

Infectious Diseases in South Dakota, 2015

The South Dakota Department of Health strives to promote healthy living and protect the health of all South Dakotans. Disease surveillance is the ongoing collection, analysis, interpretation and dissemination of health data and is a tool used to study disease trends, monitor new and emerging diseases, and develop disease prevention policy.

Disease surveillance includes investigations, control and prevention, evaluation, planning, and allocating resources to address the diseases affecting the population. An important surveillance component is sharing infectious disease data with health care providers, public health agencies, the general population, academia, and public health and medical policy makers at local, state, tribal and national levels. Surveillance assessment reports should serve to inform and motivate.

This report provides an overview of disease surveillance that is conducted by the South Dakota Department of Health. It highlights important statistics and shows key trends for infectious diseases.

Table 80 Reportable Diseases in South Dakota, 2006-2015 (Calendar years)

Reportable diseases	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Babesiosis	0	0	0	0	0	0	0	1	1	0	2
Botulism	0	0	0	0	0	0	0	0	0	0	0
Brucellosis	0	0	0	0	0	0	0	1	0	0	1
Campylobacteriosis	217	231	262	300	297	301	276	296	307	346	2833
Carbapenem-resistant Enterobacteriaceae (CRE)	NR	NR	NR	NR	NR	NR	NR	12	3	37	52
Chicken Pox (Varicella)	116	82	55	53	62	67	32	43	23	27	560
Chlamydia	2624	2612	2919	3015	3187	3412	3925	3947	4129	3967	33737
Cryptosporidiosis	86	169	88	137	108	143	113	175	151	248	1418
Cyclosporiasis	0	0	1	0	0	0	0	1	0	0	2
Ehrlichiosis and Anaplasmosis	0	0	1	0	0	4	1	1	0	0	7
Giardiasis	98	103	137	113	102	110	144	111	131	129	1178
Gonorrhea	363	254	382	345	467	602	707	789	880	1055	5844
Hantavirus pulmonary syndrome	2	1	0	0	0	1	1	0	0	0	5
Hepatitis A	9	7	3	3	1	2	0	4	3	2	34
Hepatitis B, chronic	17	36	48	33	51	51	51	80	58	52	477
Hepatitis B, acute	6	6	0	4	2	2	2	5	3	2	32
Hepatitis C, chronic	352	309	364	384	350	356	392	406	516	570	3999
Hepatitis C, acute	0	0	0	1	0	0	4	1	0	0	6
Haemophilus influenzae type b	0	0	0	0	0	1	0	3	0	1	5
Hemolytic uremic syndrome	1	1	3	3	2	0	0	0	1	1	12
HIV and AIDS	34	25	34	21	35	21	29	36	31	25	291
Legionellosis	5	4	3	2	9	2	9	8	9	10	61
Leprosy	0	0	1	0	0	0	0	0	0	0	1
Listeriosis	2	2	1	1	3	1	0	0	0	0	10
Lyme disease	1	0	3	1	1	4	4	4	2	5	25
Malaria	0	1	0	1	3	2	5	7	5	4	28
Measles	0	0	0	0	0	0	0	0	8	2	10
Meningococcal disease	4	3	3	5	0	3	0	4	2	1	25
Mumps	295	6	1	2	2	0	0	0	0	0	306
Pertussis	28	59	67	56	32	37	71	67	109	16	542
Q fever	2	1	1	9	4	1	2	4	5	5	34
Rabies, animal	38	27	24	53	32	40	60	28	21	29	352
Rocky Mountain spotted fever	0	5	3	0	0	1	1	7	3	2	22
Salmonellosis	133	173	154	197	186	162	170	183	164	230	1752
Shiga toxin-producing E. coli	50	47	53	71	35	41	48	42	41	62	490
Shigellosis	388	118	76	4	7	6	11	190	616	285	1701

Reportable diseases	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Methicillin-resistant <i>Staph aureus</i> (MRSA), invasive	51	88	77	94	98	91	89	94	124	159	965
<i>Strep. pneumoniae</i> , invasive	NR	NR	NR	NR	NR	42	97	99	88	110	436
Syphilis (primary, secondary and early latent)	19	11	4	2	4	0	21	49	76	48	234
Syphilis, congenital	0	0	0	0	0	0	0	0	3	0	3
Toxic shock syndrome	0	0	1	0	0	0	0	0	0	3	4
Tularemia	4	7	10	5	11	8	5	7	5	25	87
Tuberculosis	14	13	16	18	15	15	19	9	8	17	144
Typhoid fever	1	0	2	2	1	0	0	3	0	1	10
West Nile fever	75	160	28	15	16	2	141	92	45	29	603
West Nile neuroinvasive	38	48	11	6	4	0	62	57	12	11	279

*NR= not reportable

Source: South Dakota Department of Health, Office of Disease Prevention, Maven report by calendar year. Minor variances from past reports reflect differences between MMWR year and calendar year, cross-year deduplication and re categorization.

Table 81 Reportable Diseases by County of Residence, South Dakota, 2015

County of residence	Campylobacteriosis	Chlamydia	Cryptosporidiosis	Giardiasis	Gonorrhea	Hepatitis B, chronic	Hepatitis C	Legionellosis	MRSA	Pertussis	Salmonella	Shigellosis	Strep. Pneumo, invasive	Shiga Toxin Prod <i>E. coli</i>	Tularemia	Varicella (Chicken pox)	West Nile disease
TOTAL	346	3967	248	129	1055	52	570	10	159	16	230	285	110	62	25	27	40
Incidence*	40.3	462.1	28.9	15.0	122.9	6.1	66.4	1.2	18.5	1.9	26.8	33.3	12.8	7.2	87.7	3.1	4.7
Aurora	5	7	≤2	0	0	0	0	0	≤2	0	≤2	0	≤2	0	0	0	0
Beadle	9	66	3	6	3	15	13	0	≤2	0	3	21	0	≤2	0	≤2	≤2
Bennett	≤2	35	≤2	0	15	0	3	0	≤2	0	3	0	0	0	0	0	≤2
Bon Homme	5	10	6	0	≤2	0	16	0	≤2	0	≤2	≤2	0	0	0	0	0
Brookings	11	106	13	2	6	≤2	8	0	2	0	12	5	0	3	0	0	0
Brown	6	137	12	≤2	12	3	13	0	6	0	12	≤2	6	4	0	≤2	7
Brule	3	9	0	8	4	0	4	0	≤2	0	≤2	8	≤2	≤2	0	0	≤2
Buffalo	0	26	0	0	6	0	8	0	0	0	0	0	≤2	≤2	0	0	0
Butte	≤2	39	≤2	0	5	0	5	0	0	0	3	0	≤2	0	≤2	0	≤2
Campbell	≤2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charles Mix	9	77	3	≤2	20	0	12	0	3	0	3	≤2	≤2	≤2	≤2	≤2	0
Clark	≤2	10	3	0	0	0	≤2	0	≤2	0	≤2	0	≤2	0	0	0	0
Clay	20	67	≤2	≤2	6	0	5	0	0	0	10	0	≤2	≤2	0	0	0
Codington	9	85	5	≤2	9	0	9	0	≤2	≤2	4	≤2	0	0	0	0	≤2
Corson	0	54	0	0	10	0	40	0	3	0	5	3	≤2	0	0	0	≤2
Custer	≤2	20	≤2	≤2	3	0	5	0	0	≤2	≤2	0	≤2	0	0	2	0
Davison	20	70	7	≤2	14	0	8	0	4	≤2	9	4	7	≤2	0	0	0
Day	≤2	6	≤2	≤2	≤2	0	≤2	0	≤2	0	≤2	0	3	0	0	0	0
Deuel	4	8	3	0	72	0	0	0	0	0	≤2	0	0	0	0	0	0
Dewey	6	138	0	≤2	0	0	7	0	8	0	3	6	≤2	0	0	0	≤2
Douglas	6	≤2	0	0	≤2	0	≤2	0	≤2	≤2	≤2	0	0	0	0	0	0
Edmunds	3	≤2	3	0	0	0	≤2	0	0	0	≤2	0	≤2	0	0	0	≤2
Fall River	≤2	22	≤2	0	10	0	3	0	5	0	0	0	≤2	0	≤2	0	0
Faulk	4	≤2	≤2	≤2	0	0	≤2	0	0	0	0	0	0	≤2	0	0	0
Grant	≤2	11	≤2	0	≤2	0	≤2	0	0	0	0	0	0	0	0	0	0
Gregory	≤2	3	0	≤2	0	0	≤2	0	≤2	0	3	0	3	0	0	0	0
Haakon	≤2	3	0	0	≤2	0	0	0	0	0	0	0	0	0	0	0	≤2
Hamlin	4	10	4	4	≤2	0	0	0	0	0	4	0	0	0	0	0	≤2
Hand	≤2	3	0	0	0	0	0	0	≤2	0	≤2	0	0	0	0	0	0
Hanson	7	≤2	≤2	≤2	0	0	0	0	0	0	≤2	0	≤2	≤2	0	0	≤2
Harding	≤2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hughes	≤2	74	0	4	13	0	16	0	3	≤2	3	≤2	6	≤2	0	0	≤2
Hutchinson	10	6	11	≤2	≤2	0	≤2	0	≤2	0	4	0	≤2	3	0	0	0

County of residence	Campylobacteriosis	Chlamydia	Cryptosporidiosis	Giardiasis	Gonorrhea	Hepatitis B, chronic	Hepatitis C	Legionellosis	MRSA	Pertussis	Salmonella	Shigellosis	Strep. Pneumo, invasive	Shiga Toxin Prod E. coli	Tularemia	Varicella (Chicken pox)	West Nile disease
Jackson	≤2	31	0	0	9	0	≤2	0	≤2	0	≤2	0	0	0	0	0	≤2
Jerauld	≤2	3	0	0	0	0	≤2	0	0	0	≤2	≤2	0	0	0	0	0
Jones	≤2	4	0	0	0	0	≤2	0	0	0	0	0	0	0	0	0	0
Kingsbury	4	5	≤2	0	≤2	0	3	0	0	0	≤2	0	0	≤2	0	0	≤2
Lake	7	21	≤2	≤2	≤2	0	5	0	≤2	≤2	4	0	0	3	0	0	≤2
Lawrence	≤2	116	0	3	10	0	11	0	3	0	≤2	≤2	≤2	≤2	5	0	0
Lincoln	24	82	27	12	28	≤2	6	≤2	6	3	16	22	≤2	11	0	≤2	0
Lyman	≤2	30	0	0	10	0	5	0	≤2	0	≤2	≤2	≤2	0	0	0	0
Marshall	4	10	0	0	≤2	0	3	0	0	0	≤2	0	≤2	≤2	0	0	0
McCook	3	5	≤2	≤2	≤2	0	≤2	≤2	≤2	0	≤2	3	≤2	≤2	0	0	≤2
McPherson	≤2	0	0	0	0	0	≤2	0	≤2	0	≤2	0	≤2	0	0	0	0
Meade	5	85	≤2	3	12	≤2	15	4	7	≤2	9	0	3	≤2	5	0	≤2
Mellette	0	18	0	0	6	0	≤2	0	≤2	0	≤2	0	≤2	0	0	0	0
Miner	3	4	≤2	0	≤2	0	≤2	0	≤2	0	0	0	0	0	0	0	0
Minnehaha	51	1031	71	42	299	23	151	0	27	≤2	48	178	21	14	0	10	≤2
Moody	9	19	≤2	≤2	3	0	4	0	≤2	0	3	0	≤2	≤2	0	0	0
OglalaLakota	4	349	0	≤2	122	0	17	0	11	0	≤2	0	5	0	≤2	0	0
Pennington	11	571	4	15	203	3	92	≤2	22	≤2	18	5	19	≤2	8	≤2	4
Perkins	0	3	0	0	0	0	0	0	0	≤2	≤2	0	≤2	0	≤2	0	0
Potter	3	≤2	≤2	0	0	0	0	0	≤2	≤2	0	0	0	0	0	0	≤2
Roberts	6	92	≤2	≤2	7	0	14	0	≤2	0	5	8	4	≤2	0	3	0
Sanborn	5	≤2	≤2	≤2	0	0	0	0	0	0	≤2	≤2	0	0	0	0	0
Spink	8	25	0	≤2	≤2	0	≤2	0	0	0	0	0	2	≤2	0	0	3
Stanley	0	7	≤2	0	≤2	0	0	0	≤2	0	0	0	0	0	0	0	0
Sully	0	0	0	0	0	0	0	0	≤2	0	0	0	0	0	0	0	0
Todd	≤2	183	≤2	0	80	0	8	≤2	5	0	≤2	6	0	0	0	≤2	0
Tripp	7	8	0	0	0	0	≤2	0	0	0	≤2	0	≤2	≤2	0	0	≤2
Turner	3	12	6	≤2	3	0	≤2	0	≤2	0	2	0	0	0	0	≤2	0
Union	6	27	≤2	0	5	≤2	5	0	0	0	4	≤2	0	≤2	0	≤2	0
Walworth	≤2	20	0	0	3	0	8	0	0	0	0	3	0	0	0	0	≤2
Yankton	10	68	35	3	16	≤2	18	≤2	3	0	5	≤2	0	≤2	0	0	0
Ziebach	≤2	25	0	0	13	0	3	0	5	0	≤2	0	0	0	≤2	0	0

*Incidence: cases per 100,000 population.
Individual county events of 1 or 2 are published as ≤2.

Table 82 Reportable Diseases by Gender, Race, and Age, South Dakota, 2015

	Campylobacteriosis	Chlamydia	CRE	Cryptosporidiosis	Giardiasis	Gonorrhea	Hepatitis B, Chronic	Hepatitis C	HIV and AIDS	MRSA	Pertussis	Salmonellosis	Shiga Toxin Producing E. coli	Shigellosis	Strep pneumo, invasive	Syphilis (P, S, EL)	Tuberculosis	Tularemia	Varicella (Chicken pox)	West Nile Disease
Total	346	3967	37	248	129	1055	52	570	25	159	16	230	62	285	62	48	17	25	27	40
Incidence*	40	462	4.3	29	15	123	6.1	66	2.9	18.5	1.9	27	7.2	33	7.2	5.6	2.0	2.9	3.1	4.7
Gender																				
Female	135	2840	19	137	61	625	22	242	7	61	6	120	38	176	58	13	6	11	13	16
Male	211	1126	18	111	68	430	30	328	18	98	10	110	24	109	52	35	11	14	14	24
Race																				
White	289	1558	37	225	104	289	4	233	14	101	14	188	55	210	83	25	3	21	14	33

Americ Indian	32	1603	7	3	14	614	≤2	125	3	48	≤2	26	3	41	23	19	11	3	7	6
Black	3	214	0	5	5	115	21	12	7	≤2	0	2	0	13	0	4	≤2	0	≤2	0
Asian	7	19	0	0	3	≤2	18	3	≤2	0	0	0	≤2	3	0	0	≤2	0	0	0
Other	5	114		7	≤2	15	2	41	0	3	0	7	0	10	≤2	0	0		≤2	≤2
Unknown	10	459	0	8	≤2	20	6	156	0	6	≤2	7	3	8	3	0	0	≤2	3	0
Age group																				
<1 yr	7	0	0	6	0	0	0	0	0	≤2	≤2	8	1	9	3	0	0	0	8	0
1-4 yrs	52	0	0	74	43	0	0	0	0	≤2	4	20	19	88	8	0	0	3	11	0
5-14 yrs	41	40	0	18	21	12	0	0	≤2	≤2	3	20	9	77	4	0	≤2	≤2	3	≤2
15-24 yrs	50	2554	≤2	30	11	497	9	52	5	≤2	4	41	7	12	≤2	12	3	0	≤2	5
25-39 yrs	73	1235	≤2	67	17	472	23	181	9	14	≤2	51	8	61	10	19	5	1	≤2	12
40-64 yrs	92	136	13	33	23	69	19	310	7	62	≤2	58	9	30	38	15	6	11	≤2	16
>65 yrs	31	≤2	20	20	14	5	≤2	27	2	77	0	31	8	8	46	≤2	≤2	9	0	6

Individual events of 1 or 2 are published as ≤2.

Influenza

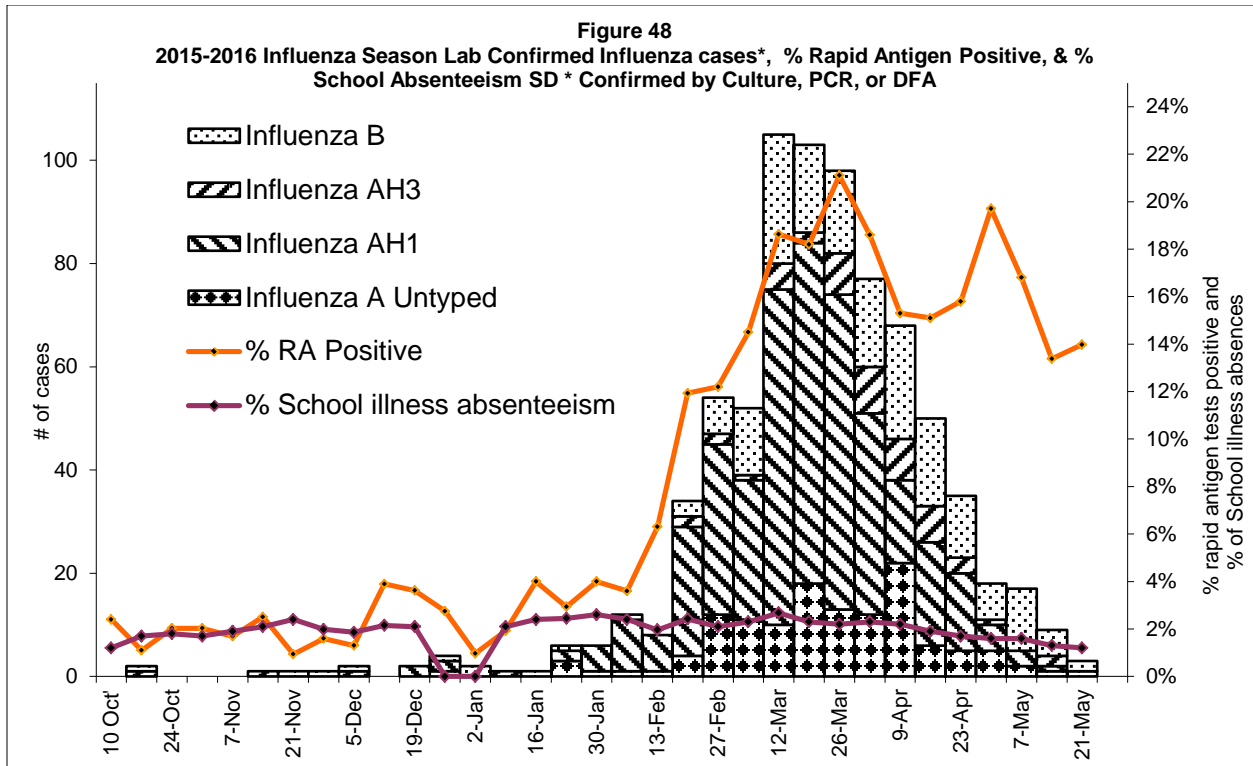
During the 2015-2016 influenza season the predominant virus was influenza A(H1N1). The peak of the season was the second week in March 2016 with A(H1N1) and Influenza B viruses circulating. Table 83, below, shows there were 786 confirmed influenza cases reported during the 2015-2016 season, including A(H3) 54 cases (7%), A(H1) 404 case (52%), A-not subtyped 131 cases (17%), and 183 cases (24%) of influenza B. Additionally, 30,968 rapid antigen influenza tests were reported with 3853 positive (12%), stratified as 2901 (75%) positive for influenza A, and 952 (25%) positive for influenza B.

There were 161 individuals reported hospitalized during the 2015-2016 influenza season and nine influenza-associated deaths reported.

Other viral respiratory pathogen reports included 214 adenovirus, 73 corona virus OC43, 45 corona virus 229E, 14 Chlamydiophila pneumonia, 387 Human Metapneumovirus, 137 parainfluenza-1, 14 parainfluenza-2, 19 parainfluenza-3, 80 parainfluenza-4, 627 respiratory syncytial virus, 850 rhino/enterovirus.

Table 83
South Dakota Influenza Cases by Age
Group, 2015

Lab Confirmed Influenza Cases (by DFA, PCR, or culture)		Influenza Associated Hospitalizations	Influenza Associated Deaths
Age Group	# Cases (%)	# Hosp (%)	Deaths (%)
0-4	170 (22%)	31 (19%)	0
5-18	156 (20%)	10 (6%)	0
19-49	174 (22%)	28 (17%)	0
50-64	150 (19%)	35 (22%)	0
> 64	136 (17%)	57 (35%)	9 (100%)
Total	786	161	9



Immunization

Immunization requirements for school entrance in South Dakota include: four doses of diphtheria, tetanus, pertussis vaccine (DTaP), and four doses of poliovirus vaccine, and two doses of measles, mumps, and rubella vaccine (MMR), and two doses of chicken pox vaccine. Child vaccination coverage rates are estimated by the National Immunization Survey (NIS). The NIS provides vaccination coverage estimates for children aged 19-35 months for each of the 50 states, including South Dakota.

Table 84 Vaccination Coverage (percent vaccinated), Children 19-35 Months, South Dakota 2006-2015 (NIS)

Vaccine	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
4+DTaP	85.5	88.7	84.3	82.4	80.1	75.8	79.2	86.5	87.8	83.1
3+Polio	97.4	97.7	94.5	96.2	94.7	92.9	93.0	93.4	97.9	93.6
1+MMR	94.3	95.0	93.7	92.8	92.1	89.2	93.3	93.1	94.1	91.4
3+Hib	96.7	96.9	95.0	92.3	89.2	91.1	95.0	92.5	97.7	93.3
1+Varicella	82.8	85.3	90.1	87.3	91	84.8	92.6	92.5	92.6	90.3
4:3:1**	84.1	87.4	82.6	81.4	77.9	74.9	76.9	84.4	85.7	82.9
4:3:1:3:3:1:4*	--	--	--	42.8	48.7	--	63.6	73.8	76.3	75.6

**4:3:1 ≥4doses of DTaP, ≥3doses of polio and ≥1doses of MMR vaccine

*4+DTaP, 3+polio, 1+MMR, 3 or 4 doses Hib, depending on vaccine type, 3+HepB, 1+varicella, and 4+PCV.

<http://www.cdc.gov/vaccines/imz-managers/coverage/nis/child/index.html>

Rabies, animal

Rabies is a serious public health concern in South Dakota. In 2015, 29 animals tested positive for rabies, a +38% increase from the previous year. The 29 rabid animals included nine domestic animals (6 cattle, 2 cats, 1 dog) and 20 wild animals (14 striped skunks, 5 bats, 1 spotted skunk). No human rabies was reported. South Dakota's last human rabies case was in 1970.

Rabid animals during 2015 were from the following counties: Brookings (2), Clark (2), Codington (1), Corson (1), Day (1), Dewey (1), Faulk (1), Haakon (1), Hand (1), Hutchinson (1), Lake (1), Marshall (2), Minnehaha (3), Perkins (1), Roberts (4), Tripp (2), Turner (1), Walworth (2) and Yankton (1).

During 2015, 625 animals tested negative for rabies, including 174 cats, 170 bats, 105 dogs, 77 cattle, 33 raccoons, 14 skunks, 12 deer, six goats, five sheep, five squirrels, four horses, three coyotes, three woodchucks, two each badger, fox, gopher, opossum, rat, and one each moose, otter, prairie dog and rabbit.