

2016

Immunizations in Iowa

Immunization Program Annual Report

Iowa Department of Public Health
Division of Acute Disease Prevention Emergency Response/Environmental Health
Bureau of Immunization and Tuberculosis



IOWA
IMMUNIZATION
PROGRAM

Table of Contents

Table of Contents	1
Introduction	2
Immunization Program Funding	3
Vaccine Funds	3
Immunization Education	4
2016 Regional Trainings	4
Immunization Update Newsletter	4
Brochures and Print Materials	4
Immunization Consultation	4
Immunization Registry Information System	5
IRIS Trainings	5
IRIS Users and Organizations	5
IRIS – Interoperability Funding	5
IRIS – Quick Stats 2016	5
IRIS – Data Exchange by the Numbers 2016	5
IRIS – AFIX-IIS Funding	6
IRIS Records	6
Vaccines for Children Program	7
Hepatitis B Program	9
Perinatal Hepatitis B Program	9
Universal Hepatitis B Vaccine Birth Dose Program	9
Perinatal Hepatitis B Prevention Champions in Iowa	10
High-Risk Adult Hepatitis B Program	10
Immunization Assessments	11
County and State Immunization Rates	11
2-Year-Old Immunization Rates	11
Adolescent 13-15-Year-Old Immunization Rates	11
Human Papillomavirus (HPV) Vaccination Rates among Adolescents	12
Conclusion	12
Tables and Maps	13
Table 5: 2016 County Immunization Assessment 2 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series	13
Figure 5: 2016 County Immunization Assessment Map-2 Year-Old Coverage of Selected Vaccination Series	16
Table 6: 2016 County Immunization Assessment 13-15 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series	17
Figure 6: 2016 County Immunization Assessment Map-13-15 Year-Old Coverage of Selected Vaccination Series	20
Appendix A: Immunization Program Directory	21

Introduction

The mission of the Iowa Department of Public Health Immunization Program is to decrease vaccine-preventable diseases through education, advocacy and partnership. Vaccines are one of the greatest public health achievements of the 20th Century, second only to clean water. Today, the widespread use of vaccines protect all Iowans from infectious diseases that were once common. For every \$1 spent on each of the 11 vaccines given routinely to children, our country saves \$10.10 in medical costs by averting costs to treat diseases. A study from the Centers for Disease Control and Prevention reports vaccines administered to children and infants over the past two decades will prevent 322 million illnesses, 21 million hospitalizations and 732,000 deaths over the course their lifetime. Vaccines are not just for kids; adults need to be protected too! Annually, the United States spends \$27 billion treating adults over the age of 50 with four vaccine-preventable diseases: influenza, pertussis, pneumococcal disease and shingles.

Immunization rates in Iowa are consistent with or exceed national averages. While immunization rates remain high, pockets of un-immunized populations leave children and their communities vulnerable to infectious diseases. Health care providers are an essential stakeholder in achieving and maintaining high vaccination rates. Studies consistently indicate a health care provider recommendation is the single strongest predictor of vaccination status. The IDPH Immunization Program provides immunization services throughout the state and includes the following programs: Adolescent Immunization, Adult Immunization, Immunization Registry Information System, Vaccines for Children, Perinatal Hepatitis B and Immunization Assessment.

This report provides a summary of the activities and achievements of the IDPH Immunization Program and Iowa health care providers during 2016. It also serves as an annual informational resource for stakeholders, local partners, policy makers and the general public. Iowa-specific immunization coverage rates, funding sources and program-specific data appear in tables and maps throughout the report. These tables and maps demonstrate not only immunization coverage levels, but also collaboration and tremendous work being done at the local level by public and private health care providers.

Immunization Program Funding

In calendar year 2016, the Immunization Program received funds from the federal Vaccines for Children Program (VFC), federal 317 grant program, state funds and Federal Prevention and Public Health Funds (PPHF) totaling \$36,212,345 (Table 1).

Table 1: Calendar year 2016 total program funds

Funding Source	Calendar Year 2016
Immunization Federal	\$2,729,228
State	\$304,467
Federal PPHF Grants	\$1,439,539
VFC Vaccine	\$30,878,926
317 Vaccine	\$582,418
State Vaccine	\$277,768
Total	\$36,212,345

Program expenditures are divided into three main categories: **vaccine purchases, contracts** with local public health agencies and immunization service providers and **program infrastructure** (staff salary and operating expenses). The funding distribution for these three categories is illustrated in Figure 1.

Figure 1: Calendar Year 2016 Immunization Program Funding Distribution

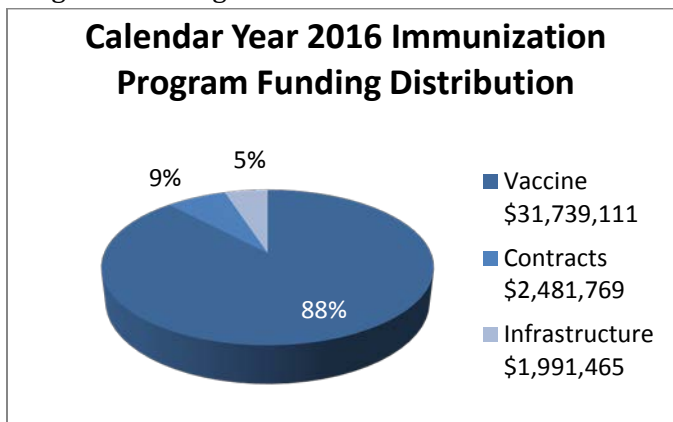
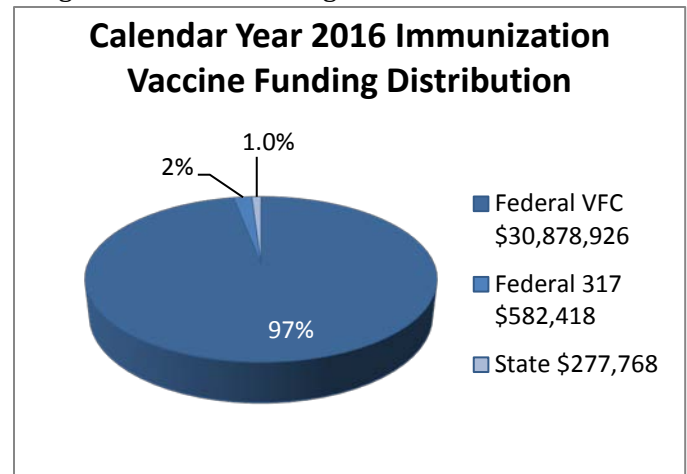


Figure 2: Calendar Year 2016 Immunization Program Vaccine Funding Distribution



Vaccine Funds

The Immunization Program completes annual population estimates and vaccine forecasting for Iowa’s population, which is used by Centers for Disease Control and Prevention (CDC) to determine vaccine funding for the upcoming year. The Immunization Program received funding for vaccines from the federal VFC Program, federal 317 grant vaccine funds and state funds. Figure 2 includes the vaccine funding distribution for calendar year 2016. Of the program’s \$36 million dollar 2016 budget, almost \$32 million was spent on vaccines.

In 2016, Iowa received \$30,878,926 from the federal VFC Program for vaccine. These funds account for 97 percent of the program’s total vaccine budget. These funds are used to immunize children birth through 18 years of age who meet the following eligibility: Medicaid enrolled, uninsured, underinsured, American Indian or Alaskan Native.

The Immunization Program receives federal 317 vaccine funds annually. In calendar year 2016, Iowa received \$582,418 in 317 grant funds which comprises 2 percent of the program's total vaccine budget. In 2016, Iowa used federal 317 grant funds to vaccinate underinsured children served by select public health agencies.

In 2016, \$277,768 of state funds were used to purchase vaccine which comprised less than 1 percent of the program's total vaccine budget. State funds are used to pay for vaccines for children who do not meet VFC eligibility requirements.

Immunization Education

2016 Regional Trainings

More than 850 health care professionals attended the 2016 Regional Trainings held in October and November. These one-day trainings, held in 15 locations across Iowa, focused on the latest information regarding vaccine administration, immunization schedules, vaccine storage and handling, HPV vaccine initiative and IRIS. These events provided attendees an opportunity to learn the most current information regarding immunizations and vaccine-preventable diseases.

Immunization Update Newsletter

The Immunization Update is a newsletter produced and distributed by the Immunization Program. This newsletter features important immunization information, vaccine recommendations and changes regarding the Vaccines for Children Program, IRIS, and storage and handling guidelines. Practical vaccination resources, a question and answer corner and training announcements are also included. Current issues of the newsletter can be found on the Immunization Program webpage: <http://www.idph.iowa.gov/immtdb/immunization/newsletters>

To receive Immunization Program updates directly, recipients can submit their email on the IDPH Immunization webpage at <https://idph.iowa.gov/immtdb/immunization>.

Brochures and Print Materials

The Immunization Program offers educational materials for parents and health care providers. Materials include brochures, school/child care audit forms, reminder/recall postcards, temperature logs, posters and VFC Program forms. Educational materials can be printed or ordered free of charge. Immunization educational materials may be ordered on the Immunization Program <https://idph.iowa.gov/immtdb/immunization/forms>.

Immunization Consultation

The Iowa Immunization Program staff is available Monday through Friday 8:00 a.m. - 4:30 p.m. for consultation regarding program activities, IRIS and immunization related questions. A directory of immunization staff can be found in Appendix A.

Immunization Registry Information System

Iowa's Immunization Registry Information System (IRIS) is a confidential, computerized repository of individual



immunization records from participating public and private health care providers. IRIS includes patient records from all ages and is used to keep patients on schedule for their recommended immunizations by storing immunization records, documenting vaccine contraindications and reactions, validating immunization history, providing vaccine recommendations, producing patient reminder and recall notices, and managing vaccine inventory.

IRIS Trainings

IRIS staff provided 24 training opportunities in 2016. Training opportunities included webinars on the following topics: monthly question and answer sessions, entry of school and child care audit data into IRIS, nonviable vaccine returns in IRIS and how to accept seasonal influenza vaccine shipments into IRIS. Nearly 1,000 IRIS users participated in these trainings.

IRIS Users and Organizations

Enrollment in IRIS is available to all health care providers in Iowa that administer immunizations. In 2016, 197 new organizations enrolled in IRIS for a total of 2,648 participating organizations. Sites include private health care clinics, local public health agencies, rural health clinics, hospitals, pharmacies, long-term care centers and schools.

IRIS - Interoperability Funding

Iowa received funds from the Prevention and Public Health Fund (PPHF) in 2014 to enhance interoperability between electronic health records (EHRs) and IRIS for a two-year project period. Funds were used to improve the efficiency, effectiveness, and quality of immunization data contained in the registry. The Immunization Program worked to strengthen the immunization information technology infrastructure and enhance the program's capacity to support and extend interoperability between IRIS and EHR systems. Throughout 2016, the Immunization Program worked with 266 additional health care providers to send electronic files to IRIS. As of December 31, 2016, 970 organizations were exchanging electronic immunization data with IRIS. Of these, 330 are bidirectional, meaning they query IRIS for patients' immunization histories as well as submit patients' immunization records to IRIS.

IRIS Quick Stats - 2016

- Total number of immunizations in IRIS: **36,707,247**
- Total number of clients/patients in IRIS: **3,971,069**
- Number of organizations enrolled in IRIS: **2,648**
- Total number of active and distinct users: **13,236**

IRIS Data Exchange by Numbers - 2016

- Total number of organizations sending immunizations or querying IRIS: **970**
- Total number of real-time transactions through IRIS: **8,040,734**

AFIX – IIS Funding

Iowa received funds from the Prevention and Public Health Fund (PPHF) in late 2015 to implement functionality for health care providers to conduct their own vaccine coverage assessments within the Immunization Information System (IIS). Iowa is collaborating with 5 other states to develop this functionality with technical expertise provided by Hewlett Packard Enterprise Services, which supports the states' IIS. The new functionality will interface with CDC's online data collection system. Throughout 2016, the Immunization Program identified requirements for this functionality and began to review and approve development. Implementation of this functionality is scheduled for mid-2017.

IRIS Records

The number of Iowa patients in IRIS has steadily increased as shown in Tables 2 and 3. More than 338,000 patient records were added in 2016 and IRIS contains more than 36.7 million immunizations. IRIS includes records consisting of two or more immunizations for 100 percent of Iowa's children 4 months to 6 years of age. Overall, IRIS contains immunization records for 98 percent of Iowa's entire population.

Table 2: Number of patient records in IRIS with an Iowa zip code compared to Iowa's population

Number of Iowans in IRIS by Year			
Year	Iowa Patient Records in IRIS	Population of Iowa*	Percent of Iowa population in IRIS
2012	2,136,380	3,018,988	71
2013	2,328,983	3,022,322	77
2014	2,524,059	3,024,770	83
2015	2,765,966	3,026,380	91
2016	2,981,012	3,027,058	98

*Population CDC Wonder - <http://wonder.cdc.gov/population-projections.html>

Table 3: Number of patient records in IRIS by year and by age group

Patients in IRIS by Year*			
Year	Patients in IRIS ages 4 months through 5 years with two or more immunizations recorded	Patients in IRIS ages 11 years through 17 years with 2 or more immunizations recorded	Patients in IRIS over the age of 19 years with 1 or more immunization recorded
2012	211,258	159,968	1,141,659
2013	211,714	176,308	1,171,201
2014	212,487	188,126	1,496,633
2015	215,678	200,446	1,672,148
2016	224,567	216,841	1,682,147

*Data as reported in the Immunization Information System Annual Report

Vaccines for Children Program

The Vaccines for Children (VFC) program is a federally funded program established in 1994 to provide vaccines at no cost to eligible children from birth through 18 years of age. Since its establishment and over a 20-year period, the VFC program has significantly impacted U.S. children:



- Prevented 322 million illnesses
- Helped avoid 732,000 deaths
- Saved nearly \$1.4 trillion in total societal cost (includes \$299 billion in direct costs)

The VFC Program provides vaccine for approximately 45 percent, or 348,025 of Iowa’s children from birth through 18 years of age. Eligible children include those who are enrolled in Medicaid, uninsured, underinsured, American Indian or Alaskan Native. In 2015, the Iowa VFC Program distributed 620,763 doses of vaccine (Table 4), valued at more than \$33 million, to VFC-enrolled health care providers.

Table 4: 2016 VFC vaccine doses distributed

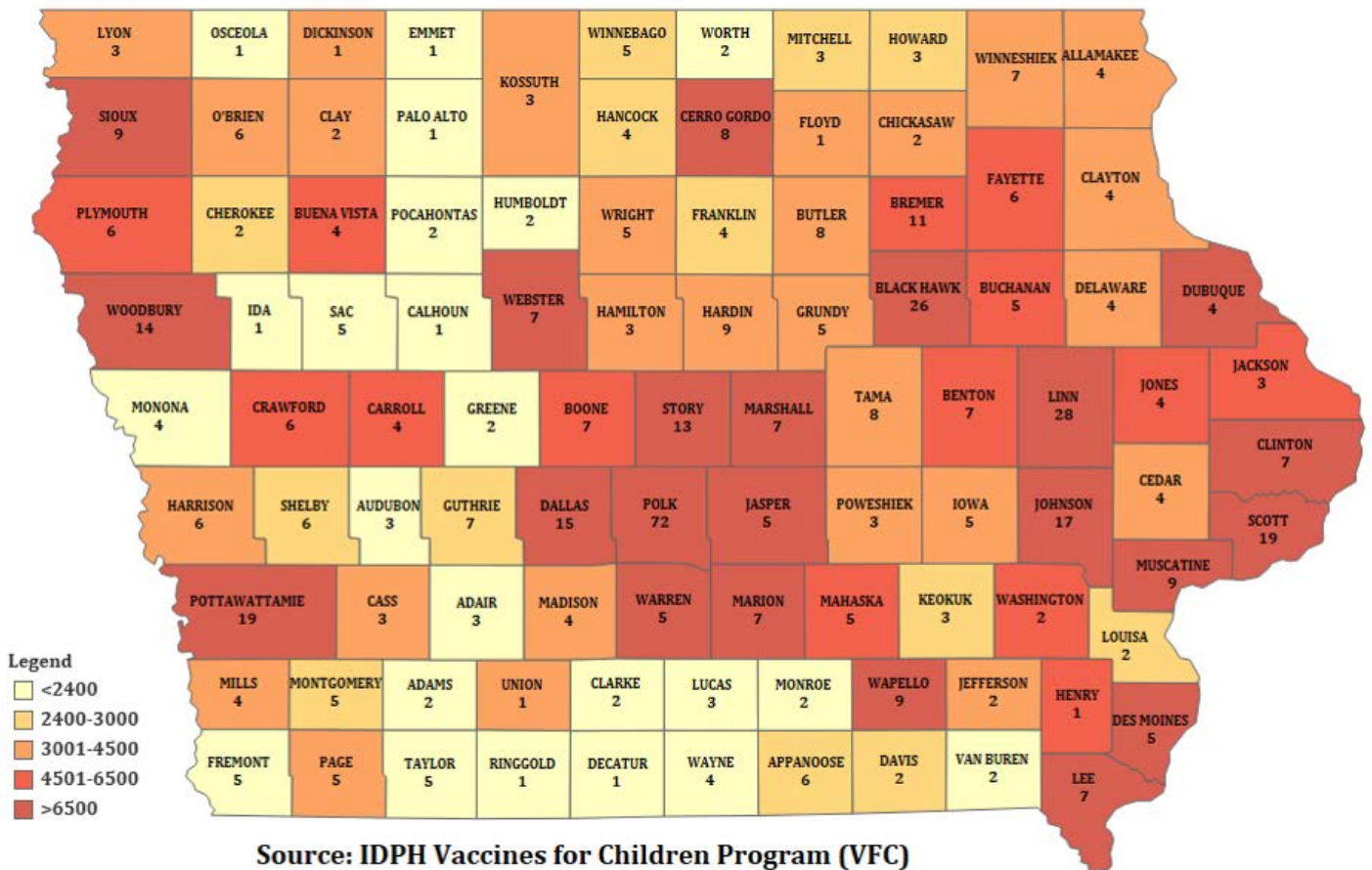
Vaccine	Doses Distributed
DT	62
DTaP	20,030
DTaP-IPV (Kinrix)	15,200
DTaP-IPV/Hib (Pentacel)	12,155
DTaP-IPV-Hep B (Pediarix)	46,290
Tdap	19,745
Td	775
Hep A	50,680
Hep B	27,810
Hep A-Hep B (Twinrix)	830
Hib	51,855
HPV	37,710
IPV	8,350
MMR	22,900
MMR-Varicella (MMRV)	17,690
MCV	22,505
Men B	7,676
PCV 13	74,700
PPSV	20
Rotavirus	47,150
Varicella	25,050
Influenza	111,580
Total Doses Distributed	620,763

Vaccines for Children Program Continued

As of December 31, 2016, IDPH's VFC Program had 602 participating providers. Enrolled providers include local public health agencies, Indian Health Services, Women Infants and Children (WIC) clinics, private health care providers, hospitals, pharmacies, rural health clinics, Federally Qualified Health Centers and family planning clinics.

Each of Iowa's 99 counties has at least one VFC Program provider serving eligible children. Figure 3 includes the number of VFC providers by county and the number of children in the county less than 18 years of age.

Figure 3: Number of VFC Providers in Iowa by County and Population Less than 18 Years of Age

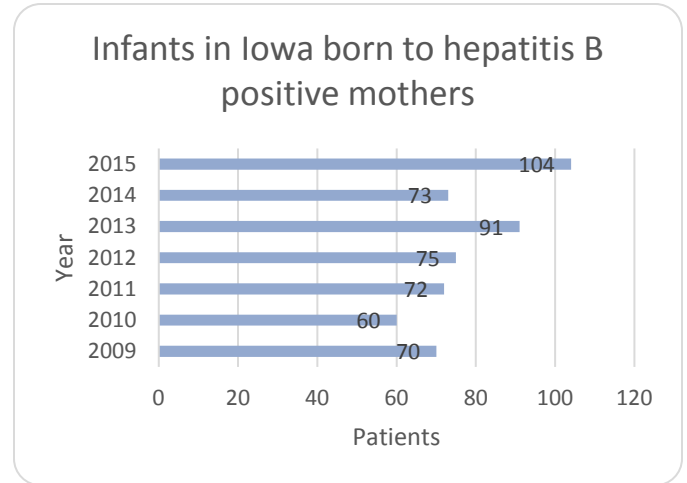


Hepatitis B Program

Perinatal Hepatitis B Program

Hepatitis B is a serious disease caused by the hepatitis B virus (HBV), which can be transmitted from an infected mother to her infant at birth. IDPH's Perinatal Hepatitis B Program works to prevent transmission of hepatitis B infection from mothers to infants by conducting parent and health care provider education, case management of mothers and babies, distribution of hepatitis B vaccine and hepatitis B immune globulin (HBIG), and laboratory testing. In 2015, there were 104 infants born to hepatitis B infected mothers reported (Figure 4).

Figure 4: Iowa infants born to hepatitis B positive mothers



Universal Hepatitis B Vaccine Birth Dose Program

The Immunization Program provides hepatitis B vaccine to hospitals to universally administer the birth dose of hepatitis B vaccine to all newborns regardless of insurance coverage. In 2016, 29 of 76 birthing hospitals in Iowa were enrolled in the Universal Hepatitis B Vaccine Birth Dose Program. The 2015 National Immunization Survey (NIS) for hepatitis B vaccine among infants birth to 3 days of age indicates Iowa has a hepatitis B birth dose rate of 78.2 percent, above the national average of 72.4 percent. Iowa ranks 19 out of the 66 assessed immunization projects. The program continues initiatives to increase the number of Iowa infants who receive a birth dose of vaccine. These efforts include the Universal Hepatitis B Vaccine Birth Dose Program, promoting birthing hospitals' enrollment in the VFC Program, and encouraging birthing hospitals to enroll in the Immunization Action Coalition's (IAC) Hepatitis B Birth Dose Honor Roll. Eight Iowa birthing hospitals have been named to IAC's Hepatitis B Birth Dose Honor Roll; four hospitals received this recognition for two consecutive years, and two hospitals were recognized for three consecutive years (see below).

Perinatal Hepatitis B Prevention Champions in Iowa

In 2013, the Immunization Action Coalition (IAC) created the Hepatitis B Birth Dose Honor Roll to recognize hospitals and birth centers that achieved 90 percent or greater coverage rate of administering hepatitis B vaccine to newborns prior to discharge. To protect newborns from hepatitis B viral infection, birthing hospitals that qualify must also implement written policies, procedures and protocols. More information about the Hepatitis B Birth Dose Honor Roll is available at <http://www.immunize.org/honor-roll/birthdose/>.

Congratulations to the following Iowa hospitals for their inclusion in IAC's Hepatitis B Birth Dose Honor Roll:

Avera Holy Family Hospital, Estherville

- Coverage rate of 99% from 1/1/2015 - 12/31/2015

Cass County Memorial Hospital, Atlantic

- Coverage rate of 96% from 7/1/2014 - 6/30/2015
- Coverage rate of 98% from 7/1/2015 - 7/1/2016

Fort Madison Community Hospital, Fort Madison

- Coverage rate of 96% from 1/1/2014 - 1/1/2015
- Coverage rate of 98% from 6/23/2015 - 6/23/2016

Greene County Medical Center, Jefferson

- Coverage rate of 100% from 11/1/2012 - 10/31/2013
- Coverage rate of 100% from 1/1/2014 - 12/31/2014
- Coverage rate of 97% from 1/1/2015 - 12/31/2015

High-Risk Adult Hepatitis B Program

The Immunization Program collaborates with the Hepatitis Program to provide hepatitis A and hepatitis B vaccine for high-risk patients seen at nine Counseling, Testing, and Referral (CTR) sites. High-risk patients include injection drug users, men who have sex with men, persons with a current sexually transmitted disease diagnosis, human immunodeficiency virus (HIV) or hepatitis C, and sexual partners of persons infected with HIV, hepatitis A, or hepatitis B. In 2016, the Immunization Program distributed 830 doses of adult hepatitis A/hepatitis B vaccine (Twinrix) to CTR sites; 848 doses have been administered to clients. This may be reflective of doses distributed in 2015 not being administered until 2016.

Mary Greeley Medical Center, Ames

- Coverage rate of 94% from 1/1/2014 - 12/31/2014
- Coverage rate of 93% from 1/1/2013 - 12/31/2013

Mercy Medical Center, Mason City

- Coverage rate of 93% from 6/1/2013 - 6/1/2014

Myrtue Medical Center, Harlan

- Coverage rate of 94% from 7/1/2012 - 6/30/2013
- Coverage rate of 96% from 7/1/2013 - 6/30/2014
- Coverage rate of 94% from 3/1/2015 - 2/29/2016

St. Anthony Regional Hospital, Carroll

- Coverage rate of 97% from 1/1/2012 - 12/31/2013
- Coverage rate of 96% from 1/1/2014 - 11/30/2015

Immunization Assessments

Immunization assessments serve as a means to evaluate immunization practices and progress towards achieving established goals. Immunization records are assessed to determine the percentage of patients who are age-appropriately vaccinated consistent with the recommended immunization schedule.

Immunization assessment data are used to improve health care providers' standard immunization practices and immunization delivery systems, and to guide strategies and policies, which directly impact the overall immunization rates of their patients.

County and State Immunization Rates

The Immunization Program uses data from the Immunization Registry Information System (IRIS) to calculate county and state immunization rates for 2-year-old children and adolescents 13-15 years of age. These data provide immunization rates based upon a standard vaccination series identified by the Advisory Committee on Immunization Practices (ACIP) and the Centers for Disease Control and Prevention (CDC).

The report includes patients served by both public and private health care providers with a record in IRIS that have a zip code and are an "active" patient within a health care provider organization. A patient's status becomes active in an organization when an immunization is administered or when the health care provider selects this status on a patient record.

The report for each age group includes the estimated number of children in the county, the number of records meeting the assessment criteria and the corresponding percentage of records in IRIS. These data are used to calculate the percentage of records in IRIS for each county. The population percentage by county ranges from 58-165 percent with a state average of 100 percent for 2-year-old children and range from 59-137 percent with a state average of 104 percent for adolescents 13-15 years of age. Rates greater than 100 percent can be attributed to the difference between the actual numbers of

children in the county compared to the county population estimates.

2-Year-Old Immunization Rates

The 2-year-old county immunization rate for the 4-3-1-3-3-1-4 series (4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age) ranges from 35 to 87 percent, with a state immunization rate of 69 percent. The state immunization rate includes the assessment of 39,656 patient records, which is approximately 100 percent of Iowa's 2-year-old population (Table 5).

Adolescent 13-15-Year-Old Immunization Rates

The adolescent, 13-15-year-old, county immunization rate for the 3-1-2-1-2 (3 Hep B, 1 Meningococcal, 2 MMR, 1 Td or Tdap, 2 Varicella) series ranges from 30 to 84 percent, with an average state immunization rate of 58 percent. The state immunization rate includes the assessment of 126,707 patient records, which is approximately 104 percent of Iowa's 13-15-year-old population. The county immunization rate for HPV vaccine received by adolescent girls, ages 13-15, ranges from 13 to 64 percent, with an average state immunization rate of 31 percent. The county immunization rate for HPV vaccine received by adolescent males, ages 13-15, ranges from 7 to 46 percent, with an average state immunization rate of 23 percent (Table 6).

Human Papillomavirus (HPV) Vaccination Rates among Adolescents

In 2016, HPV vaccination rates in Iowa continued to increase; however, only 27 percent of adolescents aged 13-15 have received the three doses of HPV vaccine recommended for full protection. In comparison, 83 percent of 13-15 year-olds in Iowa have received the Tdap vaccine, which protects against tetanus, diphtheria and pertussis. The IDPH Immunization



Program continues work on the following initiatives to increase HPV vaccination rates of adolescent Iowans:

- Partnering with the Iowa Cancer Consortium HPV Workgroup to increase HPV vaccination rates in Iowa through health care provider education. Providers play a crucial role in improving the uptake of this life-saving vaccine.
- Maintaining a comprehensive communication campaign targeted to the public, with emphasis on reaching parents/guardians of children aged 11–18 years.
- Promoting educational materials targeting health care providers to encourage HPV vaccination consistent with other recommended adolescent vaccines.
- Utilizing existing IRIS tools (benchmark, assessment coverage reports) to evaluate current HPV vaccine coverage levels by county/provider and conduct reminder/recall activities to increase HPV vaccine coverage rates.
- Using assessment and feedback (AFIX) site visits to evaluate the performance of providers in administering the HPV vaccine series consistent with current ACIP recommendations and present this information to providers to guide changes, if needed, in their clinical practices.
- Tracking HPV vaccine coverage by county for both boys and girls.

Conclusion

The Immunization Program’s vision is healthy Iowans in communities free of vaccine-preventable diseases. Iowa health care providers are essential to promote vaccines and provide sound science-based immunization education to their patients. The most significant factor in a parent’s decisions to vaccinate their child is a strong recommendation by the health care provider. When a provider offers a strong and clear recommendation, patients are four to five times more likely to be vaccinated.

The IDPH Immunization Program is committed to promoting immunizations through the implementation of strategies to achieve and maintain high vaccination levels. We cannot rest on our past achievements and successes but must remain diligent in protecting and improving the health of Iowans against vaccine-preventable diseases. Many barriers have been overcome that once limited the widespread availability and use of vaccines. Vaccines are essential tools in preventing devastating disease outbreaks. Many diseases are now rare due to the achievement of high immunization rates. However, the absence of these diseases no longer serves as a reminder of the severity and potential life-threatening complications of vaccine preventable diseases. If we forget the history of these diseases, we may be doomed to repeat it. Vaccines prevent diseases and save lives. Immunize for a better life.

Tables and Maps

**Table 5: Iowa Department of Public Health, Immunization Program
2016 County Immunization Assessment
2 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series**

County	County Population Born in 2014 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³
State	39,628	39,656	100.1	75	87	85	84	87	84	75	69
Adair	60	59	98.3	86	98	97	92	98	97	85	78
Adams	50	57	114.0	77	93	89	89	89	91	75	67
Allamakee	173	194	112.1	75	86	85	86	86	82	75	62
Appanoose	144	126	87.5	71	87	83	82	87	84	63	57
Audubon	56	68	121.4	88	96	97	91	91	97	88	81
Benton	294	291	99.0	82	89	88	88	90	88	83	78
Black Hawk	1,684	1,865	110.7	84	93	89	91	94	89	83	78
Boone	260	290	111.5	78	90	87	88	91	86	78	68
Bremer	252	300	119.0	88	95	93	95	95	93	90	86
Buchanan	285	277	97.2	83	92	87	90	91	87	83	78
Buena Vista	315	370	117.5	75	92	88	89	93	89	78	70
Butler	178	162	91.0	85	95	91	94	95	90	90	83
Calhoun	98	122	124.5	88	93	91	91	95	92	86	83
Carroll	274	279	101.8	82	93	89	92	91	90	81	78
Cass	134	145	108.2	85	96	92	92	95	92	85	82
Cedar	184	151	82.1	82	90	87	89	89	87	77	73
Cerro Gordo	517	454	87.8	92	98	97	97	96	97	90	87
Cherokee	133	152	114.3	72	86	86	86	88	87	79	67
Chickasaw	153	132	86.3	77	97	91	92	97	91	74	71
Clarke	114	118	103.5	75	88	81	82	92	80	76	68
Clay	190	220	115.8	87	93	93	90	95	93	86	84
Clayton	211	181	85.8	78	87	92	86	86	90	77	71
Clinton	554	638	115.2	68	85	85	84	87	83	73	62
Crawford	258	274	106.2	71	88	85	84	88	85	72	64
Dallas	1,309	759	58.0	82	90	88	88	91	88	80	76
Davis	150	103	68.7	83	93	89	90	84	89	83	69
Decatur	102	87	85.3	76	93	89	89	90	87	71	64

¹ Source from <http://wonder.cdc.gov/bridged-race-population.html>.

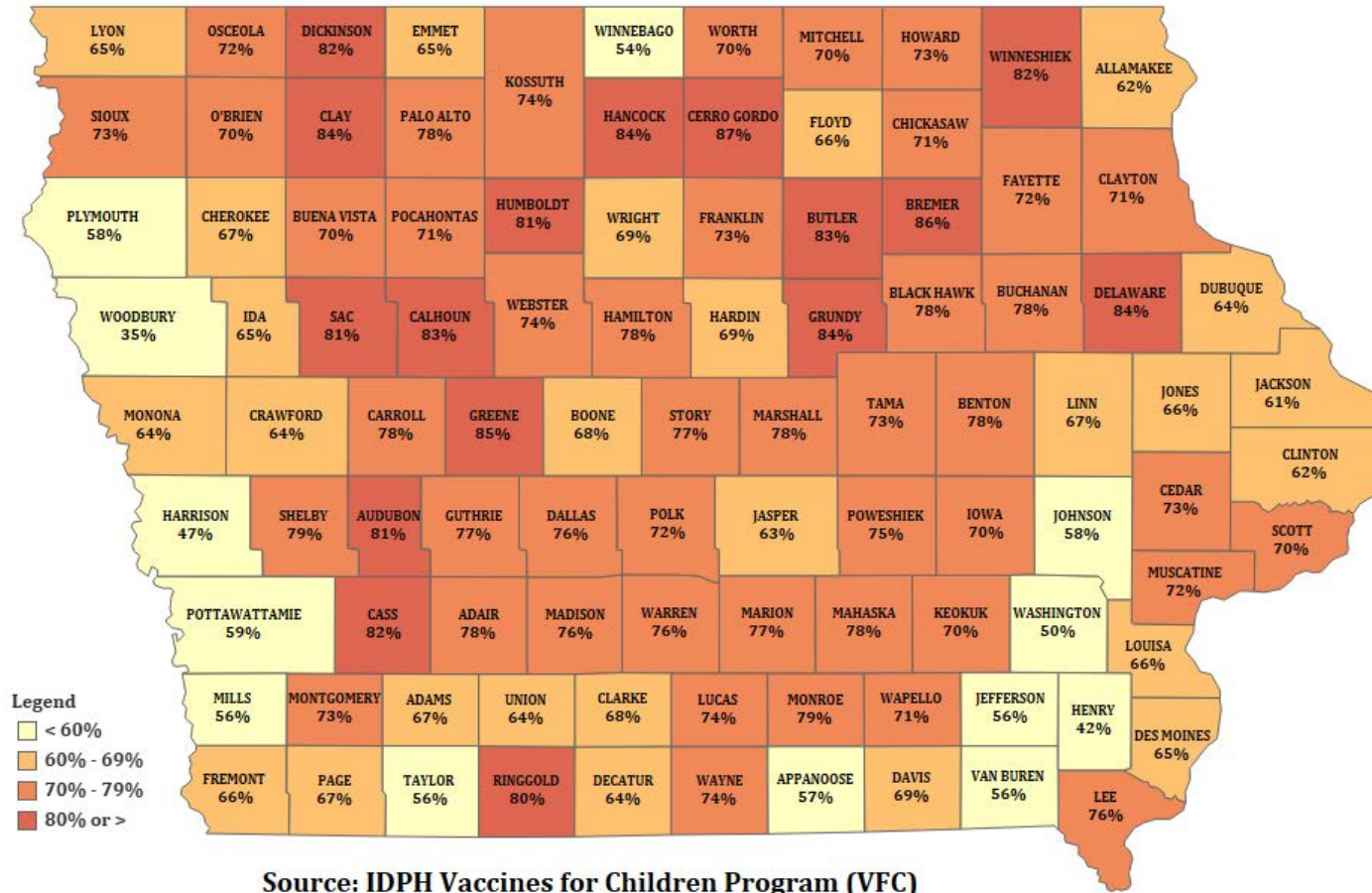
² Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of Active in an organization.

³ Up-To-Date are children who have completed the 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age.

County	County Population Born in 2014 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³
Delaware	213	184	86.4	86	93	92	91	95	92	87	84
Des Moines	451	485	107.5	74	87	89	87	86	88	76	65
Dickinson	170	163	95.9	87	94	90	91	93	90	86	82
Dubuque	1,239	1,031	83.2	71	86	87	81	86	86	75	64
Emmet	115	125	108.7	70	85	84	76	85	84	69	65
Fayette	208	193	92.8	78	92	88	92	93	85	80	72
Floyd	194	185	95.4	71	90	88	84	89	86	73	66
Franklin	119	124	104.2	81	88	83	85	88	82	78	73
Fremont	76	56	73.7	75	86	86	88	88	86	66	66
Greene	96	93	96.9	86	95	95	95	95	95	89	85
Grundy	141	128	90.8	88	98	92	97	98	92	91	84
Guthrie	119	113	95.0	82	93	91	91	95	91	81	77
Hamilton	193	199	103.1	83	95	94	92	96	92	84	78
Hancock	118	110	93.2	86	95	95	95	95	95	85	84
Hardin	174	227	130.5	75	95	93	93	96	92	81	69
Harrison	174	135	77.6	60	71	72	71	72	71	56	47
Henry	232	382	164.7	46	54	55	52	57	54	46	42
Howard	127	96	75.6	82	95	92	92	94	89	80	73
Humboldt	96	127	132.3	85	97	95	94	98	94	90	81
Ida	100	66	66.0	68	89	91	89	91	89	70	65
Iowa	188	158	84.0	76	87	84	87	88	83	75	70
Jackson	213	181	85.0	70	86	82	84	80	83	69	61
Jasper	391	397	101.5	68	83	77	76	85	77	68	63
Jefferson	155	139	89.7	67	83	84	84	81	82	64	56
Johnson	1,769	1,551	87.7	65	76	75	77	76	72	65	58
Jones	236	206	87.3	76	87	85	85	88	84	72	66
Keokuk	128	93	72.7	77	90	89	86	90	86	76	70
Kossuth	172	172	100.0	79	92	91	91	92	90	76	74
Lee	435	409	94.0	82	95	92	91	94	89	82	76
Linn	2,771	2,818	101.7	74	83	82	81	83	81	72	67
Louisa	122	140	114.8	73	86	86	80	88	81	73	66
Lucas	89	94	105.6	79	88	86	85	89	87	79	74
Lyon	175	106	60.6	70	83	80	80	84	79	68	65
Madison	168	135	80.4	84	91	93	88	91	84	82	76
Mahaska	266	260	97.7	81	92	88	90	92	89	82	78
Marion	411	366	89.1	81	92	84	92	92	87	81	77
Marshall	559	583	104.3	83	92	90	92	93	91	81	78
Mills	153	131	85.6	66	82	73	82	76	73	63	56
Mitchell	132	105	79.5	76	90	88	88	90	83	72	70
Monona	85	99	116.5	70	77	78	81	84	78	68	64
Monroe	86	77	89.5	84	97	91	97	92	92	84	79
Montgomery	129	133	103.1	78	90	87	89	90	87	76	73
Muscatine	598	564	94.3	80	91	85	87	91	82	80	72

County	County Population Born in 2014 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³
O'Brien	172	182	105.8	75	88	87	87	91	88	75	70
Osceola	84	64	76.2	73	88	80	84	88	80	73	72
Page	171	184	107.6	75	90	90	87	90	90	73	67
Palo Alto	119	115	96.6	79	92	91	92	92	91	89	78
Plymouth	286	334	116.8	67	76	81	75	81	80	67	58
Pocahontas	93	56	60.2	82	93	91	89	91	89	80	71
Polk	6,866	7,432	108.2	79	89	87	84	90	86	78	72
Pottawattamie	1,220	1,100	90.2	68	84	78	83	80	77	69	59
Poweshiek	181	197	108.8	82	89	90	89	89	89	82	75
Ringgold	53	40	75.5	83	93	90	88	93	90	88	80
Sac	131	117	89.3	84	93	94	91	92	93	85	81
Scott	2,292	2,406	105.0	76	90	87	87	90	84	76	70
Shelby	136	117	86.0	81	91	89	83	91	89	84	79
Sioux	507	558	110.1	79	89	86	87	89	85	77	73
Story	926	990	106.9	83	90	88	89	88	87	82	77
Tama	226	241	106.6	78	92	88	89	91	85	78	73
Taylor	90	84	93.3	63	85	85	79	90	83	64	56
Union	161	169	105.0	72	89	89	88	89	88	72	64
Van Buren	92	97	105.4	66	84	84	80	80	81	68	56
Wapello	435	448	103.0	79	94	90	89	90	89	77	71
Warren	570	593	104.0	82	92	90	88	93	88	83	76
Washington	316	291	92.1	65	81	80	77	80	75	58	50
Wayne	84	85	101.2	84	91	94	91	91	92	78	74
Webster	441	476	107.9	80	92	90	88	94	90	79	74
Winnebago	132	133	100.8	61	71	84	72	70	83	60	54
Winneshiek	169	177	104.7	92	95	93	94	91	92	89	82
Woodbury	1,535	1,691	110.2	40	50	59	46	56	60	40	35
Worth	74	91	123.0	76	90	98	91	86	98	75	70
Wright	148	175	118.2	73	91	87	91	93	87	80	69

Figure 5: 2016 County Immunization Assessment Map
2 Year-Old Coverage of Selected Vaccination Series⁴



Source: IDPH Vaccines for Children Program (VFC)

⁴ Shows coverage for 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV vaccine series by 24 months of age.

**Table 6: Iowa Department of Public Health, Immunization Program
2016 County Adolescent Immunization Assessment
13-15 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series**

County	County Population 2014 Estimate ⁵	Total Records Analyzed from IRIS ⁶	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁷	3 HPV All Genders Coverage Percent	3 HPV Female Coverage Percent	3 HPV Male Coverage Percent
State	121,454	126,707	104.3	89	67	86	83	77	58	27	31	23
Adair	300	249	83.0	96	88	97	93	93	84	56	64	46
Adams	119	126	105.9	91	55	90	81	79	48	18	29	9
Allamakee	494	581	117.6	93	66	91	84	81	59	25	31	21
Appanoose	459	498	108.5	91	50	91	83	66	41	12	17	9
Audubon	196	191	97.4	98	78	97	93	92	75	44	52	37
Benton	1093	1023	93.6	92	78	90	87	84	70	34	38	31
Black Hawk	4541	5241	115.4	96	81	94	90	88	75	36	41	32
Boone	1013	1019	100.6	94	73	91	89	85	68	32	38	26
Bremer	953	1020	107.0	94	82	92	90	85	74	40	46	35
Buchanan	997	968	97.1	93	77	93	94	87	72	37	44	31
Buena Vista	776	1142	147.2	89	34	85	77	72	29	14	16	12
Butler	581	603	103.8	94	73	93	92	86	66	36	44	28
Calhoun	329	379	115.2	95	61	92	88	79	51	19	21	16
Carroll	788	870	110.4	93	55	91	88	76	48	17	26	9
Cass	525	579	110.3	97	82	94	87	92	78	47	48	47
Cedar	756	685	90.6	93	68	91	88	78	59	27	28	26
Cerro Gordo	1454	1466	100.8	98	84	97	94	90	78	38	39	37
Cherokee	390	402	103.1	95	73	95	89	88	65	25	28	24
Chickasaw	499	460	92.2	93	71	92	88	84	63	32	34	30
Clarke	369	428	116.0	91	74	88	85	80	64	30	35	27
Clay	626	668	106.7	94	67	89	86	76	56	29	35	24
Clayton	645	563	87.3	81	53	79	86	68	41	19	20	19
Clinton	1856	1942	104.6	93	55	90	87	75	48	20	26	15
Crawford	699	846	121.0	94	66	94	89	84	59	27	33	23
Dallas	3656	2157	59.0	89	78	87	88	80	67	30	35	25
Davis	397	300	75.6	93	55	94	78	78	48	16	17	15
Decatur	299	267	89.3	90	43	87	86	64	37	19	23	17
Delaware	715	682	95.4	94	80	93	93	87	75	39	44	34

⁵ Source from <http://wonder.cdc.gov/bridged-race-population.html>.

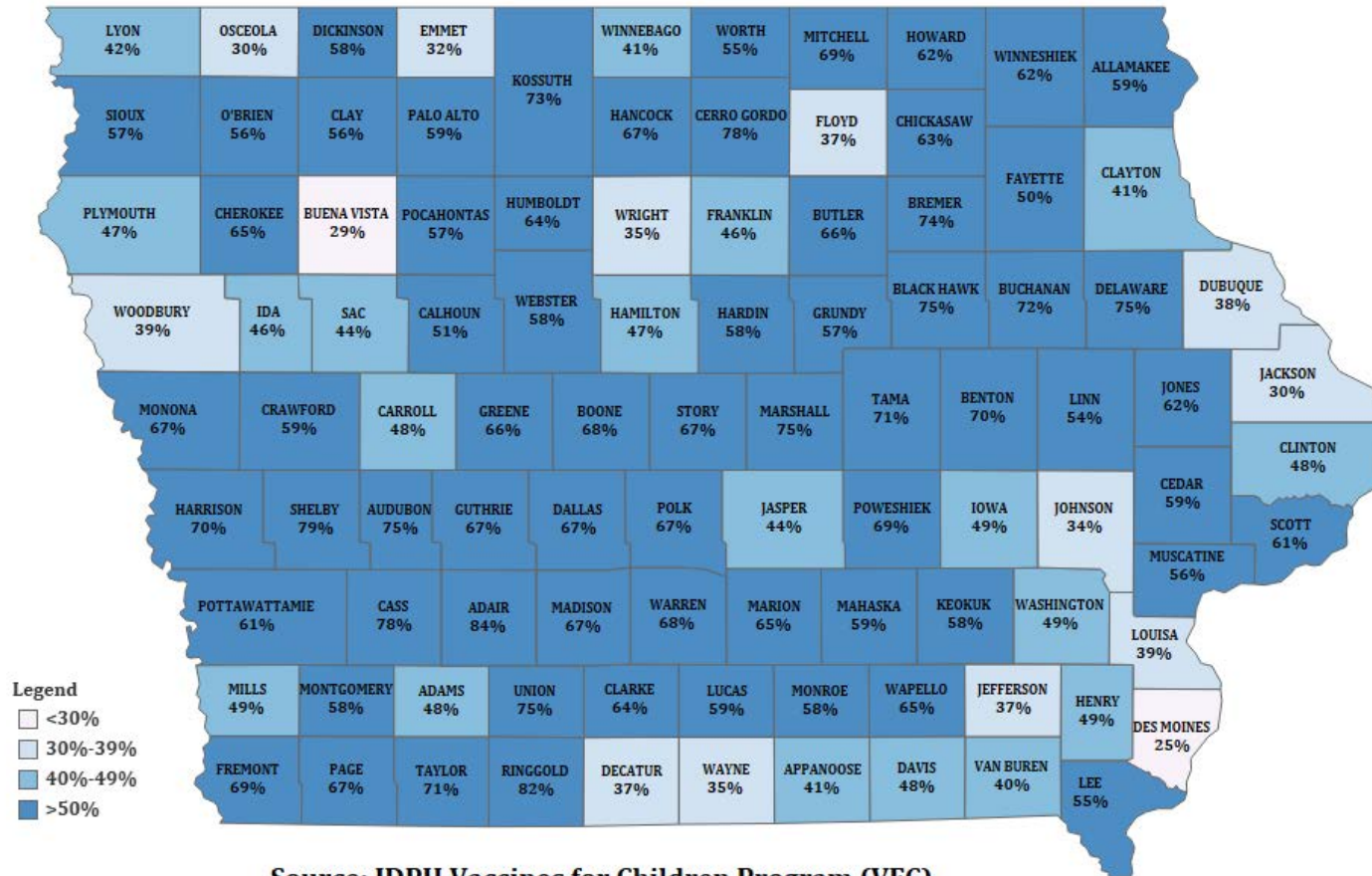
⁶ Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of Active in an organization.

⁷ "Up-to-Date" refers to adolescents 13- to 15-years who have completed the 3 Hep B, 1 Meng, 2 MMR, 1 Td or Tdap, 2 Varicella series.

County	County Population 2014 Estimate ⁵	Total Records Analyzed from IRIS ⁶	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁷	3 HPV All Genders Coverage Percent	3 HPV Female Coverage Percent	3 HPV Male Coverage Percent
Des Moines	1499	1595	106.4	89	32	84	75	69	25	10	13	7
Dickinson	551	615	111.6	96	63	95	87	82	58	36	36	37
Dubuque	3859	3467	89.8	75	52	68	74	62	38	18	20	15
Emmet	350	407	116.3	80	48	75	88	54	32	26	25	26
Fayette	666	745	111.9	93	56	92	85	83	50	25	29	20
Floyd	668	596	89.2	89	44	87	84	65	37	22	24	20
Franklin	403	405	100.5	93	54	89	86	77	46	22	24	20
Fremont	273	275	100.7	93	77	89	83	87	69	27	33	24
Greene	365	426	116.7	94	73	92	86	82	66	29	34	26
Grundy	502	444	88.4	95	64	94	89	84	57	28	36	22
Guthrie	456	514	112.7	95	73	92	90	88	67	36	40	32
Hamilton	575	670	116.5	96	51	96	91	84	47	29	37	23
Hancock	442	426	96.4	96	73	95	92	86	67	27	30	23
Hardin	611	764	125.0	92	64	90	87	84	58	21	26	17
Harrison	590	666	112.9	93	79	92	86	87	70	32	41	25
Henry	814	834	102.5	92	54	89	86	78	49	21	24	18
Howard	353	388	109.9	91	69	91	88	78	62	32	37	27
Humboldt	378	425	112.4	91	70	90	89	82	64	33	41	25
Ida	263	268	101.9	90	51	87	80	74	46	20	27	14
Iowa	674	620	92.0	88	61	88	79	72	49	21	24	18
Jackson	782	696	89.0	86	37	82	88	66	30	14	15	13
Jasper	1502	1357	90.3	77	58	71	73	65	44	18	23	15
Jefferson	508	429	84.4	84	48	81	81	67	37	17	21	13
Johnson	4566	4035	88.4	72	55	69	63	56	34	25	26	24
Jones	793	768	96.8	86	76	84	86	77	62	18	23	12
Keokuk	400	405	101.3	93	69	92	89	80	58	24	26	21
Kossuth	578	577	99.8	98	80	96	90	87	73	27	30	25
Lee	1216	1287	105.8	91	60	89	86	81	55	23	27	19
Linn	8839	9226	104.4	83	65	79	75	70	54	24	27	20
Louisa	509	461	90.6	89	46	83	81	65	39	27	33	23
Lucas	377	316	83.8	89	72	89	89	77	59	31	33	29
Lyon	558	447	80.1	80	50	78	78	69	42	19	19	18
Madison	755	743	98.4	94	77	93	89	84	67	29	34	25
Mahaska	897	810	90.3	92	70	91	86	81	59	21	27	17
Marion	1373	1413	102.9	93	74	92	91	83	65	20	26	15
Marshall	1637	1964	120.0	96	80	94	89	89	75	45	48	42
Mills	641	601	93.8	76	69	75	81	65	49	20	25	17
Mitchell	460	352	76.5	95	76	94	93	83	69	33	41	24
Monona	340	363	106.8	96	70	94	88	92	67	38	36	40
Monroe	322	282	87.6	89	67	92	90	83	58	23	31	14
Montgomery	387	427	110.3	88	73	89	86	78	58	24	31	18
Muscatine	1882	1959	104.1	87	66	87	87	78	56	23	28	20

County	County Population 2014 Estimate ⁵	Total Records Analyzed from IRIS ⁶	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁷	3 HPV All Genders Coverage Percent	3 HPV Female Coverage Percent	3 HPV Male Coverage Percent
O'Brien	563	623	110.7	94	68	92	86	78	56	36	37	36
Osceola	244	266	109.0	89	35	86	79	76	30	23	26	21
Page	468	641	137.0	92	76	90	83	83	67	26	31	22
Palo Alto	332	417	125.6	99	64	96	89	87	59	27	32	25
Plymouth	1079	1030	95.5	87	55	85	81	77	47	21	24	17
Pocahontas	274	265	96.7	91	65	92	88	80	57	30	31	28
Polk	18803	21767	115.8	89	77	86	87	80	67	27	32	23
Pottawattamie	3768	3643	96.7	84	73	83	81	77	61	31	34	28
Poweshiek	643	692	107.6	94	77	93	94	84	69	31	36	26
Ringgold	217	175	80.6	98	86	97	95	91	82	45	54	38
Sac	358	348	97.2	90	50	90	89	73	44	19	25	14
Scott	6871	7888	114.8	91	67	88	83	79	61	26	31	22
Shelby	512	496	96.9	97	83	97	92	93	79	43	44	43
Sioux	1511	1654	109.5	94	64	95	91	84	57	25	27	22
Story	2675	3061	114.4	93	72	89	86	83	67	29	33	26
Tama	742	847	114.2	95	79	93	89	86	71	34	40	29
Taylor	227	277	122.0	93	78	92	89	87	71	27	28	27
Union	456	545	119.5	95	79	93	87	87	75	36	46	28
Van Buren	294	287	97.6	86	49	88	76	77	40	16	18	15
Wapello	1322	1643	124.3	91	71	87	82	81	65	25	29	22
Warren	2200	2075	94.3	92	78	90	89	83	68	27	32	22
Washington	944	888	94.1	86	62	85	77	71	49	28	31	25
Wayne	277	252	91.0	87	52	84	90	67	35	23	25	20
Webster	1377	1600	116.2	93	64	91	86	82	58	24	31	18
Winnebago	409	468	114.4	83	51	82	81	65	41	18	23	15
Winneshiek	693	700	101.0	95	68	94	93	85	62	38	44	33
Woodbury	4302	4450	103.4	74	49	64	58	59	39	25	27	23
Worth	250	283	113.2	95	63	89	86	78	55	25	31	19
Wright	504	603	119.6	94	40	93	90	80	35	18	22	13

Figure 6: 2016 County Immunization Assessment Map
 13-15 Year-Old Coverage of Selected Vaccination Series ⁸



Source: IDPH Vaccines for Children Program (VFC)

⁸Shows coverage for 3 Hep B, 1 Meningitis, 2 MMR, 1 Td or Tdap and 2 Varicella vaccine series.

Appendix A: Immunization Program Directory

Immunization Program Directory			
Don Callaghan	Bureau Chief	515-281-7301	Donald.Callaghan@idph.iowa.gov
Bethany Kintigh	Immunization Program Manager	515-281-7228	Bethany.Kintigh@idph.iowa.gov
Sharon Richardson	VFC/AFIX Manager	515-725-2081	Sharon.Richardson@idph.iowa.gov
Becky Danilson	Program Secretary	515-281-4923	Rebecca.Danilson@idph.iowa.gov
Marnell Kretschmer	CDC Public Health Advisor	515-281-4917	Marnell.Kretschmer@idph.iowa.gov
Rose Anthony	Immunization Services Contracts/Fiscal Liaison	515-281-5424	Rose.Anthony@idph.iowa.gov
IRIS Help Desk 1-800-374-3958			
Kim Tichy	IRIS Coordinator	515-281-4288	Kimberly.Tichy@idph.iowa.gov
Tory King	IRIS Help Desk Staff	515-281-7992	Tory.King@idph.iowa.gov
Cindy Oliver	IRIS Help Desk Staff	515-281-6983	Cindy.Oliver@idph.iowa.gov
Joseph Zehner	IRIS Trainer/Data Exchange Specialist	515-725-2287	Joseph.Zehner@idph.iowa.gov
Vaccines for Children Program			
Tina Patterson	VFC Program Coordinator	515-281-7053	Tina.Patterson@idph.iowa.gov
Janean Iddings	Vaccine Distribution Coordinator	515-281-7787	Janean.Iddings@idph.iowa.gov
Immunization Assessments			
Kelly Rooney-Kozak	Assessments/Adolescent Program Coordinator	515-281-0916	Kelly.Rooney-Kozak@idph.iowa.gov
Sharon Monroe	Assessments/Nurse Consultant	515-473-2473	Sharon.Monroe@idph.iowa.gov
Alison Van De Pol	Assessments/Nurse Consultant	515-494-4442	Alison.VanDePol@idph.iowa.gov
John Fiedler	Assessments/Nurse Consultant	515-954-9859	John.Fiedler@idph.iowa.gov
Kelli Smith	Assessments/Nurse Consultant	515-318-9530	Kelli.Smith@idph.iowa.gov
Phone: 1-800-831-6293	www.idph.iowa.gov/immtb/immunization		Fax: 1-800-831-6292