A | 266 | 8.7 |
| Legionellosis | 0 | N/A | 0 | N/A | 1 | N/A | 2 | N/A | 15 | N/A | 18 | N/A | 36 | 1.2 |
| Listeriosis | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 3 | N/A | 3 | N/A |
| Lyme disease | 14 | N/A | 79 | 12.8 | 39 | 9.5 | 38 | 10.5 | 98 | 9.8 | 50 | 11.0 | 318 | 10.4 |
| Malaria | 0 | N/A | 3 | N/A | 5 | N/A | 3 | N/A | 5 | N/A | 1 | N/A | 17 | N/A |
| Meningococcal invasive disease | 0 | N/A | 1 | N/A | 1 | N/A | 0 | N/A | 1 | N/A | 2 | N/A | 5 | N/A |
| Mumps | 3 | N/A | 95 | 15.4 | 274 | 66.6 | 16 | N/A | 21 | 2.1 | 2 | N/A | 411 | 13.5 |
| Pertussis | 47 | 23.3 | 96 | 15.5 | 5 | N/A | 2 | N/A | 19 | N/A | 4 | N/A | 173 | 5.7 |
| Q Fever | 0 | N/A | 0 | N/A | 0 | N/A | 0 | N/A | 1 | N/A | 0 | N/A | 1 | N/A |
| Rocky Mountain spotted fever | 0 | N/A | 0 | N/A | 1 | N/A | 2 | N/A | 3 | N/A | 2 | N/A | 8 | N/A |
| Salmonellosis | 90 | 44.5 | 89 | 14.4 | 85 | 20.7 | 79 | 21.8 | 203 | 20.3 | 72 | 15.9 | 618 | 20.3 |
| Shigellosis | 202 | 99.9 | 227 | 36.7 | 76 | 18.5 | 80 | 22.1 | 72 | 7.2 | 26 | 5.7 | 683 | 22.4 |
| Typhoid fever | 1 | N/A | 3 | N/A | 1 | N/A | 2 | N/A | 0 | N/A | 0 | N/A | 7 | N/A |
| West Nile virus | 0 | N/A | 2 | N/A | 1 | N/A | 3 | N/A | 7 | N/A | 1 | N/A | 14 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

# Section 2
# Summary of reported outbreak investigations

**2015 Iowa Summary of reported outbreak investigations**

**Table 6. Foodborne Outbreaks**

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Norovirus | Vomiting, Diarrhea | Private Party | Caterer | Event Center | Story | January | 11/63 | Unknown | Norovirus GII |
| 2. Norovirus | Diarrhea, Vomiting | Workplace | Restaurant | Workplace | Polk | February | 8/15 | Unknown | Suspect Norovirus |
| 3. Norovirus | Diarrhea, Cramping | Restaurant | Restaurant | Restaurant | Polk | February | 2/2 | Unknown | Suspect Norovirus |
| 4. Norovirus | Diarrhea, Vomiting, Cramping | Restaurant | Restaurant | Restaurant | Poweshiek | February | 5/7 | Unknown | Suspect Norovirus |
| 5. Norovirus | Diarrhea, Vomiting | Restaurant | Restaurant | Restaurant | Pottawattamie | February | 4/7 | Unknown | Suspect Norovirus |
| 6. Unknown | Histamine reaction | Private Residence | Private Residence | Private Residence | Scott | March | 2/2 | Salmon | Scombroid negative |
| 7. Unknown | Diarrhea, Vomiting | Restaurant | Restaurant | Workplace | Montgomery | March | 5/6 | Unknown | Unknown |
| 8. Norovirus | Diarrhea, Vomiting | Private Party | Private Residence | Private Residence | Dallas | March | 20/40 | Unknown | Suspect Norovirus |
| 9. Unknown | Vomiting, Cramps, Diarrhea | Restaurant | Restaurant | Restaurant | Polk | March | 3/6 | Unknown | Unknown |
| 10. Norovirus | Vomiting, Diarrhea | Restaurant | Restaurant | Restaurant | Shelby | March | 20 | Unknown | Norovirus GII |
| 11. Norovirus | Diarrhea, Cramps | Restaurant | Restaurant | Restaurant | Polk | April | 4/6 | Unknown | Suspect Norovirus |
| 12. *Salmonella* | Diarrhea | Work | Private Residence | Work | Johnson | April | 9/10 | Unknown | *Salmonella* Enteritidis |
| 13. Norovirus | Diarrhea, Vomiting, Cramping, Nausea | Private Party | Caterer | Private Residence | Woodbury | April | 13/23 | Unknown | Norovirus GI |

| 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 |
|---|---|---|---|---|---|---|---|---|---|
| 14. *Salmonella* | Diarrhea, Cramping | Private Party | Private Residence | Private Residence | Buena Vista | July | 6 | Unknown | *Salmonella* Enteritidis |
| 15. *C. perfringens* | Diarrhea, Cramping, Nausea | School | School | School | Polk | October | 57/160 | Unknown | *Clostridium perfingens* |
| 16. *Salmonella* | Nausea, Diarrhea, Vomiting | Event Center | Grocery Store/Event Center | Event Center | Carroll | December | 4/75 | Turkey | *Salmonella* Reading |

**Table 7. Non-foodborne or unknown cause outbreaks**

| 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 |
|---|---|---|---|---|---|---|---|
| 1. Person-to-Person | Diarrhea, Vomiting | Long-term Care | Linn | January | 13/51 + 4 staff | Person-to-Person | Norovirus GII |
| 2. Person-to-Person | Diarrhea, Vomiting | Long-term Care | Hardin | January | 17/48 | Person-to-Person | Norovirus |
| 3. Person-to-Person | Diarrhea, Vomiting | Inpatient Unit | Johnson | January | 7 + 8 staff | Person-to-Person | Norovirus |
| 4. Person-to-Person | Pruritus, Scaling | Long-term Care | Buchanan | January | 3 | Unknown | Dermatophytosis |
| 5. Person-to-Person | Diarrhea | Long-term Care | Buchanan | January | 7 | Person-to-Person | Suspect Norovirus |
| 6. Person-to-Person | Vomiting, Diarrhea | Long-term Care | Grundy | January | 19/55 + 6 staff | Person-to-Person | Norovirus GII |
| 7. Person-to-Person | Vomiting, Diarrhea | Long-term Care | Buchanan | January | 23 + 1 staff | Person-to-Person | Norovirus |
| 8. Unknown | Vomiting, Diarrhea | Sporting Event | Dubuque | January | 5 | Unknown | Norovirus |
| 9. Unknown | Vomiting, Diarrhea | Private Gathering | Dubuque | January | 5/10 | Unknown | Suspect Norovirus |
| 10. Unknown | Diarrhea | College | Dubuque | January | 6/8 | Unknown | Negative for Norovirus, bacteria & parasites |

| 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 |
|---|---|---|---|---|---|---|---|
| 11. Person-to-Person | Vomiting, Diarrhea | Long-term Care | Johnson | February | 13/100 | Person-to-Person | Suspect Norovirus |
| 12. Person-to-Person | Vomiting, Diarrhea | Long-term Care | Madison | February | 17/63 | Person-to-Person | Norovirus |
| 13. Person-to-Person | Nausea, Vomiting, Diarrhea | Long-term Care | Muscatine | Feb/March | 10/66 | Person-to-Person | Negative for Norovirus & Enteric pathogens |
| 14. Person-to-Person | Vomiting, Diarrhea | Long-term Care | Ida | Feb/March | 25/27 + 14 staff | Person-to-Person | Suspect Norovirus |
| 15. Person-to-Person | Vomiting, Diarrhea, Nausea | Long-term Care | Delaware | March | 16/37 + 1 staff | Person-to-Person | Suspect Norovirus |
| 16. Person-to-Person | Nausea, Vomiting, Diarrhea | Long-term Care | Kossuth | April | 12/26 | Person-to-Person | Suspect Norovirus |
| 17. Person-to-Person | Coughing | Group Home | Chickasaw | August | 12 | Person-to-Person | *Mycoplasma pneumoniae* |
| 18. Person-to-Person | Diarrhea | Private Party | Washington | October | 8 | Person-to-Person | Cryptosporidium |
| 19. Person-to-Person | Diarrhea | Restaurant | Dubuque | May | 7 | Person-to-Person | Norovirus |
| 20. Person-to-Person | Diarrhea | Manufacturing Facility | Jones | December | 12 | Person-to-Person | Norovirus(equivocal) |

| 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 |
|---|---|---|---|---|---|---|---|
| 21. Person-to-Person | Diarrhea | School | Bremer | September | 150 | Person-to-Person | Norovirus GI |
| 22. Person-to-Person | Diarrhea | School | Linn | April | 62 | Person-to-Person | Norovirus GI |
| 23. Person-to-Person | Diarrhea | Restaurant | Woodbury | June | 20 | Person-to-Person | Norovirus GI |
| 24. Person-to-Person | Diarrhea | Hospital | Pottawattamie | April | 8 | Person-to-Person | Norovirus GII |
| 25. Person-to-Person | Diarrhea | Long-term Care | Humboldt | April | 9 | Person-to-Person | Norovirus GII |
| 26. Person-to-Person | Diarrhea | Long-term Care | Kossuth | April | 15 | Person-to-Person | Norovirus GII |
| 27. Person-to-Person | Diarrhea | School | Linn | April | 75 | Person-to-Person | Norovirus GII |
| 28. Person-to-Person | Diarrhea | Wedding | Dubuque | August | 52 | Person-to-Person | Norovirus GII |
| 29. Person-to-Person | Diarrhea | Pre-School | Poweshiek | December | 8 | Person-to-Person | Norovirus GII |
| 30. Person-to-Person | Diarrhea | Childcare | Lee | November | 14 | Person-to-Person | Norovirus GII |

| 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 |
|---|---|---|---|---|---|---|---|
| 31. Person-to-Person | Diarrhea | Restaurant/Swim Team | Johnson | December | 8 | Person-to-Person | Norovirus GII |
| 32. Person-to-Person | Diarrhea | Long-term Care | Madison | September | 4 | Person-to-Person | Norovirus GI |
| 33. Person-to-Person | Diarrhea | Community-wide | Linn | March | 275 | Person-to-Person | *Shigella* |
| 34. Person-to-Person | Diarrhea | Community-wide | Scott | September | 49 | Person-to-Person | *Shigella* |
| 35. Person-to-Person | Diarrhea | Community-wide | Polk | September | 76 | Person-to-Person | *Shigella* |
| 36. Person-to-Person | Diarrhea | Community-wide | Dubuque | | | Person-to-Person | *Shigella* |
| 37. Person-to-Person | Diarrhea | Restaurant | Linn | May | 7 | Person-to-Person | Suspect Norovirus |
| 38. Person-to-Person | Diarrhea | Summer Camp | Boone | June | 7 | Person-to-Person | Suspect Norovirus |
| 39. Person-to-Person | Diarrhea | Farm Workers | Hancock | July | 9 | Person-to-Person | Suspect Norovirus |
| 40. Person-to-Person | Diarrhea | Independent Living | Scott | August | 15 | Person-to-Person | Suspect Norovirus |

| 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 |
|---|---|---|---|---|---|---|---|
| 41. Person-to-Person | Diarrhea | Long-term Care | Buchanan | September | 6 | Person-to-Person | Suspect Norovirus |
| 42. Person-to-Person | Diarrhea | School | Black Hawk | September | 9 | Person-to-Person | Suspect Norovirus |
| 43. Person-to-Person | Diarrhea | Daycare | Polk | October | 20 | Person-to-Person | Suspect Norovirus |
| 44. Person-to-Person | Diarrhea | School | Polk | October | 11 | Person-to-Person | Suspect Norovirus |
| 45. Person-to-Person | Diarrhea | School | Webster | October | | Person-to-Person | Suspect Norovirus |
| 46. Person-to-Person | Diarrhea | School | Jefferson | October | 95 | Person-to-Person | Suspect Norovirus |
| 47. Person-to-Person | Diarrhea | Long-term Care | Scott | November | 6 | Person-to-Person | Suspect Norovirus |
| 48. Person-to-Person | Diarrhea | Assisted Living | Warren | December | 8 | Person-to-Person | Suspect Norovirus |
| 49. Person-to-Person | Rash | School | Lee | April | 100 | Person-to-Person | Suspect Scabies |

**Table 8. PFGE Clusters**

| Type | Nature of Episode | Event/Place | County | Month | Number Affected | Vehicle of Transmission | Agent Involved |
|---|---|---|---|---|---|---|---|
| 1. National Cluster | Diarrhea | Unknown | Dubuque | Oct-Dec 2014 | 1 | Unknown | *Salmonella* Saintpaul 1501MLJN6-1 |
| 2. IA only cluster | Diarrhea | Unknown | Black Hawk, Polk, Buchanan | Jan/Feb | 13 | Unknown | *Shigella sonnei* multiple PFGE patterns (closely related) |
| 3. National Cluster | Diarrhea | Group Gathering | Dubuque, Black Hawk | Jan/Feb | 2 | Unknown | *Salmonella* Typhi JPPX01.0255 |
| 4. IA only cluster | Diarrhea | Unknown | Multi-county | March | 16 | Unknown | *Salmonella* Enteriditis JEGX01.0005 |
| 5. National Cluster | Diarrhea | Unknown | Multi-county | Jan-March 2015 | 7 | Unknown | *Salmonella* Enteriditis JEGX01.0002 |
| 6. National Cluster | Diarrhea | Unknown | Linn | March | 1 | Unknown | *Shigella sonnei* J16X01.1166 |
| 7. National Cluster | Diarrhea | Unknown | Multi-county | March | 3 | Cucumbers | *Salmonella* Heidelberg JF6X01.0080 |
| 8. National Cluster | Diarrhea | Unknown | Johnson | Aug/Sept 2014 | 2 | Unknown | *Shigella sonnei* J16X01.0232 |

**Table 9. Vaccine-preventable Disease Outbreaks**

| Type | Nature of Episode | Event/Place | County | Month | Number Affected | Vehicle of Transmission | Agent Involved |
|---|---|---|---|---|---|---|---|
| 1. Influenza | Respiratory | Long-term Care | Crawford | January | 7/39 | Person-to-Person | Influenza |
| 2. Influenza | Respiratory | Long-term Care | Pocahontas | January | 6/52 | Person-to-Person | Influenza |
| 3. Influenza | Respiratory | Long-term Care | Page | January | 3/? | Person-to-Person | Influenza |
| 4. Influenza | Respiratory | Long-term Care | Wright | Dec/Jan | 9/59 + 7 staff | Person-to-Person | Influenza |
| 5. Influenza | Respiratory | Long-term Care | Carroll | January | 15/40 | Person-to-Person | Influenza |
| 6. Influenza | Respiratory | Long-term Care | Humboldt | January | 5/22 | Person-to-Person | Influenza |
| 7. Influenza | Respiratory | Long-term Care | Jasper | January | 11/40 + 1 staff | Person-to-Person | Influenza |
| 8. Influenza | Respiratory | Assisted Living | Henry | January | 16/45 | Person-to-Person | Influenza |
| 9. Influenza | Respiratory | Long-term Care | Madison | January | 11/68 + 2 staff | Person-to-Person | Influenza |
| 10. Influenza | Respiratory | Group Home | Boone | January | 5 + 1 staff | Person-to-Person | Influenza |
| 11. Influenza | Respiratory | Long-term Care | Johnson | January | 3/28 | Person-to-Person | Influenza |
| 12. Influenza | Respiratory | Long-term Care | Benton | January | 11/42 | Person-to-Person | Influenza |
| 13. Influenza | Respiratory | Long-term Care | Dallas | January | 20/200 | Person-to-Person | Influenza |
| 14. Influenza | Respiratory | Long-term Care | Bremer | January | 3/28 | Person-to-Person | Influenza |
| 15. Influenza | Respiratory | Long-term Care | Warren | January | 16 | Person-to-Person | Influenza |
| 16. Influenza | Respiratory | Long-term Care | Winneshiek | January | 8 | Person-to-Person | Inlfuenza |
| 17. Influenza | Respiratory | Long-term Care | Pottawattamie | January | 5 | Person-to-Person | Influenza |
| 18. Influenza | Respiratory | Long-term Care | Clay | January | 27/90 | Person-to-Person | Influenza |
| 19. Influenza | Respiratory | Long-term Care | Scott | January | 4/87 | Person-to-Person | Influenza |

| Type | Nature of Episode | Event/Place | County | Month | Number Affected | Vehicle of Transmission | Agent Involved |
|---|---|---|---|---|---|---|---|
| 20. Influenza | Respiratory | Long-term Care | Jackson | January | 7 | Person-to-Person | Influenza |
| 21. Influenza | Respiratory | Long-term Care | Hamilton | January | 5 | Person-to-Person | Influenza |
| 22. Influenza | Respiratory | Long-term Care | Bremer | January | 3/29 | Person-to-Person | Influenza |
| 23. Influenza | Respiratory | Long-term Care | Shelby | January | 9 | Person-to-Person | Influenza |
| 24. Influenza | Respiratory | Long-term Care | Warren | January | 3 + 2 staff | Person-to-Person | Influenza |
| 25. Influenza | Respiratory | Long-term Care | Buchanan | January | 2 | Person-to-Person | Influenza |
| 26. Influenza | Respiratory | Long-term Care | Kossuth | January | 3/11 | Person-to-Person | Influenza |
| 27. Influenza | Respiratory | Long-term Care | Winneshiek | January | 5/41 + 1 staff | Person-to-Person | Influenza |
| 28. Influenza | Respiratory | Long-term Care | Clinton | Dec 2014/Jan 2015 | 29 | Person-to-Person | Influenza |
| 29. Influenza | Respiratory | Long-term Care | Ida | February | 3/42 | Person-to-Person | Influenza |
| 30. Influenza | Respiratory | Long-term Care | Muscatine | February | 15/140 | Person-to-Person | Influenza |
| 31. Influenza | Respiratory | Long-term Care | Kossuth | February | 14/90 | Person-to-Person | Influenza |
| 32. Influenza | Respiratory | Long-term Care | Clay | Feb/March | 22/91 | Person-to-Person | Influenza |
| 33. Influenza | Respiratory | Long-term Care | Plymouth | March | 6/23 + 2/15 staff | Person-to-Person | Influenza |
| 34. Influenza | Respiratory | Elementary School | Dubuque | March | 250/545 + 40/90 staff | Person-to-Person | Influenza |
| 35. Influenza | Respiratory | Long-term Care | Story | March | 3 + 3 staff | Person-to-Person | Influenza |
| 36. Influenza | Respiratory | Long-term Care | Audubon | April | 2 + 1 staff | Person-to-Person | Influenza B |
| 37. Influenza | Respiratory | Long-term Care | Pocahontas | April | 10 | Person-to-Person | Influenza B |
| 38. Influenza | Respiratory | Long-term Care | Polk | July | 14 | Person-to-Person | Influenza H3 |

| Type | Nature of Episode | Event/Place | County | Month | Number Affected | Vehicle of Transmission | Agent Involved |
|---|---|---|---|---|---|---|---|
| 39. Mumps | Mumps | School | Multi-county | July | 408 | Person-to-Person | Mumps |
| 40. Mumps | Mumps | School | Warren | November | 22 | Person-to-Person | Mumps |
| 41. Pertussis | Coughing | Community-wide | Winneshiek | December | 24 | Person-to-Person | Pertussis |
| 42. Pertussis | Coughing | School | Jefferson | September | 14 | Person-to-Person | Pertussis |

**Table 10. Environmental Outbreaks**

| Type | Nature of Episode | Event/Place | County | Month | Number Affected | Vehicle of Transmission | Agent Involved |
|---|---|---|---|---|---|---|---|
| 1. Water | Vomiting, Fever, Cramping | Family reunion | Woodbury | August | 11 | Water | Suspect *Legionella* |
| 2. Environmental | Rash | School | Monona | August | 29 | Unknown | *Staphylococcus* |
| 3. Water | Diarrhea, Cramping, Vomiting | WI Campground/pond | Dubuque | August | 7 | Water | *Cryptosporidium* |

# Section 3

# Disease-specific Summaries of Select Reportable Diseases/Conditions

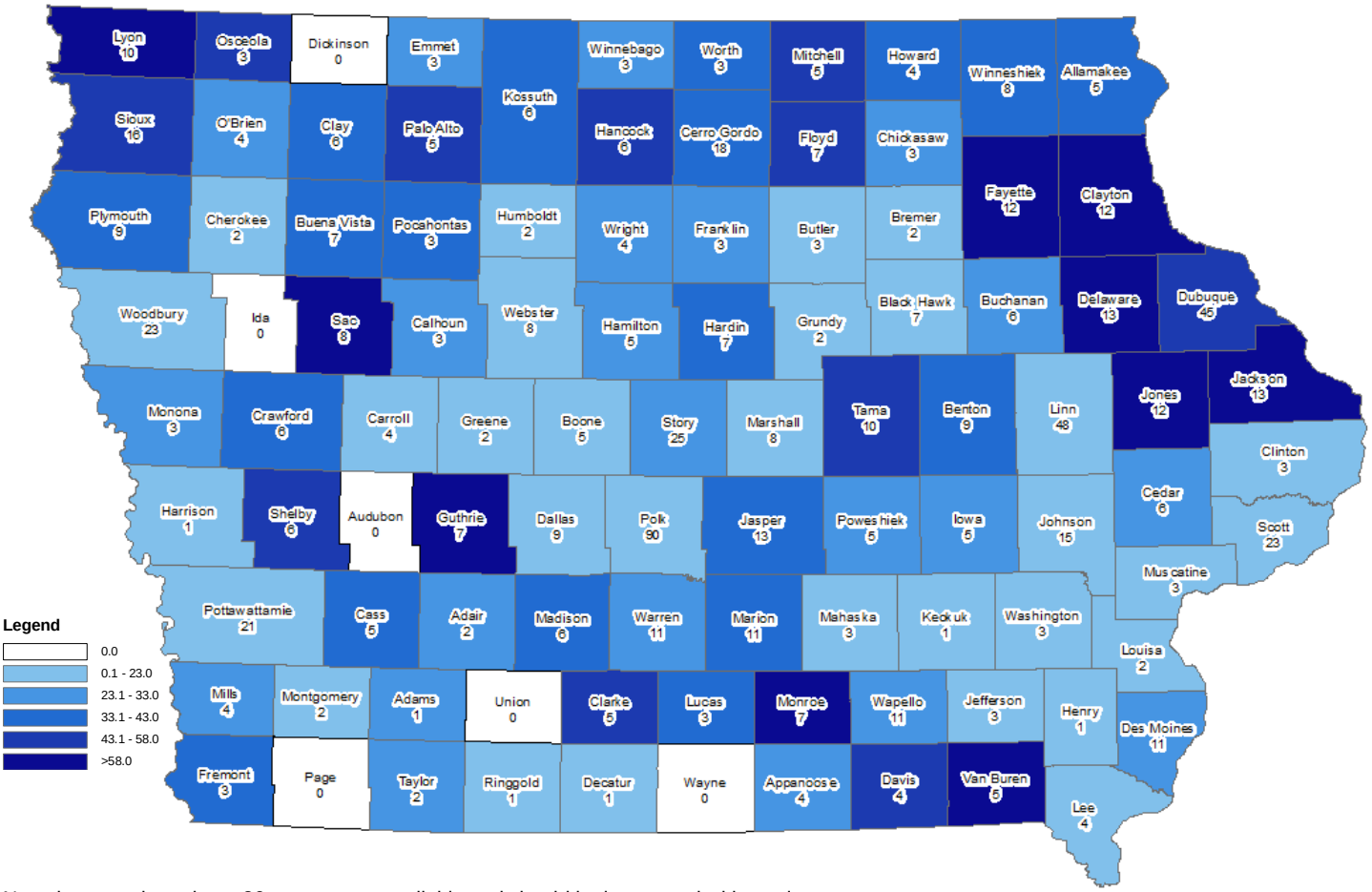
# Campylobacteriosis

*Cause:* *Campylobacter* bacteria

*Clinical Features:* Diarrhea, abdominal pain, fever, malaise, and nausea

*Transmission:* Transmitted through ingestion of organisms in under-cooked meat, unpasteurized dairy products, or other contaminated food or water, or from direct contact with infected animals. *Campylobacter* can be found in fecally contaminated water. As little as 500 organisms can cause illness.

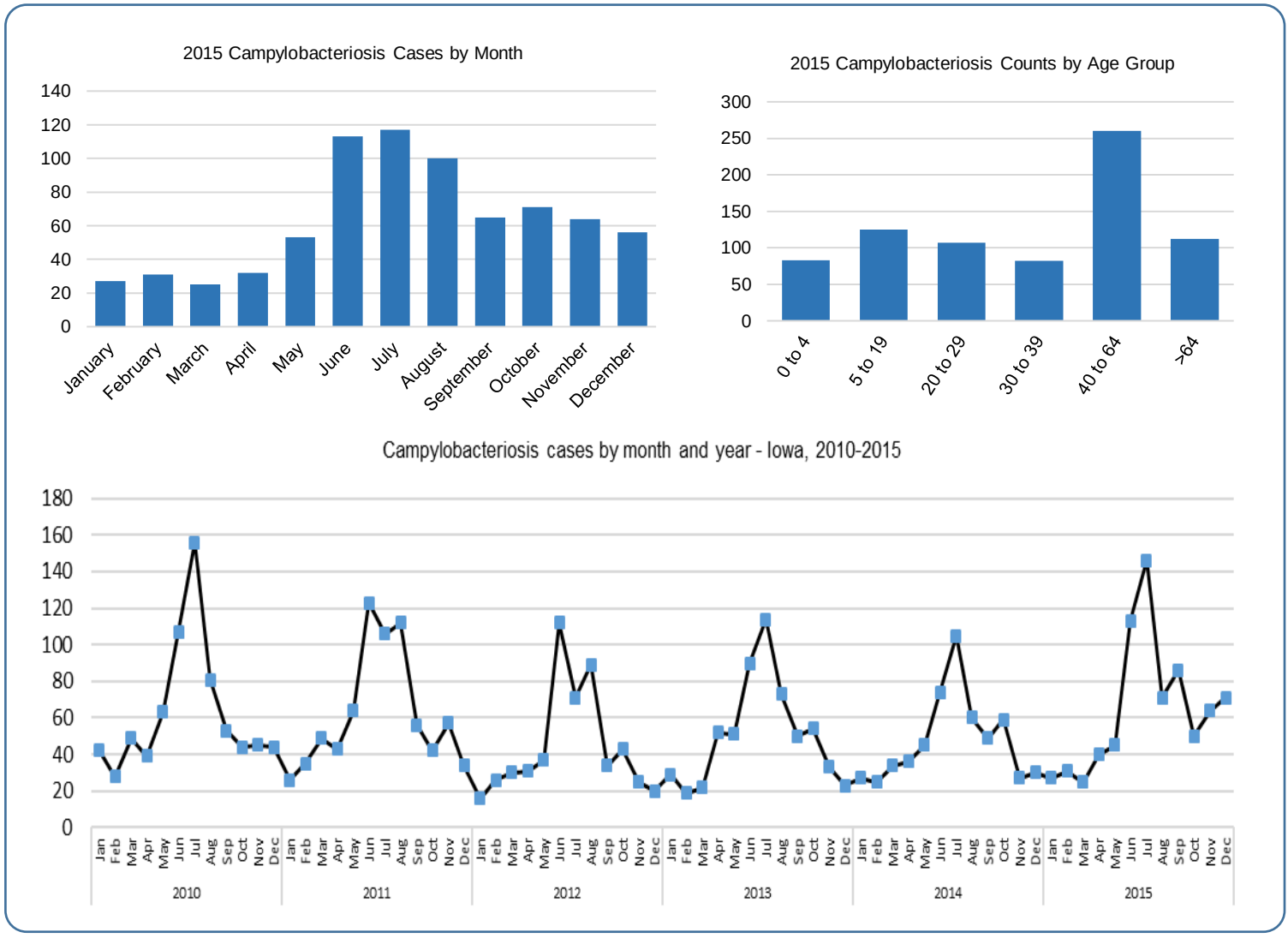
Reported campylobacteriosis cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 769)




Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 Campylobacteriosis cases | | | |
|---|---|---|---|
| Number of cases | | | 769 |
| Incidence rate (per 100,000 population | | | 25.2 |
| Change from 5-year average incidence | | | +19.4% |
| **Age (in years)** | | | |
| Mean | | | 39 |
| Median | | | 39 |
| Min-Max | | | 0 - 103 |
| **Gender** | **Number** | **Percent** | **Rate** |
| Female | 351 | 45.6 | 22.8 |
| Male | 409 | 53.2 | 27.1 |
| Unknown | 9 | 1.2 | N/A |
| **Race** | **Number** | **Percent** | **Rate** |
| White | 324 | 42.1 | 11.6 |
| Black | 5 | 0.7 | N/A |
| Other/Unknown | 8/432 | 57.2 | N/A |
| **Ethnicity** | **Number** | **Percent** | **Rate** |
| Non-Hispanic | 283 | 36.8 | 9.8 |
| Hispanic | 12 | 1.6 | N/A |
| Unknown | 474 | 61.6 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.



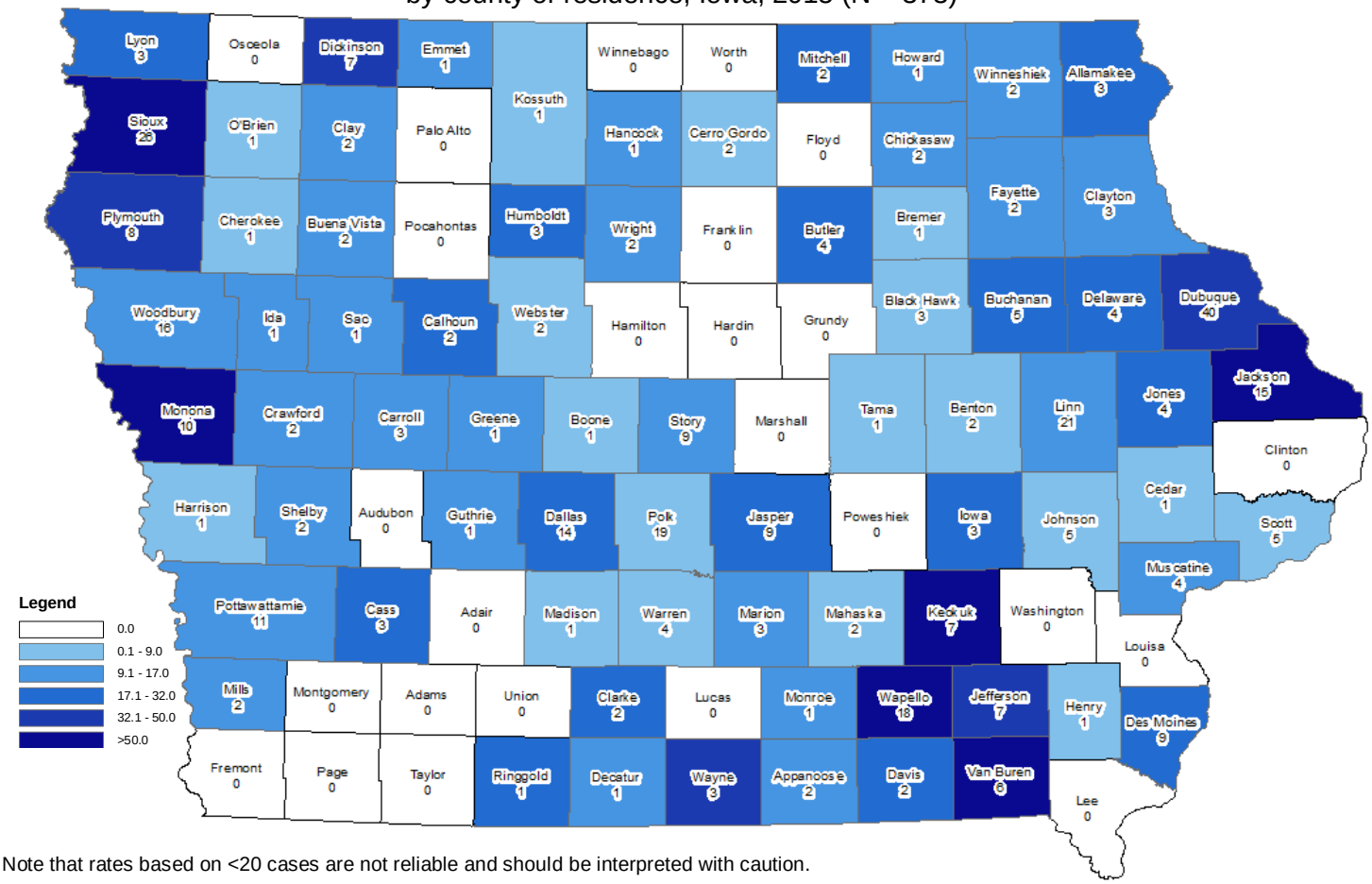
# Cryptosporidiosis

*Cause:* *Cryptosporidium* protozoan

*Clinical Features:* Watery diarrhea, abdominal cramps, nausea, vomiting, low-grade fever

*Transmission:* Fecal-oral, which includes person-to-person, animal-to-person, waterborne and foodborne transmission. Localized outbreaks may occur from fecally contaminated water, such as streams, lakes, and swimming pools open to contamination by human and animal feces. Outbreaks have resulted from eating food contaminated by animal feces (e.g., unpasteurized apple cider). An infected food worker could be a source of foodborne transmission.

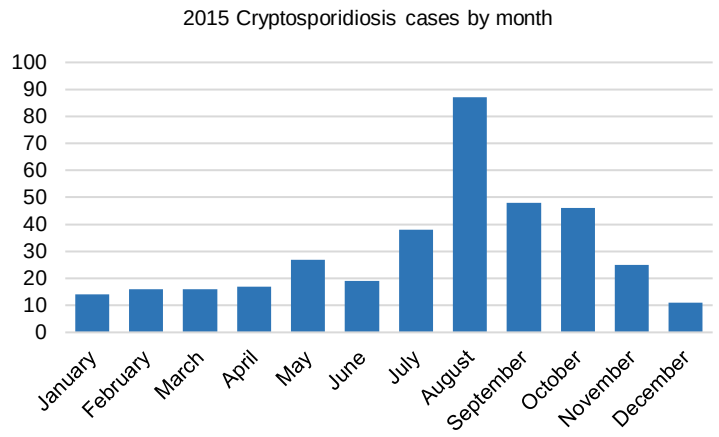
Reported cryptosporidiosis cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 373)

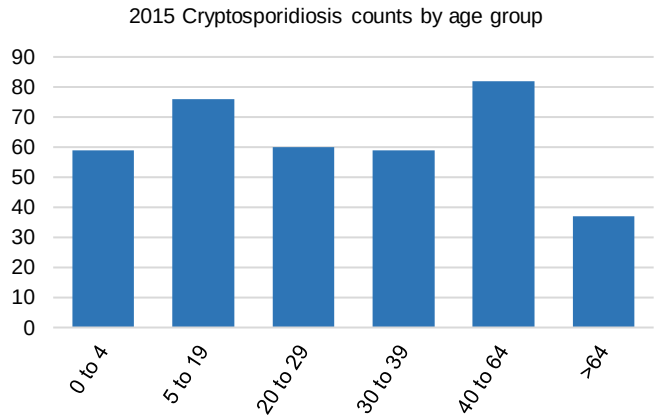


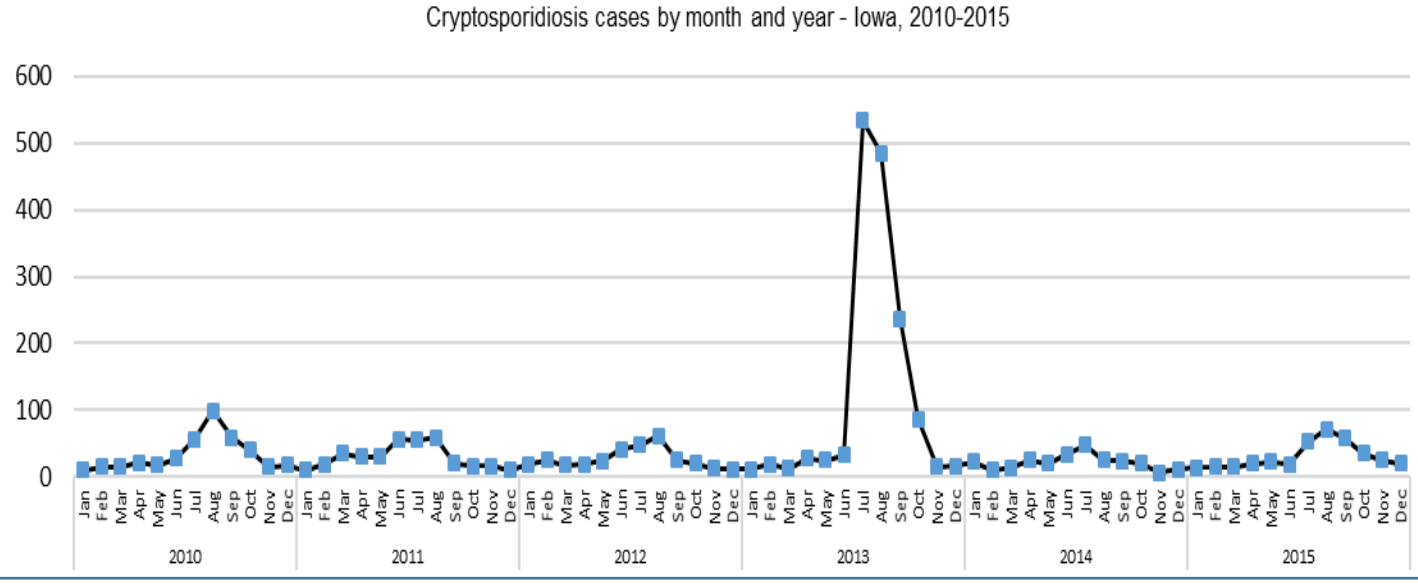

Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 373 |
| Incidence rate (per 100,000 population | | | 12.2 |
| Change from 5-year average incidence | | | -35.0% |
| Age (in years) | | | |
| Mean | | | 32 |
| Median | | | 29 |
| Min-Max | | | 0 - 95 |
| Gender | Number | Percent | Rate |
| Female | 199 | 53.4 | 12.9 |
| Male | 172 | 46.1 | 11.4 |
| Unknown | 2 | 0.5 | N/A |
| Race | Number | Percent | Rate |
| White | 263 | 70.5 | 9.4 |
| Black | 1 | 0.3 | N/A |
| Other/Unknown | 8/101 | 29.2 | N/A |
| Ethnicity | Number | Percent | Rate |
| Non-Hispanic | 257 | 68.9 | 8.87 |
| Hispanic | 16 | 4.3 | N/A |
| Unknown | 100 | 26.8 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.



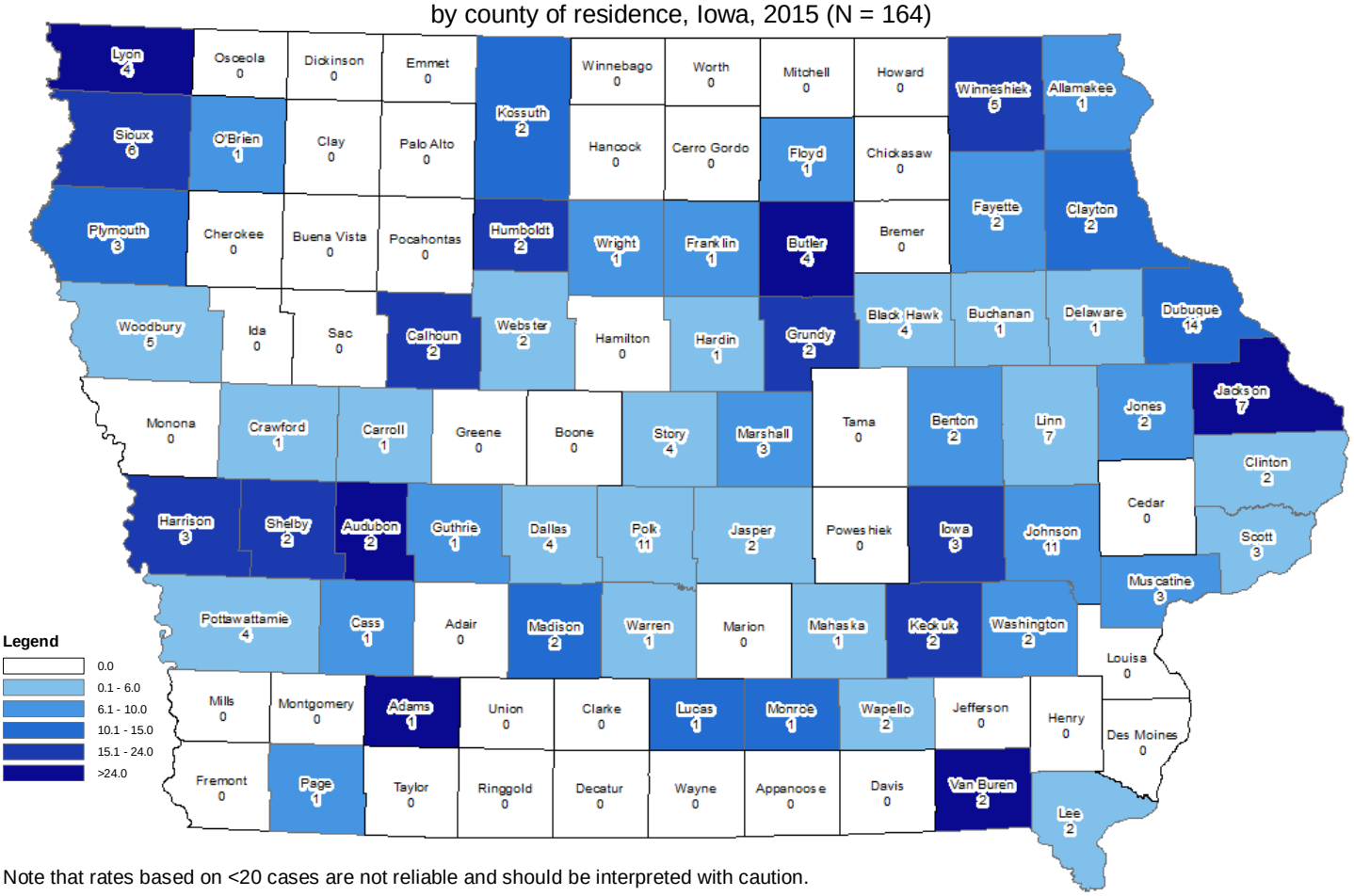
# *E.coli* 0157:H7 and other shiga-toxin producing strains (STEC)

*Cause:* Shiga toxin-producing *Escherichia coli* bacteria (STEC) that produce cytotoxins called Shiga toxin 1 and 2.

*Clinical Features:* An individual may be asymptomatic, have mild non-bloody diarrhea, or have grossly bloody diarrhea. Most diagnosed cases develop bloody diarrhea 6 to 48 hours after the onset of non-bloody diarrhea. Abdominal cramps, nausea and vomiting may also be present.

*Transmission:* STEC transmission occurs fecal-orally via contaminated food, drinking water or recreational water. Transmission may also occur directly from person-to-person; and can include certain types of sexual contact. The infectious dose for *E. coli* O157:H7 is very low (about 100 organisms). *E. coli* O157:H7 has been associated with the consumption of undercooked contaminated ground beef, unpasteurized apple juice and cider, unpasteurized milk and other dairy products, raw fruits and vegetables, and salami.

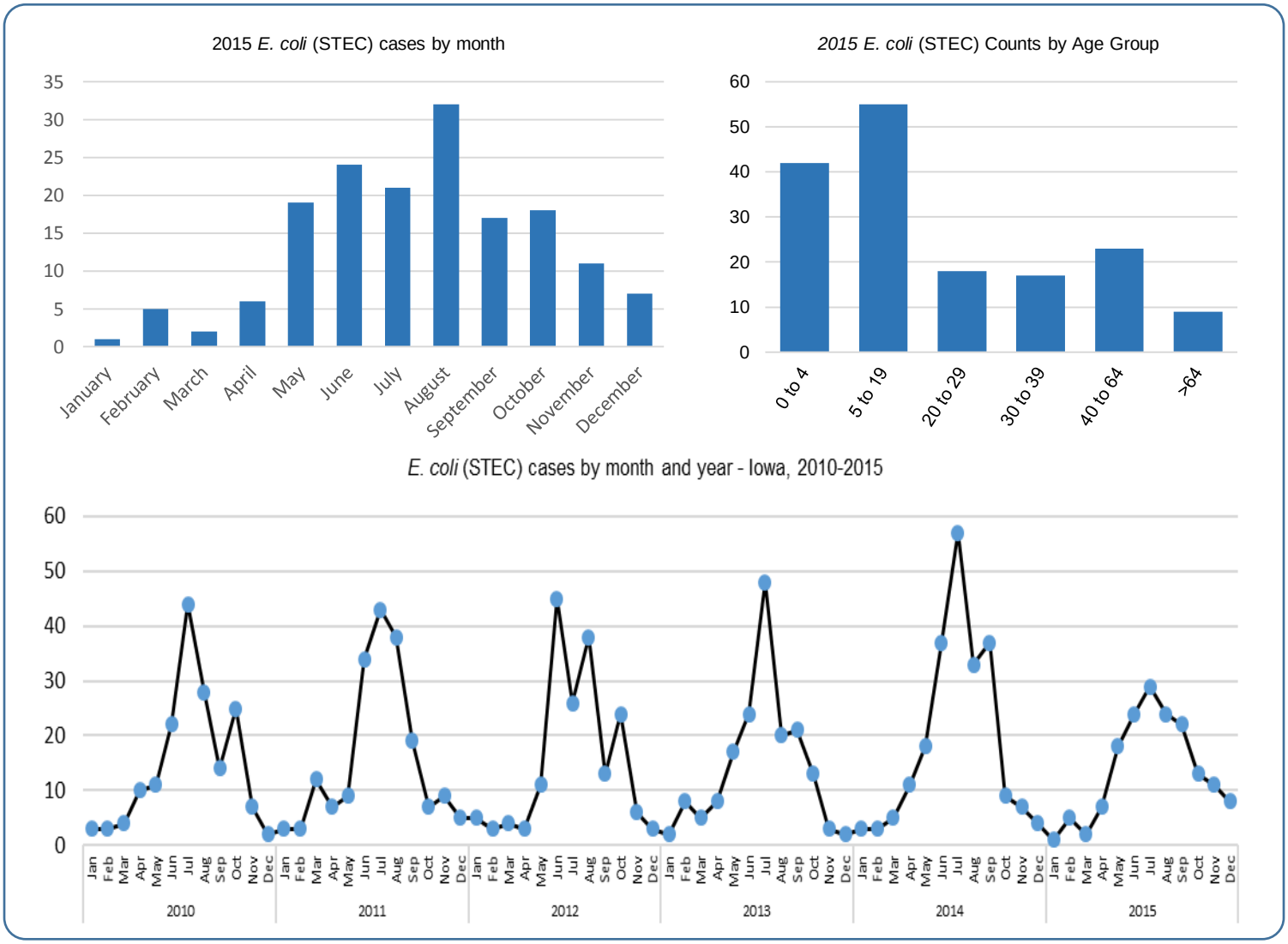
Reported *E. coli* (STEC) cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 164)




Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 164 |
| Incidence rate (per 100,000 population | | | 5.38 |
| Change from 5-year average incidence | | | -12.6% |
| Age (in years) | | | |
| Mean | | | 22 |
| Median | | | 17 |
| Min-Max | | | 0 - 91 |
| Gender | Number | Percent | Rate |
| Female | 86 | 52.4 | 5.6 |
| Male | 78 | 47.6 | 5.2 |
| Race | Number | Percent | Rate |
| White | 111 | 67.7 | 4.0 |
| Black | 4 | 2.4 | N/A |
| Other/Unknown | 8/41 | 29.9 | N/A |
| Ethnicity | Number | Percent | Rate |
| Non-Hispanic | 112 | 68.3 | 3.9 |
| Hispanic | 3 | 1.8 | N/A |
| Unknown | 49 | 29.9 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.



# Giardiasis

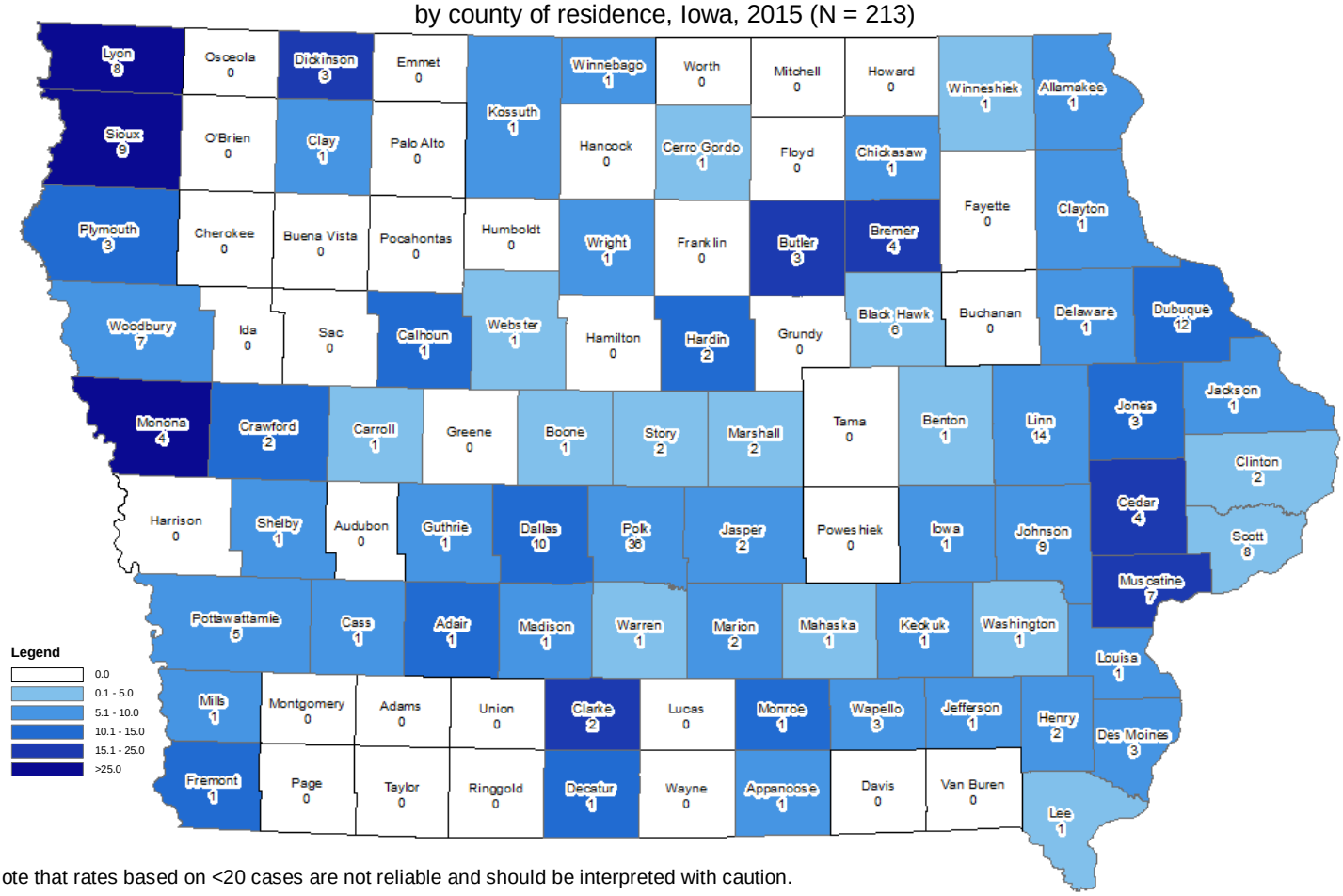
*Cause:* *Giardia lamblia* protazoan

*Clinical Features:* Symptoms can include soft, non-bloody, foul-smelling diarrhea. Abdominal cramps and a “bloated” feeling with excess gas often accompany the diarrhea. The diarrhea can be chronic or intermittent and it can be accompanied by fatigue and steatorrhea (fatty stools). Appetite loss combined with malabsorption can lead to significant weight loss, failure to thrive and anemia.

*Transmission:* *Giardia* is principally spread person-to-person. Persons become infected by fecal-oral transfer of cysts from the feces of an infected individual, especially in institutions and child care centers. Transmission can also occur person-to-person through certain types of sexual contact (*e.g.,* oral-anal contact). Giardiasis has developed with ingestion with as few as 10 cysts.

Environmental exposure can occur. Localized outbreaks may occur from fecally contaminated water, such as stream and lake waters and swimming pools that are contaminated by human and animal feces. Eating food contaminated by an infected food handler can be a source, but this has been rarely documented. Diapered children using “kiddie” pools filled with tap water without added chlorine or bleach is a high-risk source of transmission.

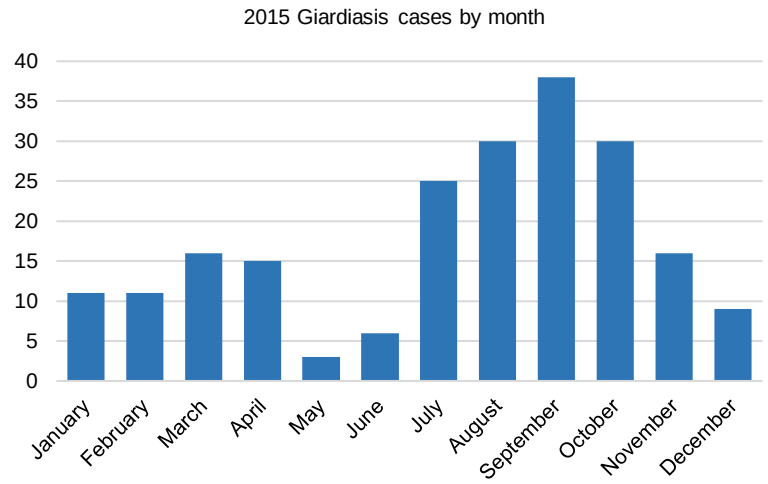
Reported giardiasis cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 213)

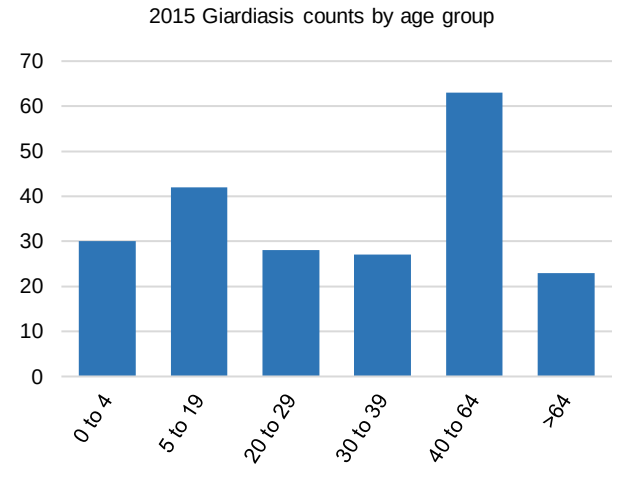


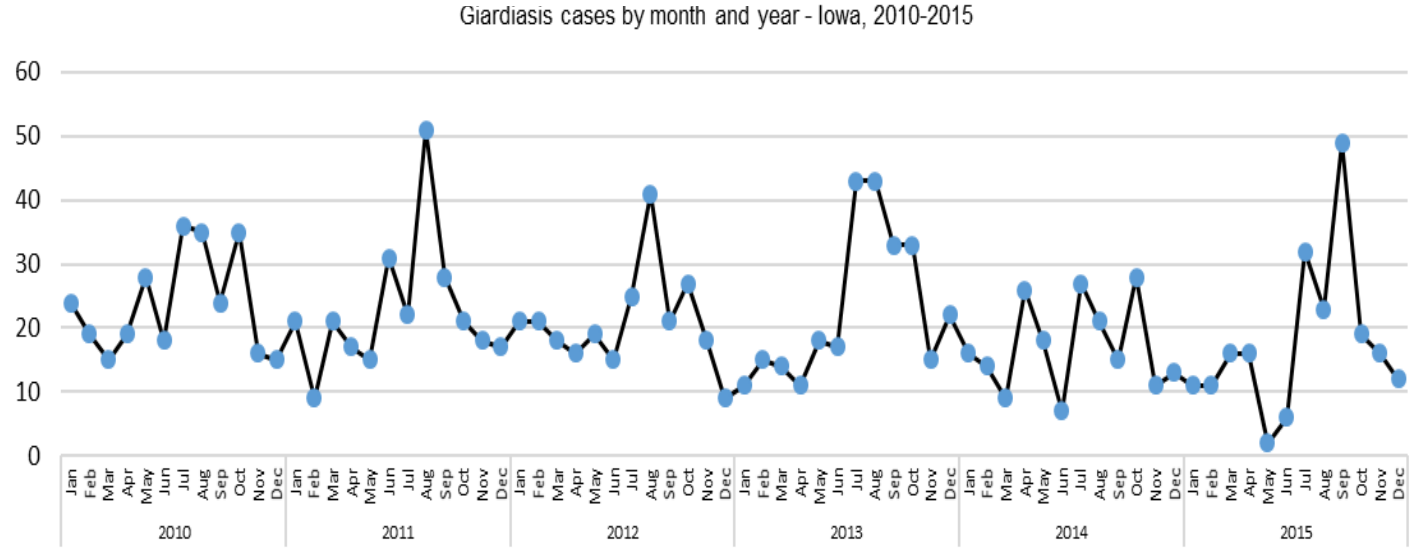

Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 213 |
| Incidence rate (per 100,000 population | | | 7.0 |
| Change from 5-year average incidence | | | -17.1% |
| Age (in years) | | | |
| Mean | | | 33 |
| Median | | | 31 |
| Min-Max | | | 0 - 87 |
| Gender | Number | Percent | Rate |
| Female | 101 | 47.4 | 6.6 |
| Male | 112 | 52.6 | 7.4 |
| Race | Number | Percent | Rate |
| White | 169 | 79.3 | 6.1 |
| Black | 11 | 5.2 | N/A |
| Other/Unknown | 16/17 | 15.5 | N/A |
| Ethnicity | Number | Percent | Rate |
| Non-Hispanic | 190 | 89.2 | 6.6 |
| Hispanic | 6 | 2.8 | N/A |
| Unknown | 17 | 8.0 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.



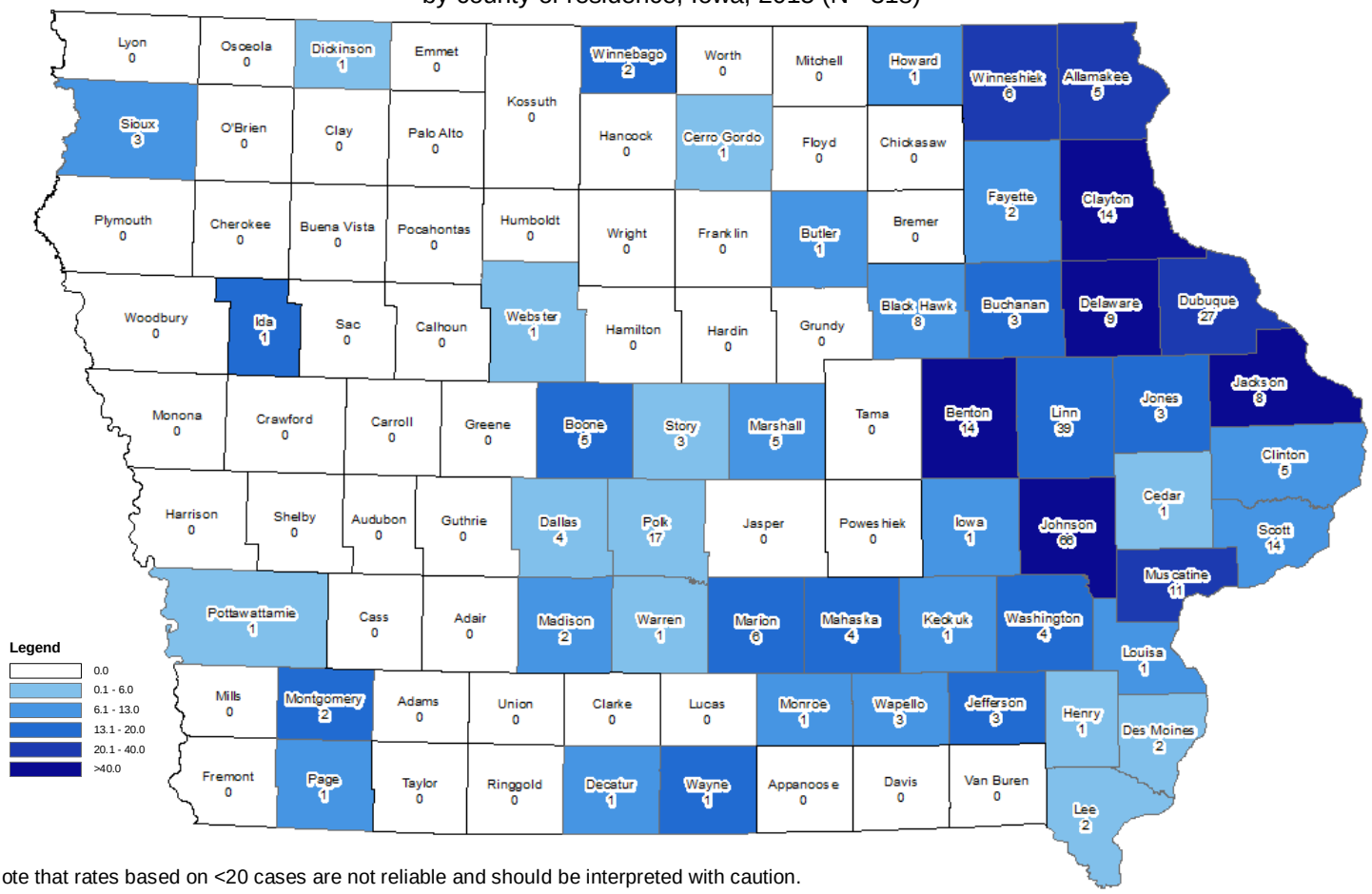
# Lyme Disease

*Cause:* *Borrelia burgdorferi* bacteria

*Clinical Features:* Lyme disease is a systemic, tick-borne disease with a variety of manifestations, including dermatologic, rheumatologic, neurologic, and cardiac abnormalities. The best clinical marker for the disease is erythema migrans (EM), the initial skin lesion that occurs in 60%-80% of patients.

*Transmission:* Lyme disease is acquired from a tick bite. Laboratory data suggests that the tick must usually remain attached from 24 to 48 hours before transmission can occur.

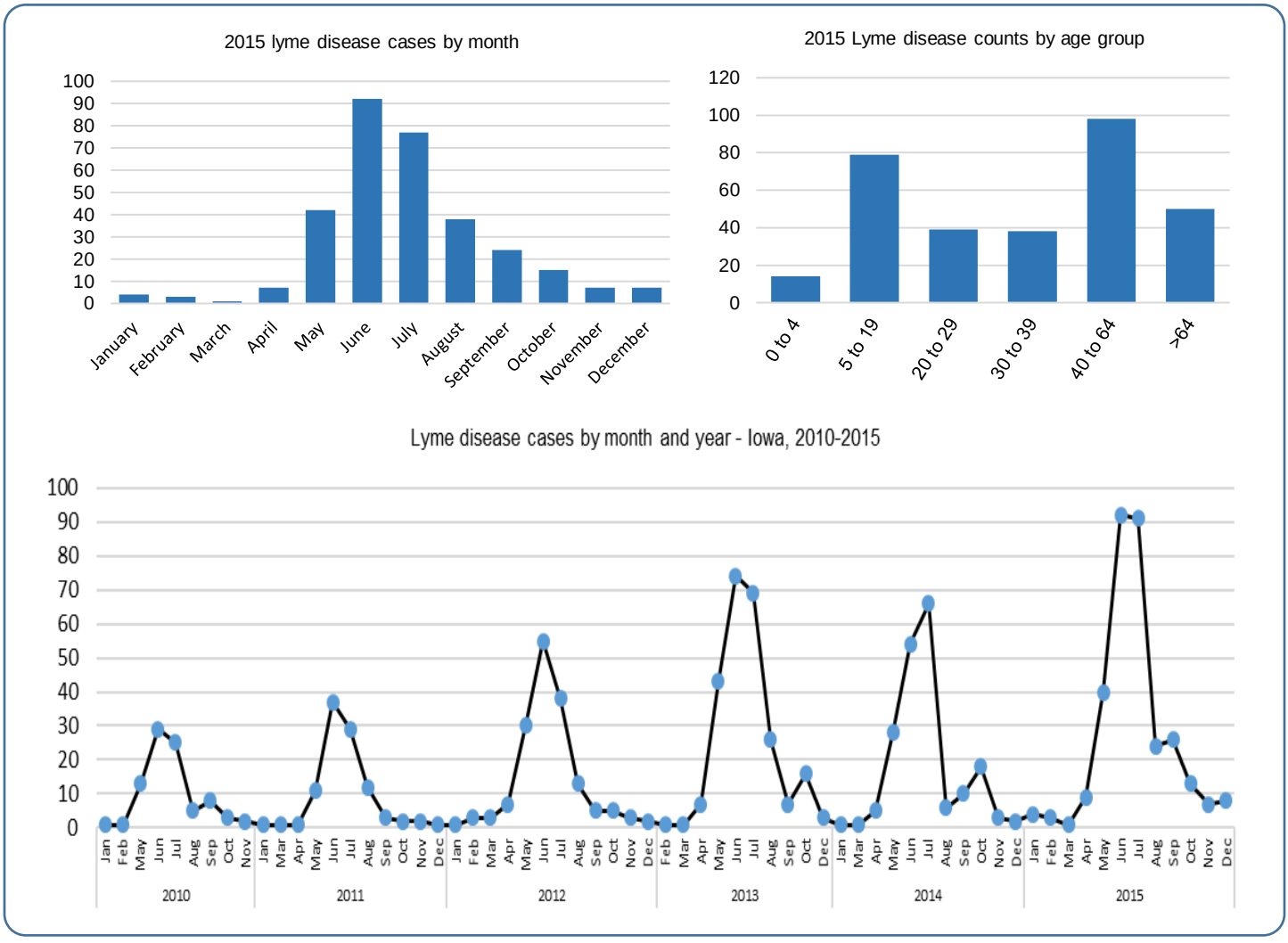
Reported lyme disease cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N =318)




Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 318 |
| Incidence rate (per 100,000 population | | | 10.4 |
| Change from 5-year average incidence | | | +50.0% |
| **Age (in years)** | | | |
| Mean | | | 38 |
| Median | | | 36 |
| Min-Max | | | 1-83 |
| **Gender** | **Number** | **Percent** | **Rate** |
| Female | 129 | 40.6 | 8.4 |
| Male | 188 | 59.1 | 12.5 |
| Unknown | 1 | 0.3 | N/A |
| **Race** | **Number** | **Percent** | **Rate** |
| White | 272 | 85.5 | 9.8 |
| Black | 1 | 0.3 | N/A |
| Other | 2/43 | 14.2 | 24.5 |
| **Ethnicity** | **Number** | **Percent** | **Rate** |
| Non-Hispanic | 252 | 79.3 | 8.7 |
| Hispanic | 7 | 2.2 | N/A |
| Unknown | 59 | 18.5 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table



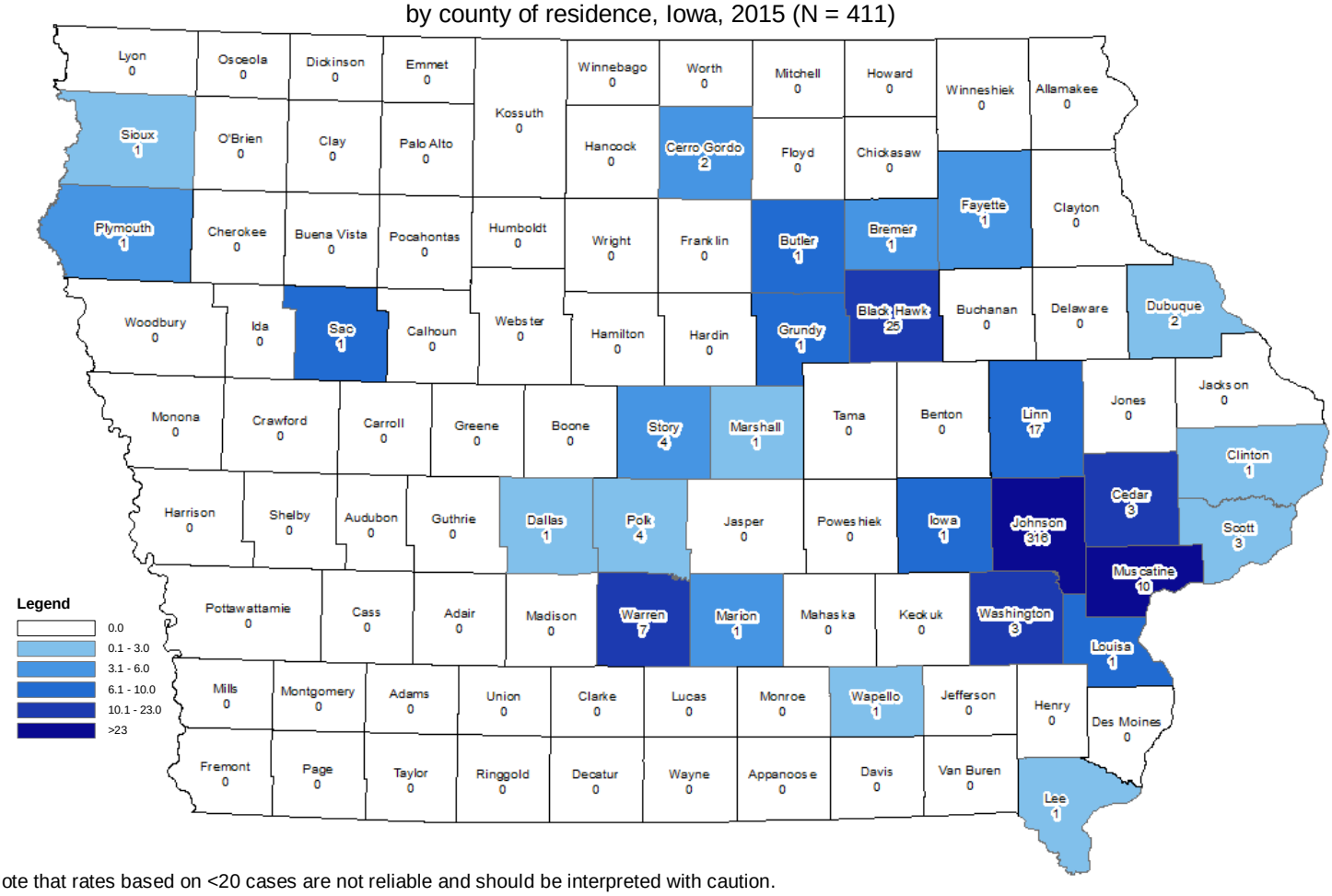
# Mumps

*Cause:* Mumps virus

*Clinical Features:* Acute viral disease characterized by fever, swelling, or tenderness of one or more of the salivary glands that lasts several days. Parotitis may be unilateral or bilateral. Respiratory symptoms are common. Infection in adulthood is likely to produce a more severe disease, including mastitis in women and orchitis in men.

*Transmission:* Mumps is transmitted by droplet or direct contact with nasopharyngeal secretions of an infected person, and by the airborne route.

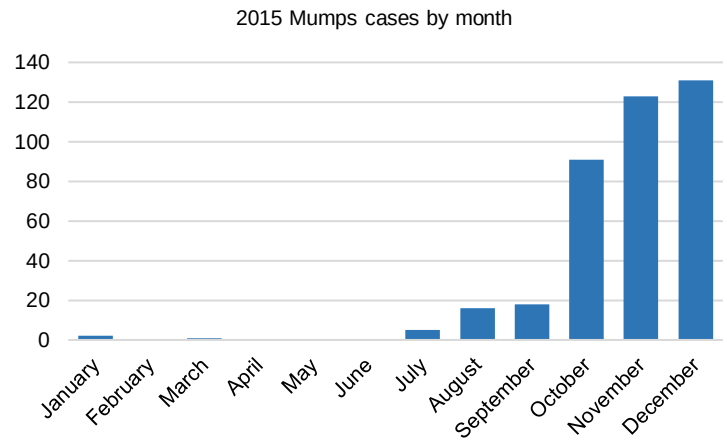
Reported mumps cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 411)

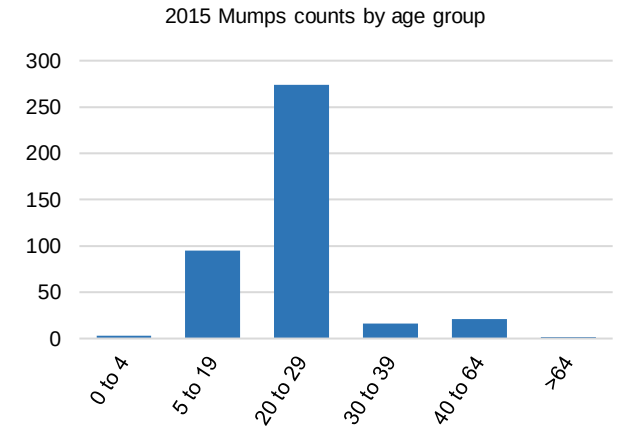


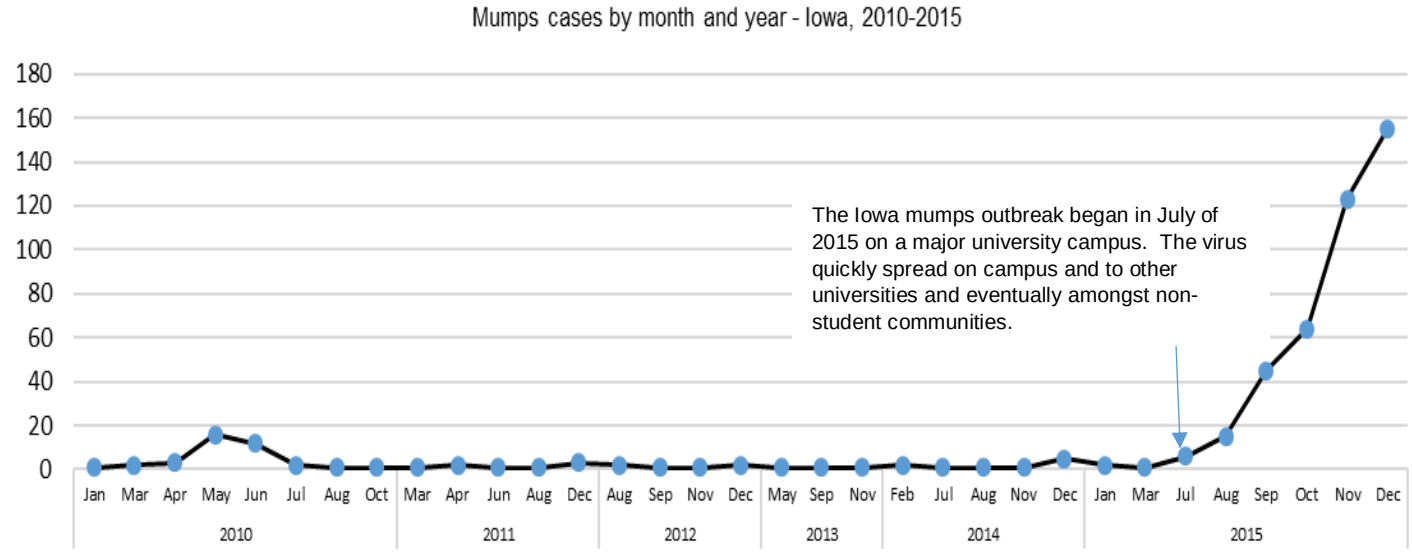

Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 411 |
| Incidence rate (per 100,000 population | | | 13.5 |
| **Age (in years)** | | | |
| Mean | | | 23 |
| Median | | | 21 |
| Min-Max | | | 1 - 69 |
| **Gender** | **Number** | **Percent** | **Rate** |
| Female | 194 | 47.2 | 12.6 |
| Male | 214 | 52.1 | 14.2 |
| Unknown | 3 | 0.7 | N/A |
| **Race** | **Number** | **Percent** | **Rate** |
| White | 195 | 47.5 | 7.0 |
| Black | 10 | 2.4 | N/A |
| Other | 5/201 | 50.1 | N/A |
| **Ethnicity** | **Number** | **Percent** | **Rate** |
| Non-Hispanic | 113 | 27.5 | 3.9 |
| Hispanic | 8 | 1.9 | N/A |
| Unknown | 290 | 70.6 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table



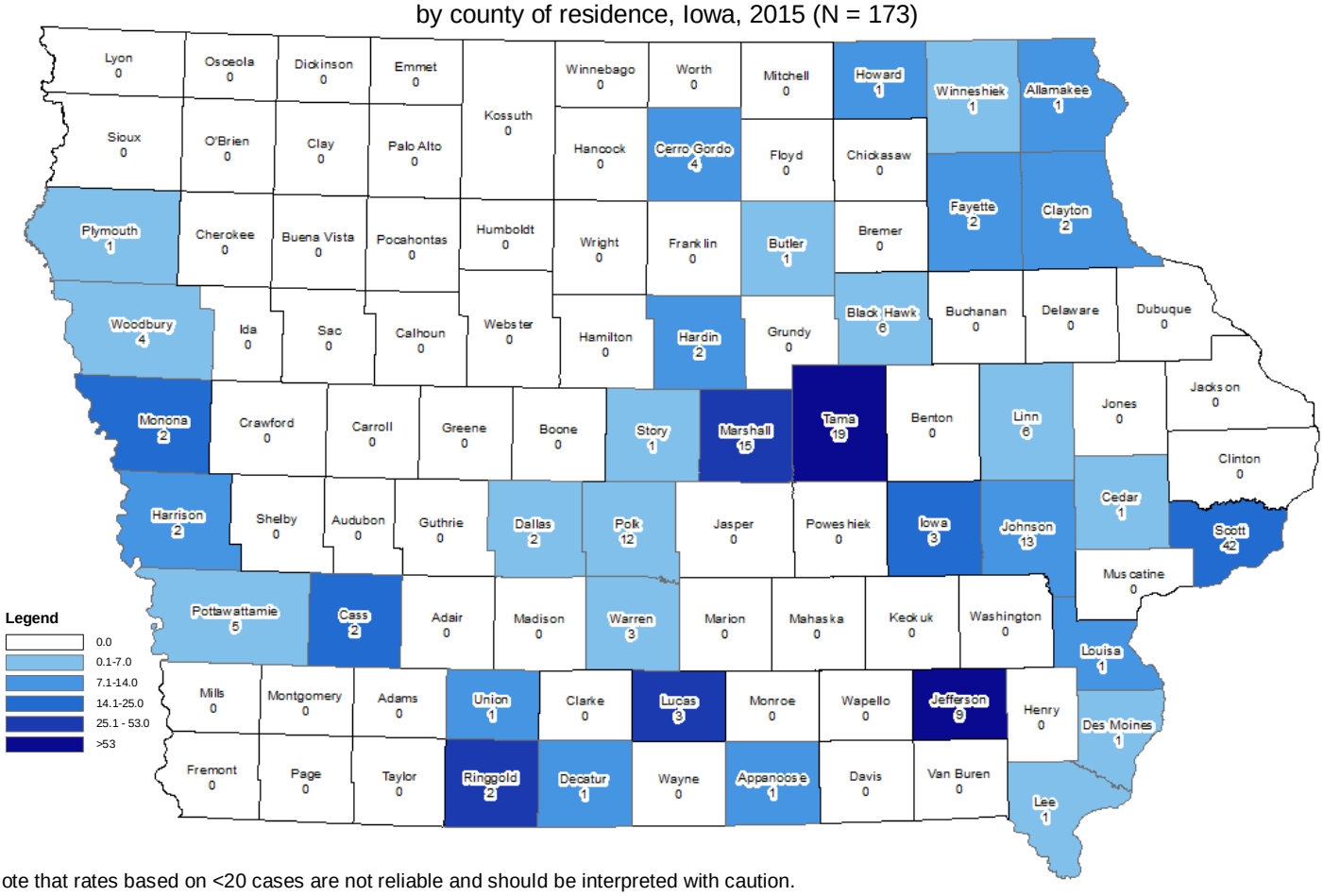
# Pertussis (whooping cough)

*Cause:* *Bordetella pertussis* bacteria

*Clinical Features:* An acute bacterial infection of the respiratory tract classically characterized by paraoxysmal cough and inspiratory whoop. The initial (catarrhal) stage consists of an insidious onset of upper respiratory infection with an irritating cough. Over the course of 1 – 2 weeks, paroxysms develop (paroxysmal phase) and increase in frequency and intensity before gradually improving after 1 – 2 months.

*Transmission:* Pertussis is most commonly spread by contact with respiratory droplets or by contact with airborne droplets of respiratory secretions. It occurs rarely by contact with an infected person's freshly contaminated articles.

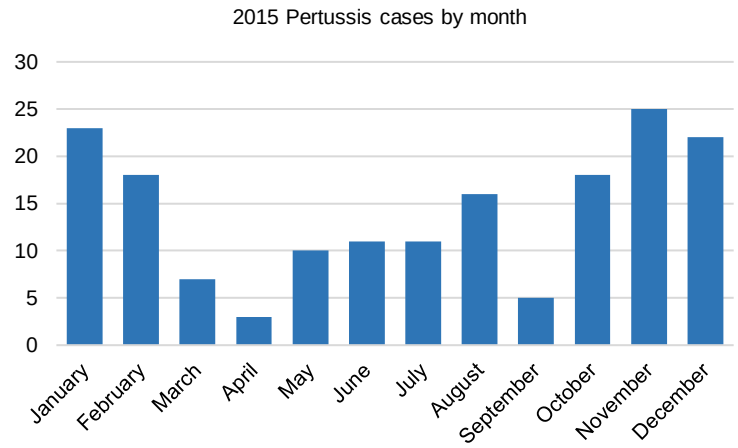
Reported pertussis cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 173)

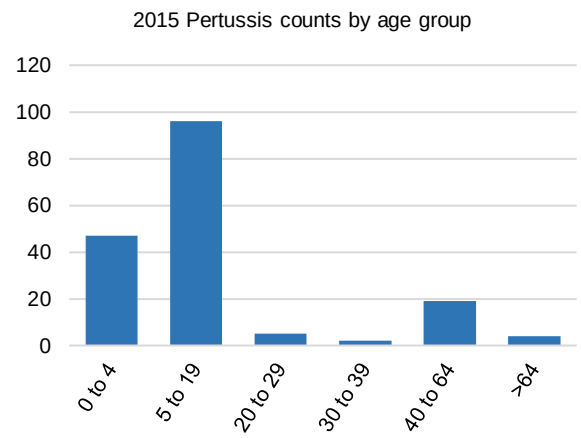


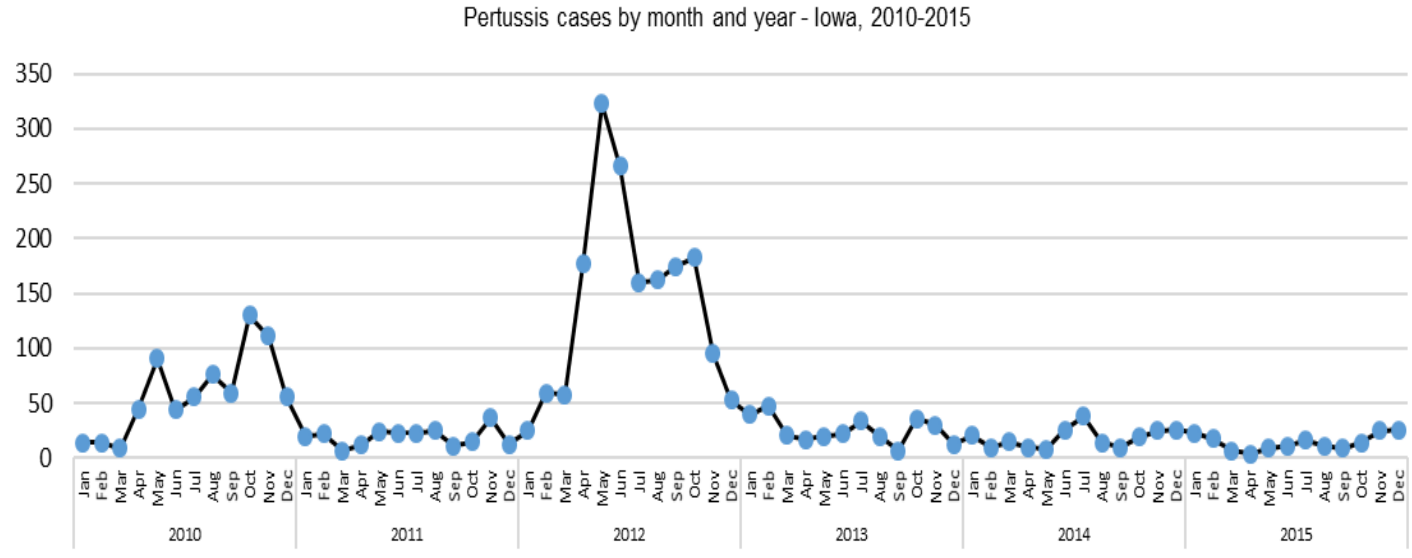

Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 173 |
| Incidence rate (per 100,000 population | | | 5.7 |
| Change from 5-year average incidence | | | -72.9% |
| **Age (in years)** | | | |
| Mean | | | 15 |
| Median | | | 11 |
| Min-Max | | | 0 - 74 |
| **Gender** | **Number** | **Percent** | **Rate** |
| Female | 87 | 50.3 | 5.7 |
| Male | 82 | 47.4 | 5.4 |
| Unknown | 4 | 2.3 | N/A |
| **Race** | **Number** | **Percent** | **Rate** |
| White | 119 | 68.8 | 4.3 |
| Black | 2 | 1.2 | N/A |
| Other/Unknown | 5/47 | 30.0 | N/A |
| **Ethnicity** | **Number** | **Percent** | **Rate** |
| Non-Hispanic | 105 | 60.7 | 3.6 |
| Hispanic | 18 | 10.4 | N/A |
| Unknown | 50 | 28.9 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.



# Salmonellosis

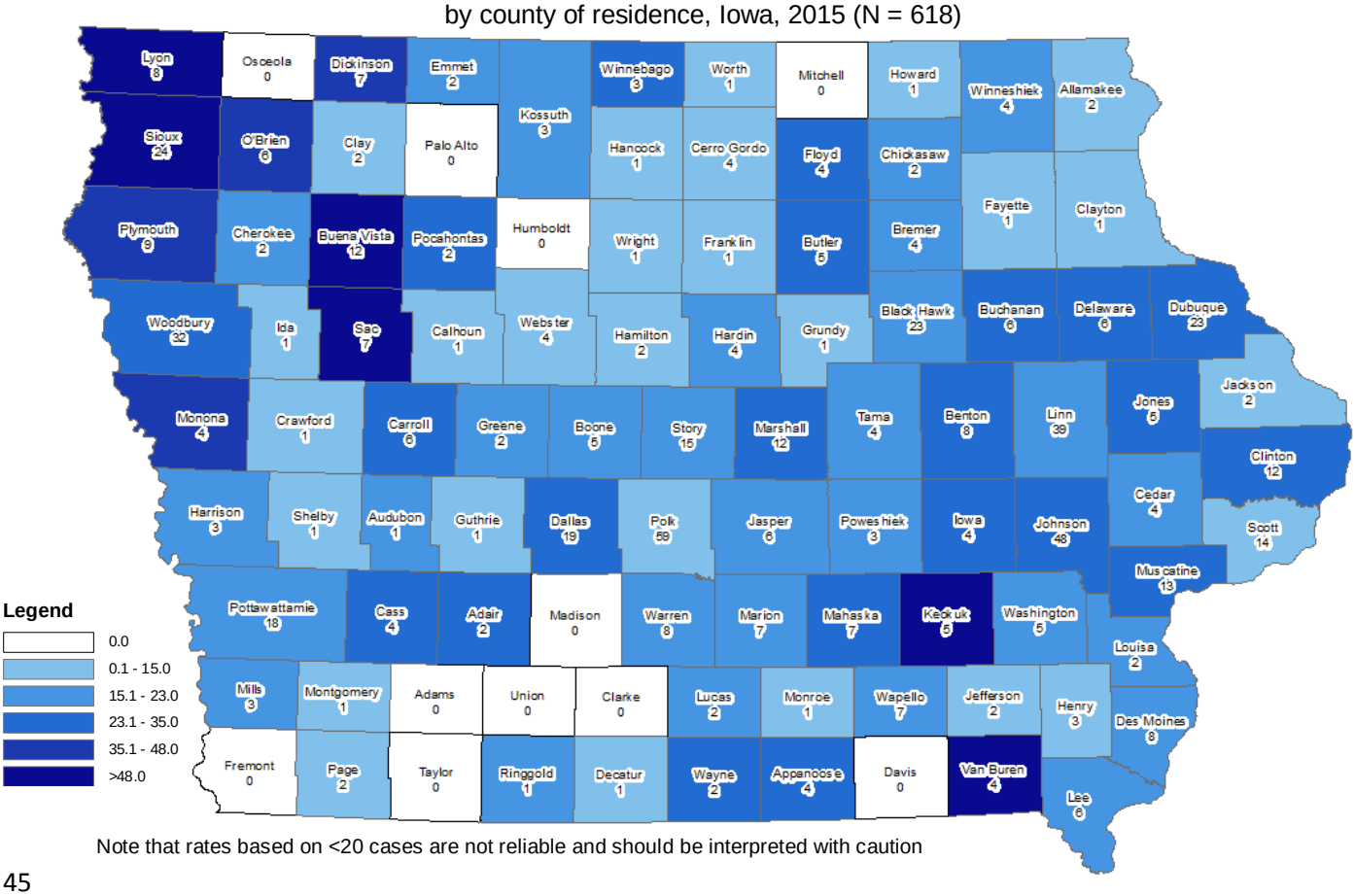
*Cause:* *Salmonella* bacteria

*Clinical Features:* Diarrhea (sometimes bloody), headache, stomach cramps, fever, nausea, and sometimes vomiting. The infection may also appear as septicemia, an abscess, arthritis or cholecystitis.

*Transmission:* The bacteria is spread via the fecal-oral route. The most common mode of transmission is ingestion of food or water that has been contaminated with animal feces. This includes raw or undercooked poultry, meats, and raw milk or milk products. Eggs can become infected "in utero," thus should be cooked until no longer runny, or pasteurized egg products used. Reptiles such as iguanas, snakes and lizards are often chronic carriers of these bacteria and can also be sources of infection.

Person-to-person spread can occur when an infected food handler contaminates food. A large dose of organisms is usually needed to cause infection, but the infectious dose may be lower for certain susceptible groups such as children, the elderly and the immunocompromised. Most often, person-to-person spread occurs among household contacts, preschool children in child care, and the elderly and developmentally disabled living in residential facilities. Transmission can also occur person-to-person through certain types of sexual contact (e.g. fecal - oral contact).

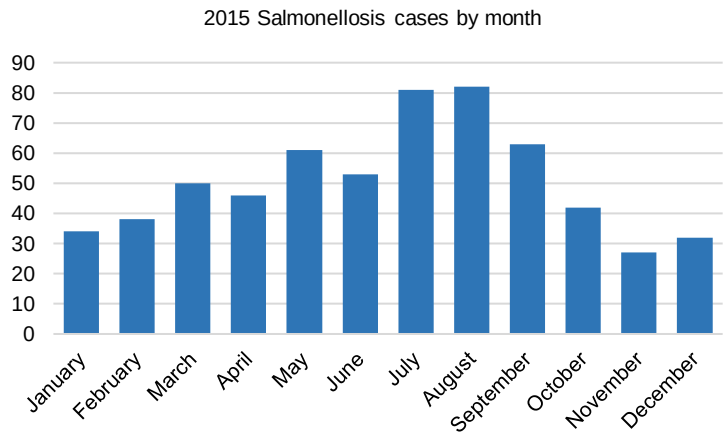
Reported salmonellosis cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 618)

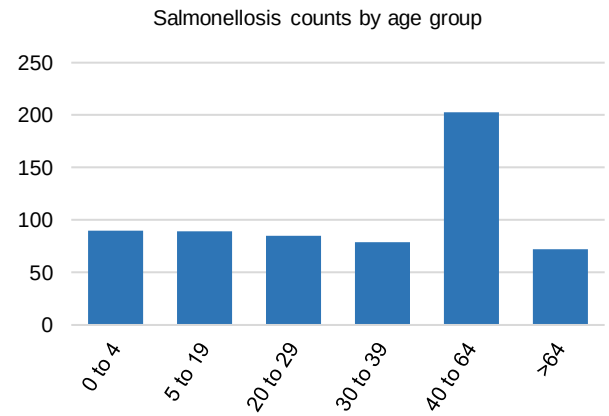


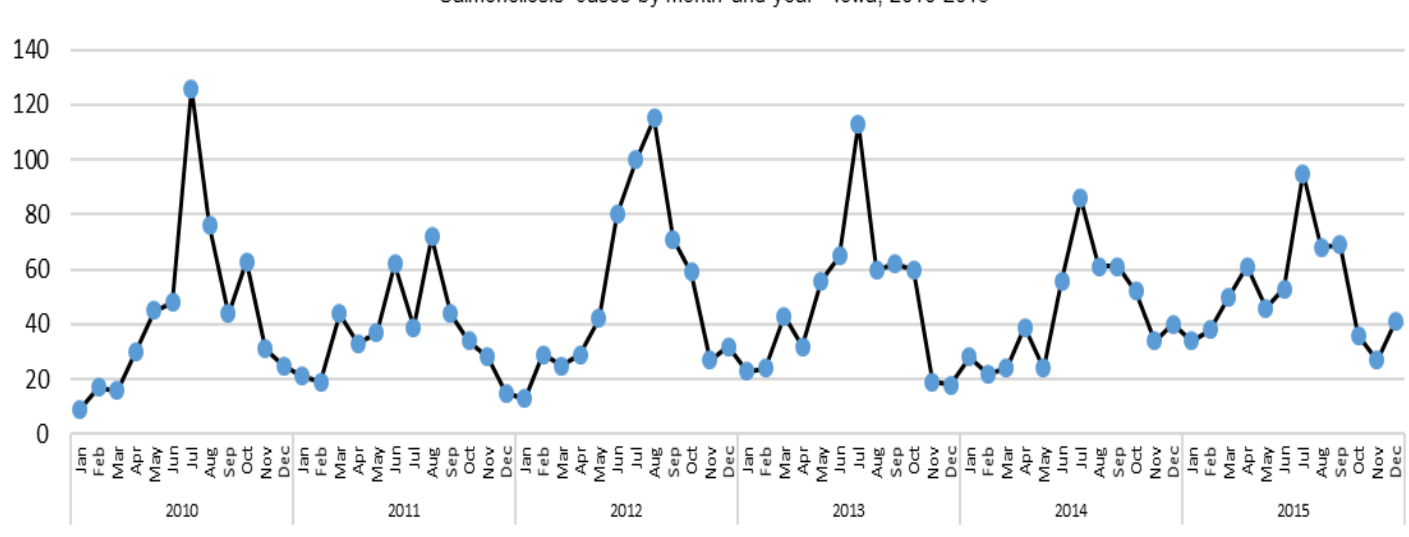

Note that rates based on <20 cases are not reliable and should be interpreted with caution

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 618 |
| Incidence rate (per 100,000 population | | | 20.3 |
| Change from 5-year average incidence | | | +14.7 |
| **Age (in years)** | | | |
| Mean | | | 36 |
| Median | | | 35 |
| Min-Max | | | 0 - 96 |
| **Gender** | **Number** | **Percent** | **Rate** |
| Female | 320 | 51.8 | 20.8 |
| Male | 295 | 47.7 | 19.6 |
| Unknown | 3 | 0.5 | N/A |
| **Race** | **Number** | **Percent** | **Rate** |
| White | 415 | 67.1 | 14.9 |
| Black | 8 | 1.3 | N/A |
| Other/Unknown | 30/165 | 31.6 | N/A |
| **Ethnicity** | **Number** | **Percent** | **Rate** |
| Non-Hispanic | 418 | 67.6 | 14.4 |
| Hispanic | 27 | 4.4 | 17.8 |
| Unknown | 173 | 28.0 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table



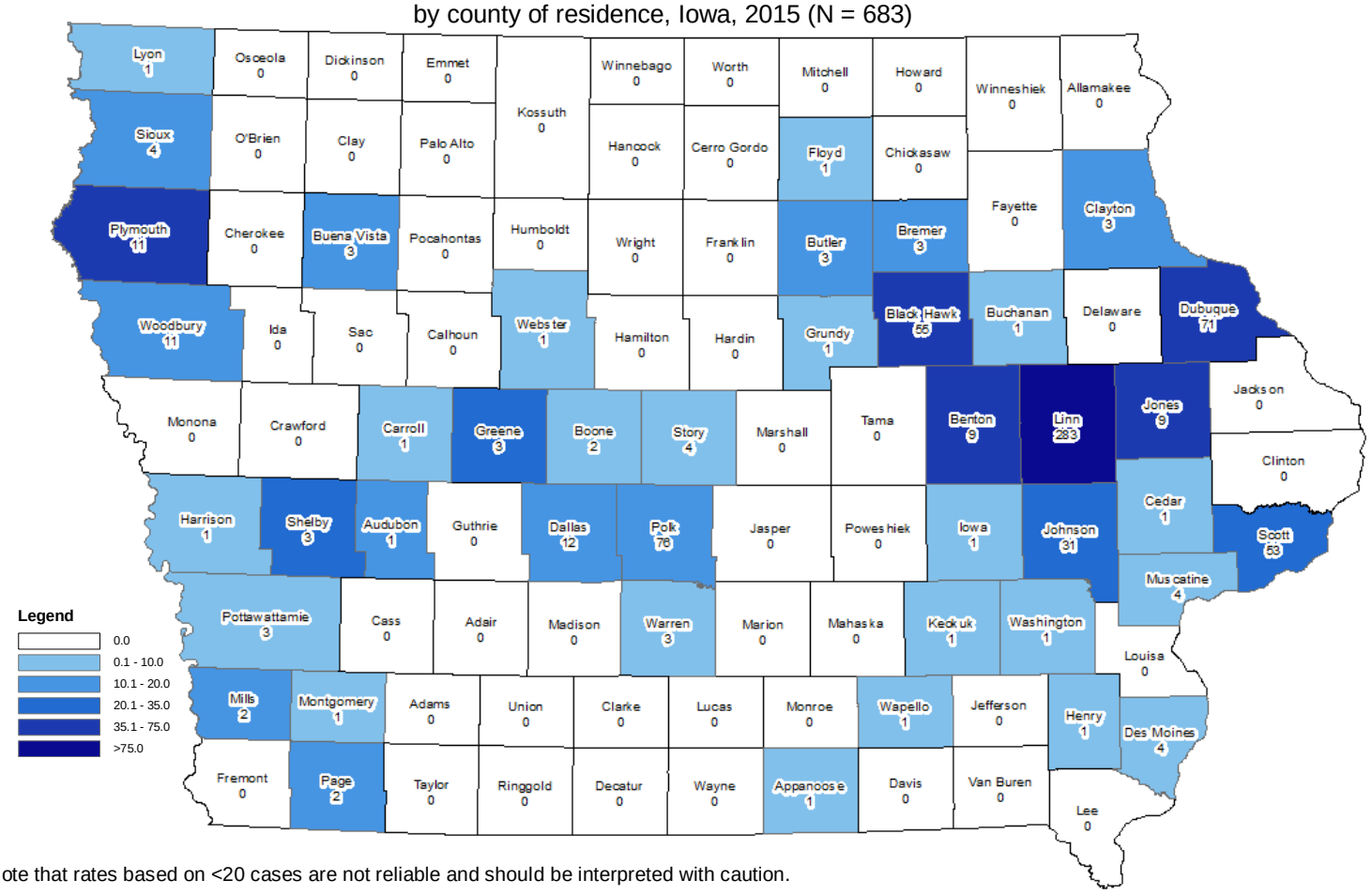
# Shigellosis

*Cause:* *Shigella* bacteria

*Clinical Features:* Diarrhea accompanied by fever, nausea and sometimes, vomiting, cramps and tenesmus (painful, especially ineffectual straining at stool or urination).

*Transmission:* Transmitted via the fecal-oral route. People shedding bacteria may contaminate food by failing to properly wash their hands before food handling, potentially causing large numbers of people to become ill. A very small dose of *Shigella* is needed to cause illness (probably 10 – 100 organisms); thus, it can be easily spread. Person-to-person spread typically occurs among household contacts, pre-school children in child care, and the elderly and developmentally disabled living in residential facilities. Secondary attack rate in households can be as high as 40%. Transmission can also occur person-to-person through certain types of sexual contact (*e.g.,* oral-anal contact).

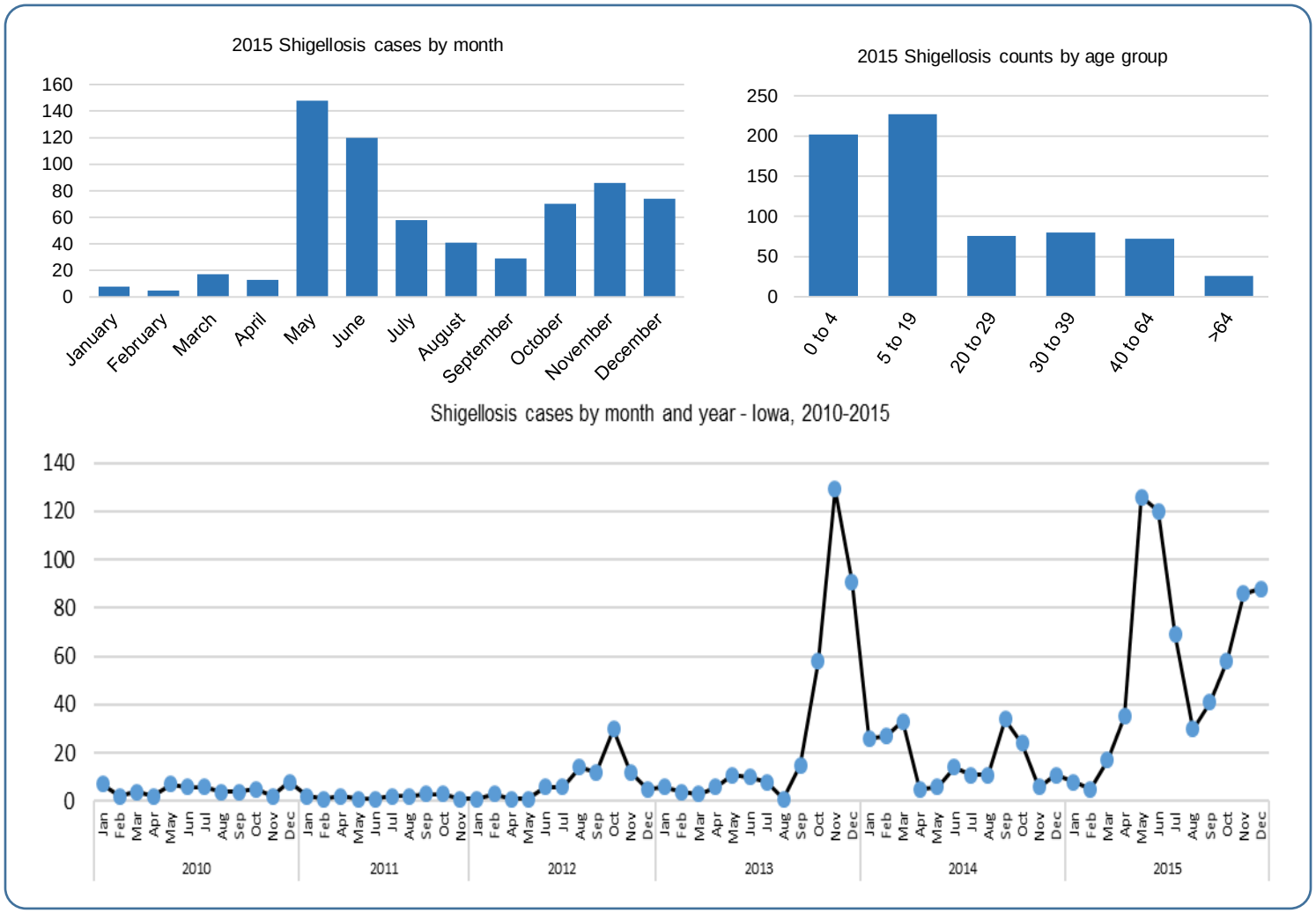
Reported shigellosis cases (confirmed and probable) and incidence rates per 100,000 population by county of residence, Iowa, 2015 (N = 683)




Note that rates based on <20 cases are not reliable and should be interpreted with caution.

| Summary of 2015 cases | | | |
|---|---|---|---|
| Number of cases | | | 683 |
| Incidence rate (per 100,000 population | | | 22.4 |
| Change from 5-year average incidence | | | +79.0% |
| **Age (in years)** | | | |
| Mean | | | 19 |
| Median | | | 9 |
| Min-Max | | | 0 - 86 |
| **Gender** | **Number** | **Percent** | **Rate** |
| Female | 378 | 55.3 | 24.6 |
| Male | 298 | 43.6 | 19.8 |
| Unknown | 7 | 1.1 | N/A |
| **Race** | **Number** | **Percent** | **Rate** |
| White | 443 | 64.9 | 15.9 |
| Black | 82 | 12.0 | 92.0 |
| Other/Unknown | 26/132 | 23.1 | N/A |
| **Ethnicity** | **Number** | **Percent** | **Rate** |
| Non-Hispanic | 514 | 75.2 | 17.8 |
| Hispanic | 30 | 4.4 | 19.8 |
| Unknown | 139 | 20.4 | N/A |

NA Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table



# Section 4

# 2015 Mosquito-borne disease

**West Nile Virus (WNV)**

WNV is endemic in Iowa and activity usually peaks in late summer and early fall. IDPH works in collaboration with Local Public Health (LPH) and other appropriate partners to investigate all reported cases.

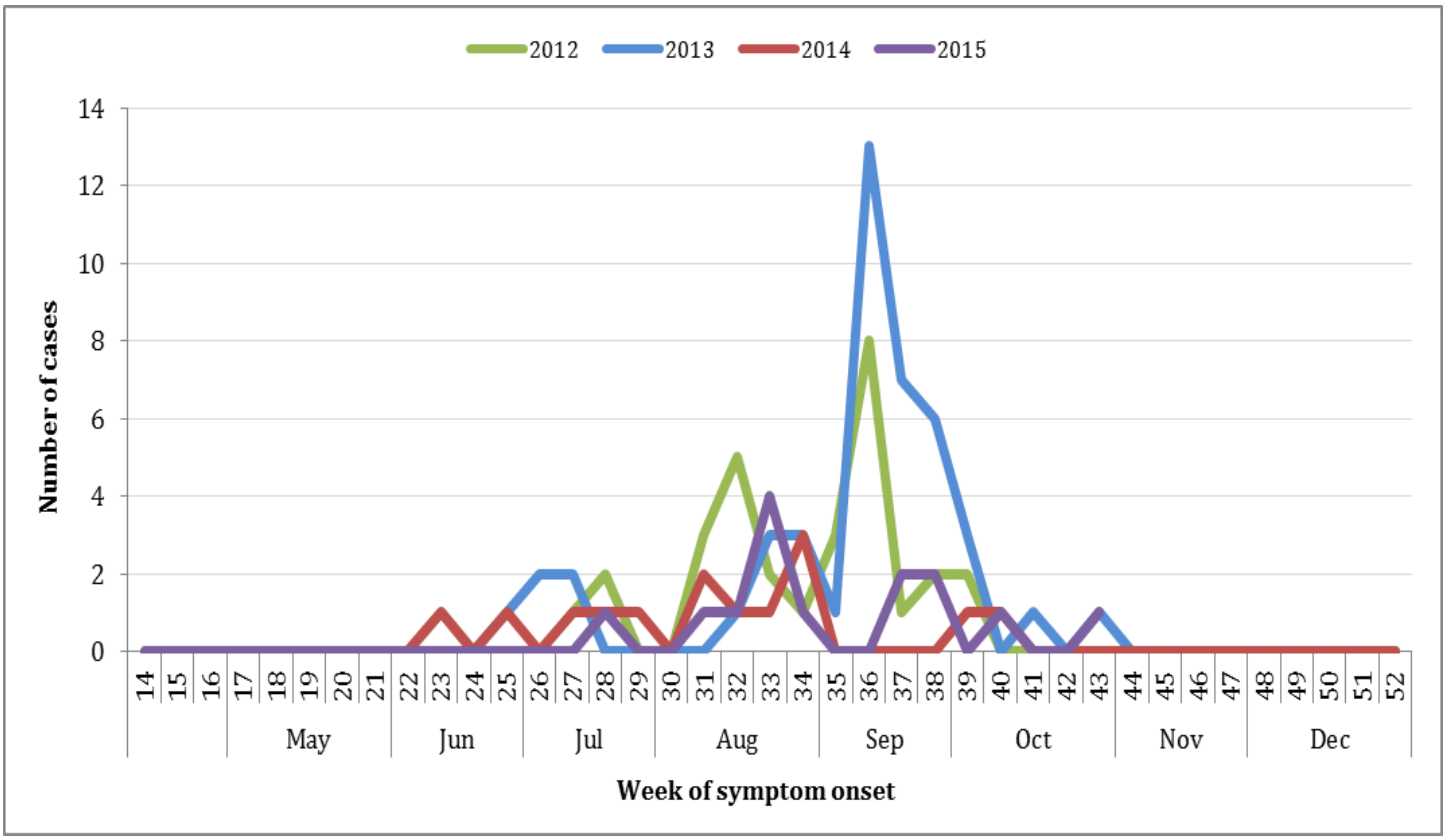
In addition, IDPH in collaboration with the State Hygienic Laboratory (SHL), Iowa State University (ISU), and local public environmental health partners conducts ecological surveillance in four counties across the state by monitoring mosquitoes and testing for infected populations.

Fourteen human cases of WNV and five presumptive viremic blood donors have been reported in Iowa in 2015 [Table 9]. Seventeen mosquito pools and three horses have also tested positive for this virus. During the 2014 surveillance season, 15 human cases of WNV were reported, in 11 Iowa counties [Figure 1].

**Table 11. Positive WNV by source**

| | | | | Mosquito Pools | | |
|---|---|---|---|---|---|---|
| **County** | **Human** | **Blood Donor** | **Horses** | ***Culex pipiens*** | ***Culex pipiens* Complex** | ***Culex restuans*** |
| Adams | 1 | 0 | 0 | N/A | N/A | N/A |
| Cedar | 0 | 1 | 0 | N/A | N/A | N/A |
| Clarke | 1 | 0 | 0 | N/A | N/A | N/A |
| Dallas | 1 | 1 | 0 | N/A | N/A | N/A |
| Davis | 0 | 0 | 1 | N/A | N/A | N/A |
| Dubuque | 0 | 1 | 0 | N/A | N/A | N/A |
| Hancock | 1 | 0 | 0 | N/A | N/A | N/A |
| Harrison | 0 | 1 | 0 | N/A | N/A | N/A |
| Jefferson | 0 | 0 | 1 | N/A | N/A | N/A |
| Lee | 1 | 0 | 1 | N/A | N/A | N/A |
| Louisa | 1 | 0 | 0 | N/A | N/A | N/A |
| Lyon | 1 | 0 | 0 | N/A | N/A | N/A |
| Mahaska | 2 | 0 | 0 | N/A | N/A | N/A |
| Plymouth | 1 | 0 | 0 | N/A | N/A | N/A |
| Polk | 1 | 0 | 0 | 0 | 1 | 2 |
| Ringgold | 1 | 0 | 0 | N/A | N/A | N/A |
| Story | 0 | 0 | 0 | 7 | 2 | 5 |
| Tama | 1 | 0 | 0 | N/A | N/A | N/A |
| Warren | 1 | 0 | 0 | N/A | N/A | N/A |
| Webster | 0 | 1 | 0 | N/A | N/A | N/A |
| **Total** | **14** | **5** | **3** | **7** | **3** | **7** |

**Figure 1. WNV disease cases reported to IDPH, by week of onset – Iowa, 2015**




**Chikungunya**

Chikungunya is a viral disease that is spread to people by the bite of an infected *Aedes aegypti* and *Aedes albopictus* mosquito. Mosquitoes become infected when they feed on a person already infected with this virus. These species of mosquitoes are not sustained in Iowa.

In 2014, four imported cases of chikungunya virus disease were reported in Iowa. Cases occurring in Iowa are in travelers returning from parts of the world where Chikungunya transmission occurs. In 2015, three imported cases of chikungunya were reported.

**Jamestown Canyon Virus (JCV)**

Jamestown Canyon virus is a Bunyavirus within the California serogroup. It is transmitted to humans through the bite of an infected mosquito.

One case was reported in Iowa in 2015. This is the first case of Jamestown Canyon virus identified in Iowa.

# Section 5

# 2015 Iowa Rabies

**ANIMAL RABIES IN IOWA:**

In 2015, 12 cases of animal rabies were reported in Iowa. Rabies was identified most frequently in wildlife species including 7 bats and 1 skunk. Three cases were diagnosed in dogs and one case was diagnosed in a cat.

**Table 12: Positive Rabies Cases 2004-2014**

| Species | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bat | 60 | 28 | 13 | 11 | 11 | 10 | 12 | 17 | 6 | 10 | 7 | 185 |
| Skunk | 33 | 13 | 5 | 7 | 13 | 13 | 7 | 9 | 4 | 2 | 1 | 107 |
| Cat | 5 | 7 | 7 | 9 | 3 | 1 | 3 | 1 | 0 | 1 | 1 | 38 |
| Cow | 7 | 4 | 0 | 1 | 5 | 1 | 3 | 4 | 2 | 2 | 0 | 29 |
| Dog | 2 | 2 | 5 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 3 | 16 |
| Horse | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Fox | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Squirrel | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Badger | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **108** | **57** | **31** | **29** | **35** | **27** | **25** | **31** | **12** | **15** | **12** | **382** |

During 2015, 1389 animals in Iowa were tested for rabies and 12 were confirmed positive (0.87%). The percent positive varies greatly by species, see the Table 11 below. 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 13: Percent Positive by Species in 2015**

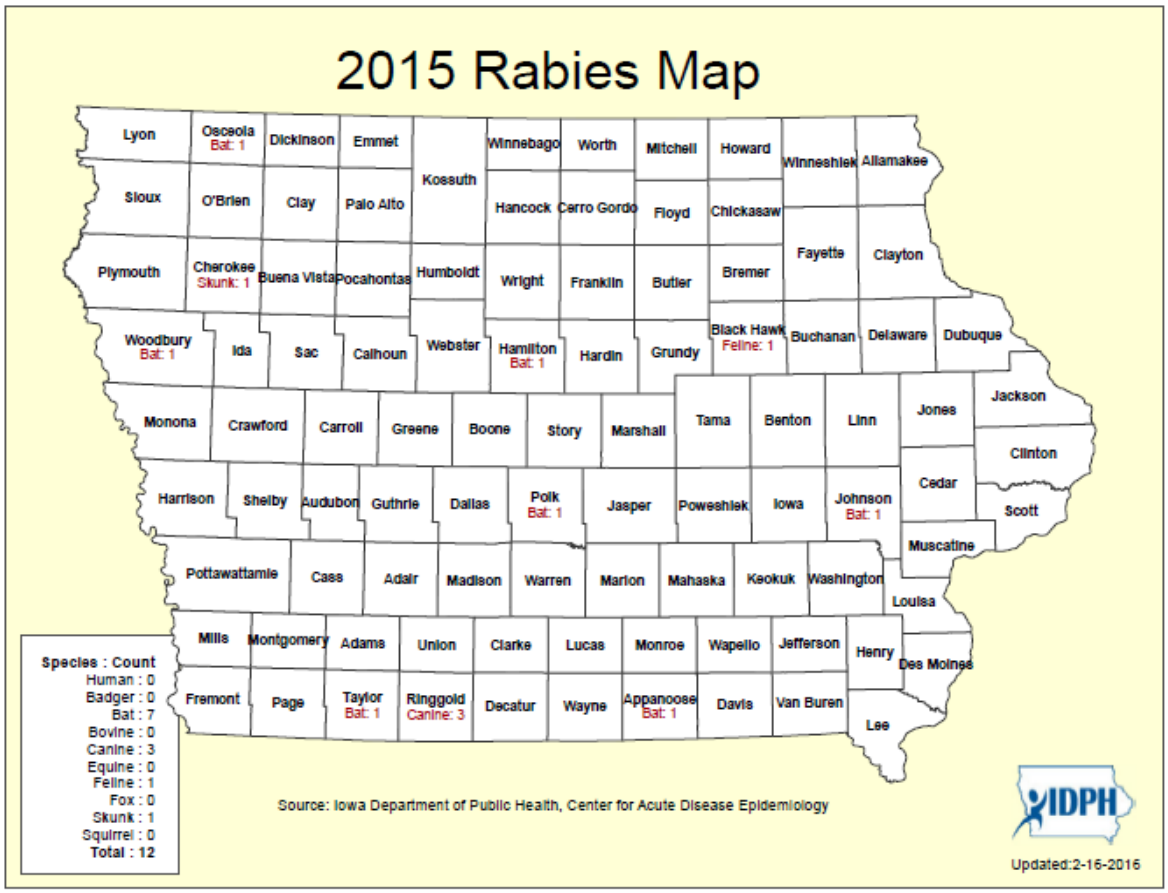
| Species | Positive | Total Tested | % Positive |
|---|---|---|---|
| Skunk | 1 | 15 | 6.67% |
| Bat | 7 | 449 | 1.56% |
| Dog | 3 | 310 | 0.97% |
| Cat | 1 | 371 | 0.32% |

In Iowa, the most common bat species submitted for testing are the Big Brown bat and Little Brown bat; however other bat species are occasionally tested.

**Table 14: Bat Species Tested and Positive for Rabies Infection**

| Species | Positive | Total Tested |
|---|---|---|
| *Eptesicus fuscus* (Big Brown bat) | 7 | 403 |
| *Myotis lucifiugus* (Little Brown bat) | 0 | 27 |
| *Lasiurus borealis* (Eastern Red bat) | 0 | 4 |
| *Myotis sodalis* (Indiana bat) | 0 | 4 |
| *Rousettus aegyptiacus* | 0 | 1 |
| Unknown | 0 | 10 |

**Figure 2. 2015 Iowa rabies map**




There are two laboratories that test animals for rabies in Iowa:

- State Hygienic Laboratory at the University of Iowa
- Iowa State University Veterinary Diagnostic Laboratory

Iowa animals are also periodically tested in out-of-state laboratories

**HUMAN RABIES IN IOWA:**

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

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

# Section 6

# Influenza Surveillance

The Iowa Influenza Surveillance Network (IISN) tracks influenza activity, age groups impacted, outbreaks, virus type and strain, and severity of seasonal influenza. During the 2015-2016 season, a wide variety of surveillance sites reported to IISN, including medical clinics, hospitals, laboratories, schools, and local public 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 http://idph.iowa.gov/influenza/reports.

The 2015-2016 influenza season in Iowa started late and was less severe than in 2014-2015. The first case of seasonal influenza was confirmed by the State Hygienic Laboratory (SHL) in October, 2015. Influenza activity increased in January and peaked in March, 2016 (Figures 3-6). SHL identified three seasonal influenza viruses circulating in Iowa for the season: influenza A (H3N2), influenza A (2009 H1N1) and influenza B (both Yamagata and Victoria Lineage). Influenza A (2009 H1N1) viruses were predominant in Iowa, accounting for 64 percent of all positive influenza specimens tested (Figure 3). During the 2015-2016 season, 353 influenza-associated hospitalizations were reported from 28 sentinel hospitals and 31 percent of the hospitalizations were among people 64 years-of-age and older (Figure 5). This is a 70 percent decrease from the 1196 influenza-associated hospitalizations reported during the 2014-2015 season (Figure 6).

**Figure 3. Laboratory-confirmed cases of influenza reported – Iowa, 2015-2016**

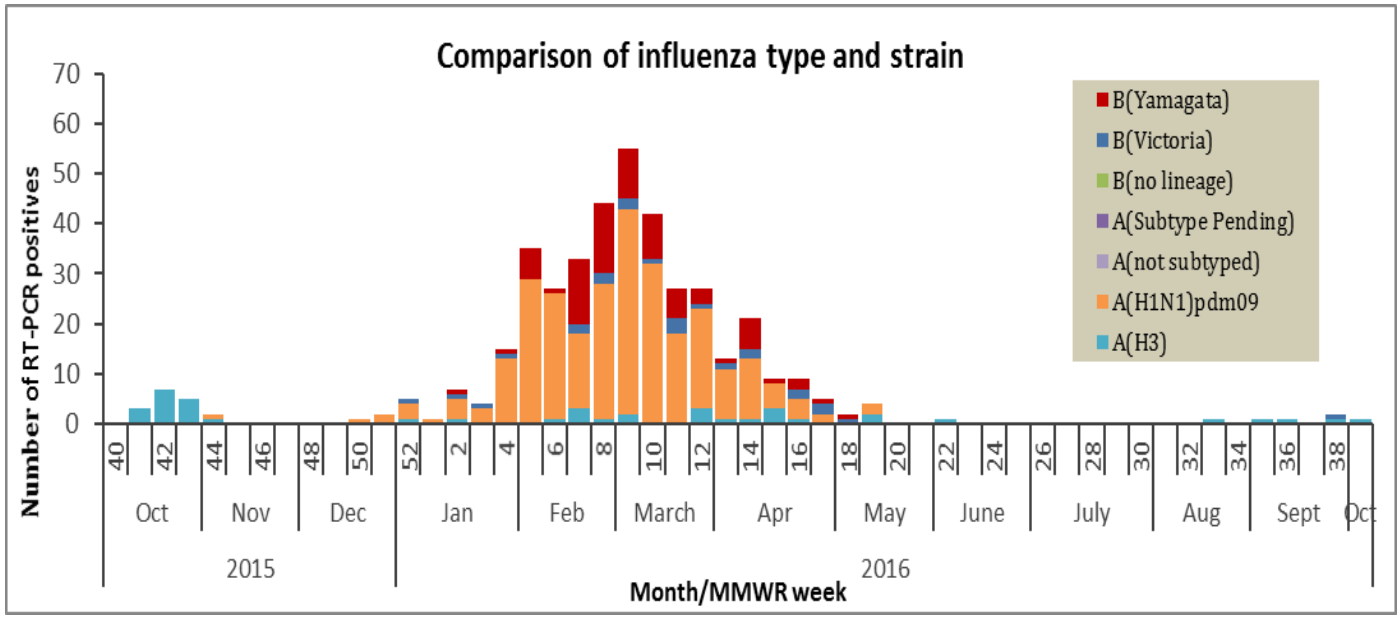


**Figure 4. Percent of rapid influenza tests positive and number performed – Iowa, 2015-2016**

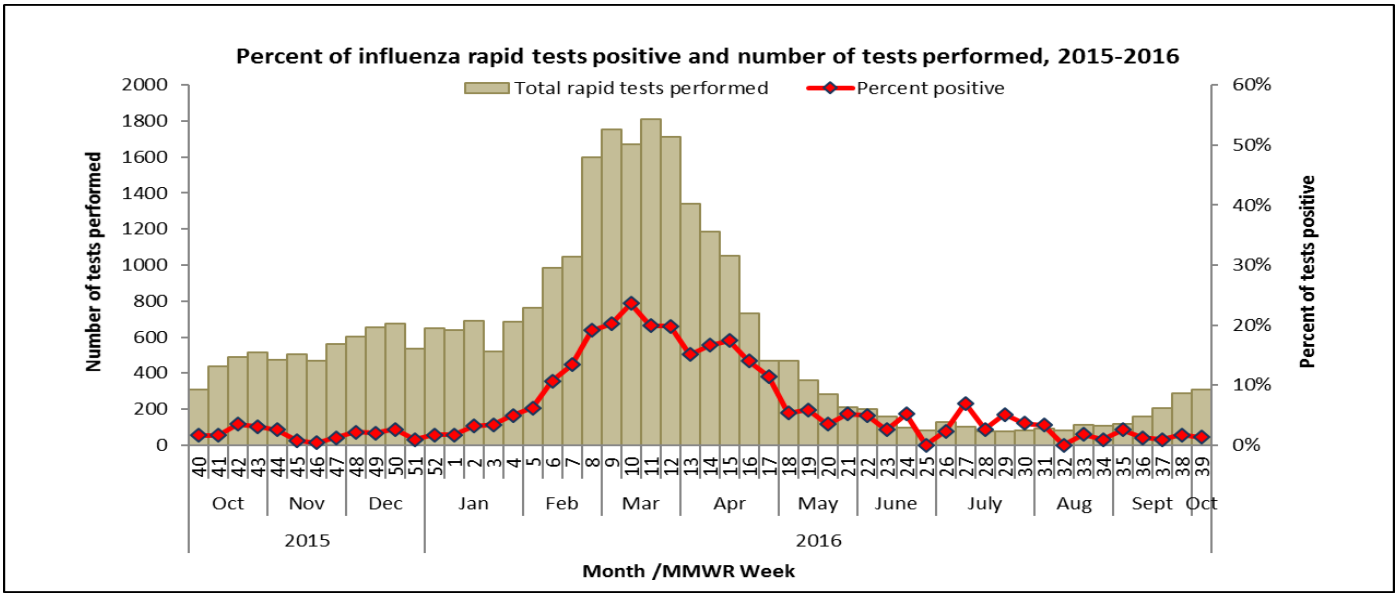



**Figure 5. Influenza-associated hospitalizations at sentinel hospitals by age – Iowa, 2015-2016**

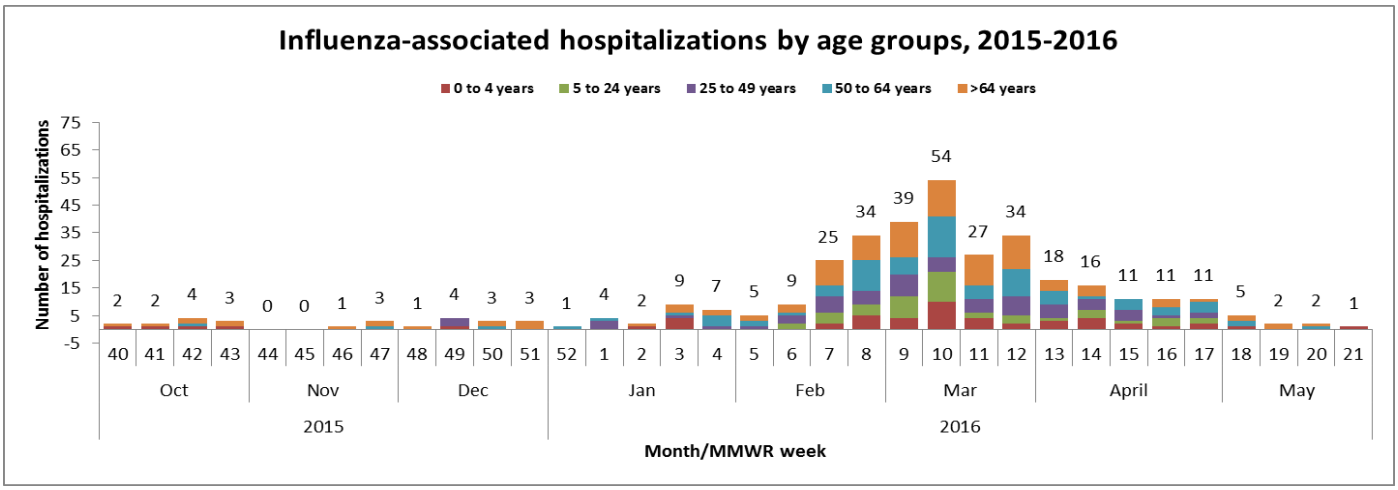
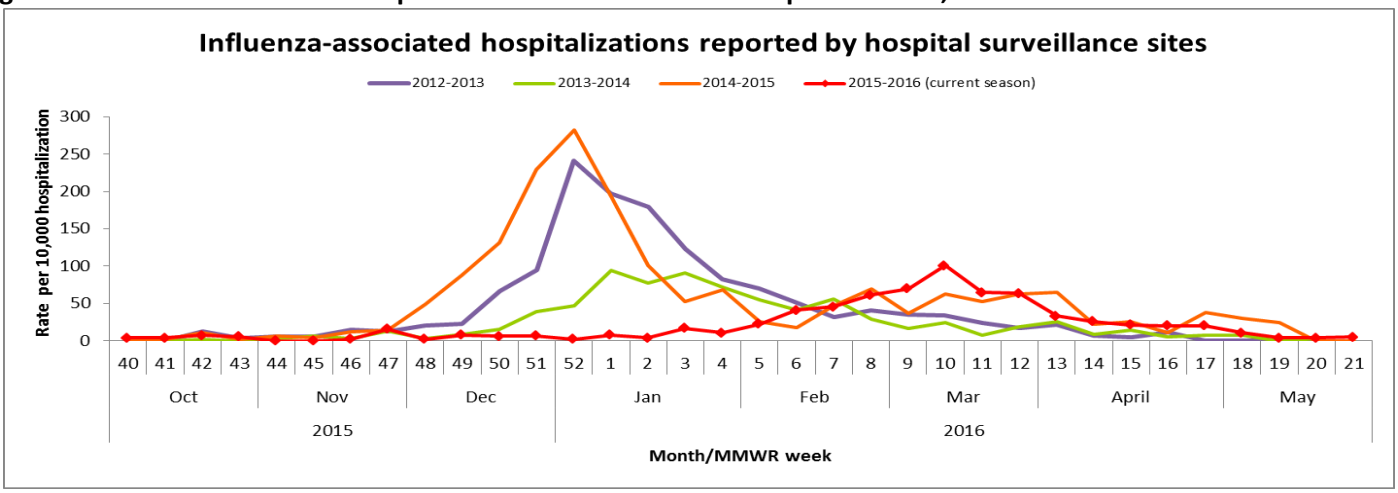


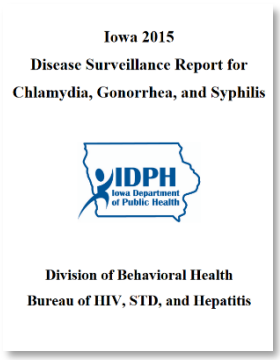

**Figure 6. Influenza-associated hospitalization rates at sentinel hospitals – Iowa, 2015-2016**



# Section 7

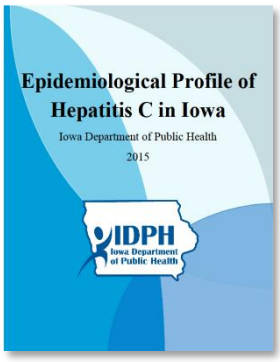
# Related Program Reports

**Division of Behavioral Health Bureau of HIV, STD, and Hepatitis**




Iowa 2015 Disease Surveillance Report for Chlamydia, Gohorrhea, and Syphilis

idph.iowa.gov/Portals/1/userfiles/105/STD surveillance data 2015 for webpage.pdf



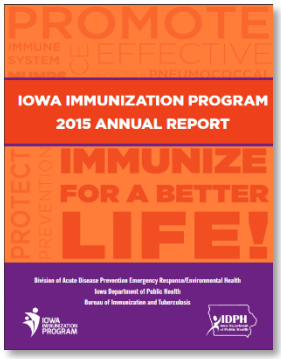

Epidemiological Profile of Hepatitis C in Iowa

idph.iowa.gov/hivstdhep/hep


2015 State of Iowa End-of-Year HIV Disease Surveillance Report

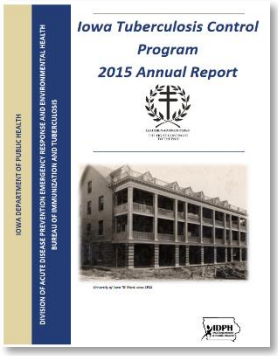
idph.iowa.gov/Portals/1/userfiles/105/State of Iowa 2015 End-of-Year HIV Disease Surveillance Report.pdf

**Bureau of Immunization and TB**




Iowa Immunization Program 2105 Annual Report

idph.iowa.gov/Portals/1/userfiles/39/2015 Immunization Annual Report.pdf




Iowa Tuberculosis Control Program 2015 Annual Report

idph.iowa.gov/Portals/1/userfiles/39/TB Annual Report 2015 Final for Posting 10-2-16.pdf

**References**

[1]Diseases reportable to Iowa Department of Public Health. Iowa Administrative Code [641] Chapter 1.