SOUTH DAKOTA DEPARTMENT OF HEALTH

PUBLIC HEALTH BULLETIN

VOLUME 28 NUMBER 2 **MARCH 2016**

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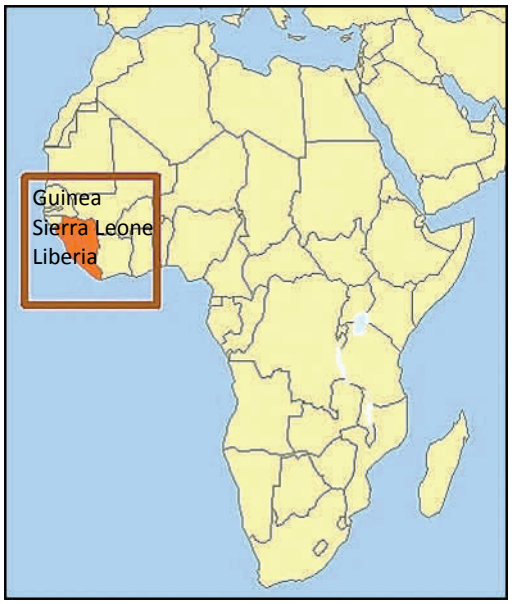
Ebola Sabbatical: South Dakota to Guinea, 2015

By Lon Kightlinger, State Epidemiologist, South Dakota Department of Health



Ebola was first recognized 40 years ago, about the same time I was studying microbiology and starting my career in public health. Ebola is an African viral hemorrhagic disease reservoired in bats and other animals. Ebola occasionally spills over into the human population causing small, local, but devastating outbreaks in remote districts of equatorial Africa. During my 20 years working in Madagascar, off the east coast of Africa, I was intrigued and always watchful for an Ebola-like disease. After all, bats were hunted with slingshots and eaten in Madagascar too (they taste like Canada goose). Although there were many unexplained deaths and diagnostic capacity was limited in Madagascar, causes of mysterious mortalities were usually inexpertly attributed to typhoid, malaria, poison or demons.

The great West African Ebola Epidemic of 2014-2015 was the first large multinational, urban outbreak with nearly 30,000 known cases and over 11,000 deaths. The three West African countries of Guinea, Liberia and Sierra Leone suffered the burden of the Ebola epidemic. They are among the world's poorest countries with underdeveloped public health and medical infrastructures that made responding to this outbreak particularly challenging.

For many months in early 2014 the Ebola outbreak received negligible attention. The world and the United States became engaged when it was apparent that the epidemic was spreading and intensifying, and not going to burn itself out without intensive intervention. The American public and news media focused on the West African Ebola outbreak when a gentleman with the disease showed up at a Texas hospital in September 2014. Initially uninformed hysteria outpaced the science and well-informed public awareness.

The United States joined the global effort to control the epidemic with the CDC leading the American public health and scientific response. Requests for volunteer epidemiologists to deploy to West Africa were sent to state health departments. I immediately submitted my name and CV with the approval and blessing of Secretary Malsam-Rysdon. A viral outbreak in any part of the world is a threat to the rest of the world, including, examples such as polio, SARS, MERS, Zika, West Nile, dengue, avian influenza, swine influenza, measles, and smallpox.

My deployment was to Guinea, which is 1.3-times the size of South Dakota and has 11,800,000 people, 13.8-times the population of South Dakota. Guinea is the single French-speaking country of the three countries in the Ebola Epicenter (Liberia and Sierra Leone are English speaking). I left Pierre on 1 November 2015, then after a few days of training and orientation at the CDC's Emergency Operations Center in Atlanta, I was on my way to Conakry, the capital of Guinea.

Lon Kightlinger and nurse at a rural health station, Guinea, West Africa, 2015

In Guinea I was sent to the Forécariah district, on the border with Sierra Leone. My assignment was to collect data on the newly launched OraQuick Ebola Rapid Diagnostic Test, which gives a positive or negative result 30 minutes after a finger stick drop of blood is loaded into a test cartridge. Since no sophisticated instrumentation is needed, the Rapid Test can be used on the front lines of the Ebola epidemic, even in remote, rural health stations without electricity.

The data assessment of the Ebola Rapid Test involved traveling to 15 rural health stations and combing through patient record log books for documentations of verbal fever history, measured fever of ≥38°C, malaria testing and Ebola testing. During my tenure we reviewed some 3,000 patient records. We found 44% of patients were tested for Ebola with none being positive (Thank God!). On the other hand, 64% of patients were tested for malaria and 71% of those tested were positive for malaria. Malaria is traditionally the leading cause of death for Guinean children. The Red Cross was collecting and testing specimens from all dead bodies during this same period. A full report of the work will eventually be published in the MMWR or another journal.

A bleach water handwashing station along the roadside, Guinea, West Africa, 2015

During my deployment I worked under CDC's authority and supervision, but my closest colleague was from the Democratic Republic of Congo (Dr. Marcel) who was brought in to assist with the Ebola response in Guinea. The workdays were typically 11 hours, 6 days a week, but most of the day was spent traveling between health stations. Since there had been violence directed at Ebola response workers in my assignment area, it was forbidden for American public health workers to travel alone. Most of the health stations we visited were 20-50 km from the Forécariah center. Traveling 50 km over rutted and muddy roads took about 3 hours, one way. Along the roads there were multiple Ebola check points where everyone walked through fenced gateways for infrared flash forehead temperature checks and mandatory hand-washes with 0.05% chlorine bleach water. Upon entering each health station we were again flash temperature checked and obliged to wash our hands with bleach water.

During my time in Guinea the last Ebola case was discharged from the hospital and most of the known exposed contacts safely passed their 21-day incubation period without disease onset. I was pleased to play a very small part in the Ebola response in Guinea during the final control efforts and I eagerly await the news that intensive surveillance has not found any new cases. Upon returning to Pierre, and work at the South Dakota Department of Health on 10 December 2015, I was placed on active Ebola surveillance for 21 days for fever and other symptoms, which entailed morning and evening temperature readings, and periodic face-to-face checks by Department of Health staff. Here in South Dakota a total of 57 travelers were monitored during the 21-day symptom watch period, all were cooperative and Ebola free. Meanwhile back in Guinea, the people mourn their 2,536 dead, including 110 medical and public health worker deaths, and struggle to return to normalcy.

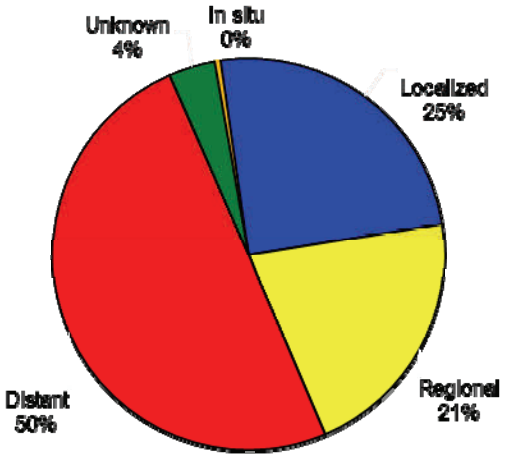
Lung Cancer in South Dakota

The 2013 lung cancer data has been released. For 2009-2013, the average number of new lung cancer cases per year is 559 and the average number of annual deaths due to lung cancer is 425.

Incidence 2013		Mortality 2013	
Number of cases		Number of deaths	
Total	599	Total	416
Males	310	Males	239
Females	289	Females	177
White	561	White	289
American Indian	34	American Indian	24
Median age at diagnosis	71 yrs	Median age at death	74 yrs
Mode	72 yrs	Mode	83 yrs
Age range at diagnosis	34-94 yrs	Age range at death	17-96 yrs
SD age-adjusted incidence rate	59.5	SD age-adjusted death rate	40.9
US SEER age-adjusted incidence rate (2012)	55.1*	US SEER age-adjusted death rate (2012)	45.0*

Rates per 100,000 US 2000 Standard Population and SD 2013 Estimated Population
*2013 US SEER age-adjusted rates not available
Source: South Dakota Department of Health

The graph at the right displays the Surveillance Epidemiology and End Results (SEER) Summary Stage at diagnosis for 2013 lung cancer cases in South Dakota. Over 70% of the cases were diagnosed at the more advanced stages of regional and distant. Survival rates decline when diagnosed at a more advanced stage as illustrated in the table below for cases diagnosed nationally in 2005-2011.

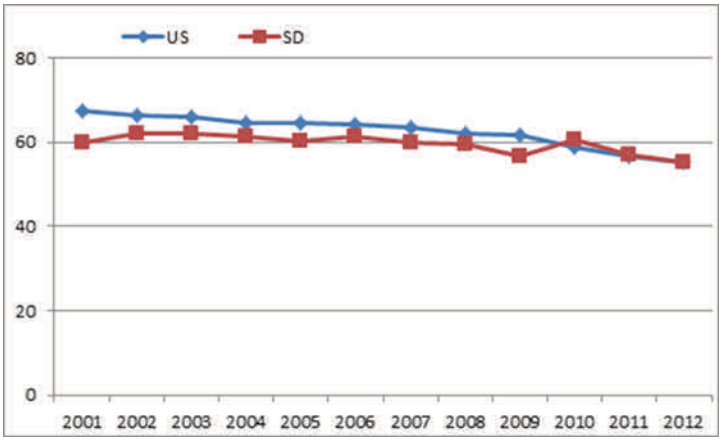


Stage at Diagnosis	5-Year Relative Survival, 2005-2011
Localized	54.8%
Regional	27.4%
Distant	4.2%
Unknown	7.5%

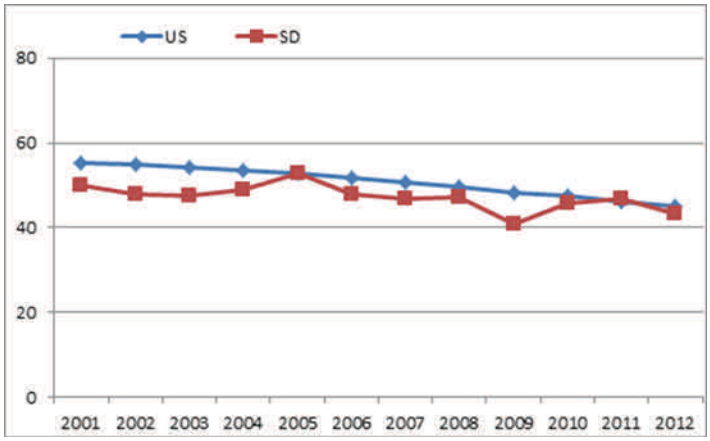
Source: SEER www.seer.cancer.gov

Lung cancer incidence rates for the United States and South Dakota for 2001-2012 show that until recent years, South Dakota rates have been less than the national rates. With the exception of 2011, for the same time period lung cancer mortality rates for South Dakota have been consistently lower than the national rates.

Lung Cancer Incidence Rates, US and SD



Lung Cancer Mortality Rates, US and SD



Rates per 100,000 US 2000 Standard Population and SD Estimated Population
US rates are provided by SEER www.seer.cancer.gov Source: SD Department of Health

For more information, contact Kay Dosch, SD Cancer Registry Coordinator, at 605-773-6345 or 800-592-1861 or see the website at http://getscreened.sd.gov/registry/ under the Data tab for the full monograph.

South Dakota Strategic Plan 2015-2020—Access to Preventive Care Dashboard

Increase the percent of South Dakota adults who have visited a doctor for a routine check-up within the past 2 years from 80.1% in 2014 to 90% by 2020

South Dakota Percent	South Dakota 2020 Target	U.S. Percent
80.1% *(2014)*	90%	81.3% *(2013)*

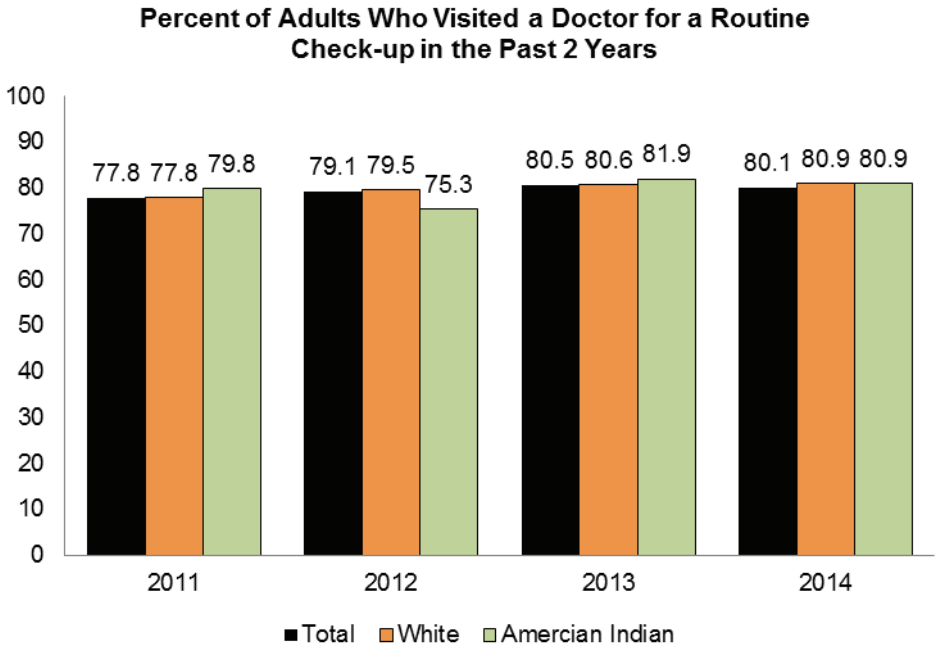
Significance:
Regular health exams and tests can help find problems before they start. They may also help identify problems early, when the chances for treatment and cure are better. By receiving the right health services, screenings, and treatments, individuals are taking steps that improve their chances for living a longer, healthier life. Age, health, family history, life-style choices (i.e., diet, physical activity, smoking), and other important factors impact what and how often an individual needs healthcare.

A routine check-up is a good step to staying healthy and developing a relationship with a healthcare provider. It is important to have a regular healthcare provider who can recommend and encourage patients to receive preventive health screenings such as mammograms, clinical breast exams, colorectal cancer screening, and pap smears. Routine check-ups also help establish a line of communication and that in turn helps to build trust with the healthcare providers who are typically the gatekeepers to healthcare services for their patients.

Definition: Percent of adults who visited a doctor for a routine check-up in the past 2 years

Data Source: Behavioral Risk Factor Surveillance System (BRFSS)

Statistical Trend:



Date Last Updated: 12/23/2015

See the Department of Health's strategic plan website at http://doh.sd.gov/strategicplan/ for more information.

South Dakota HIV/AIDS Surveillance Report

January 2016

25 new HIV/AIDS cases were reported in 2015

7 Females
18 Males

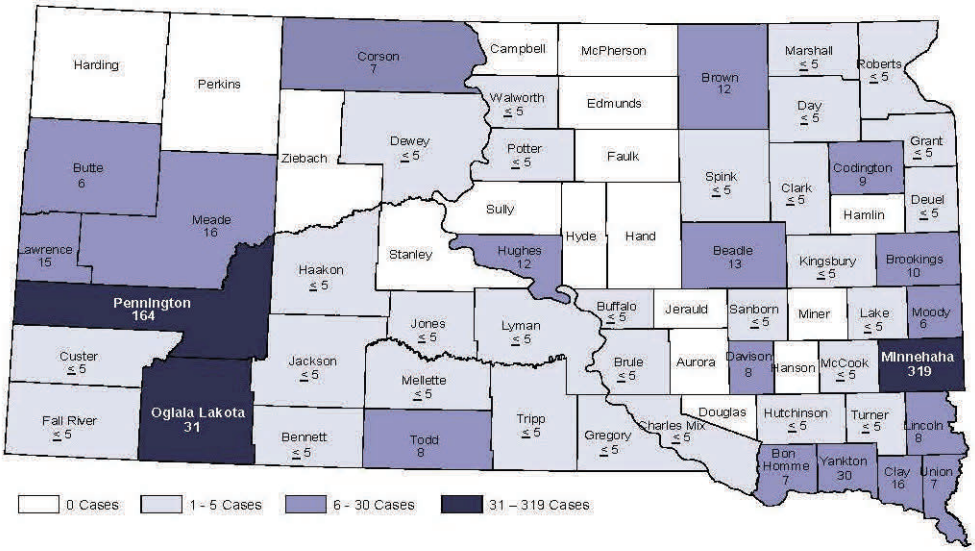
547 people estimated to be living with HIV/AIDS in South Dakota.

Disproportionately impacted by HIV/AIDS:

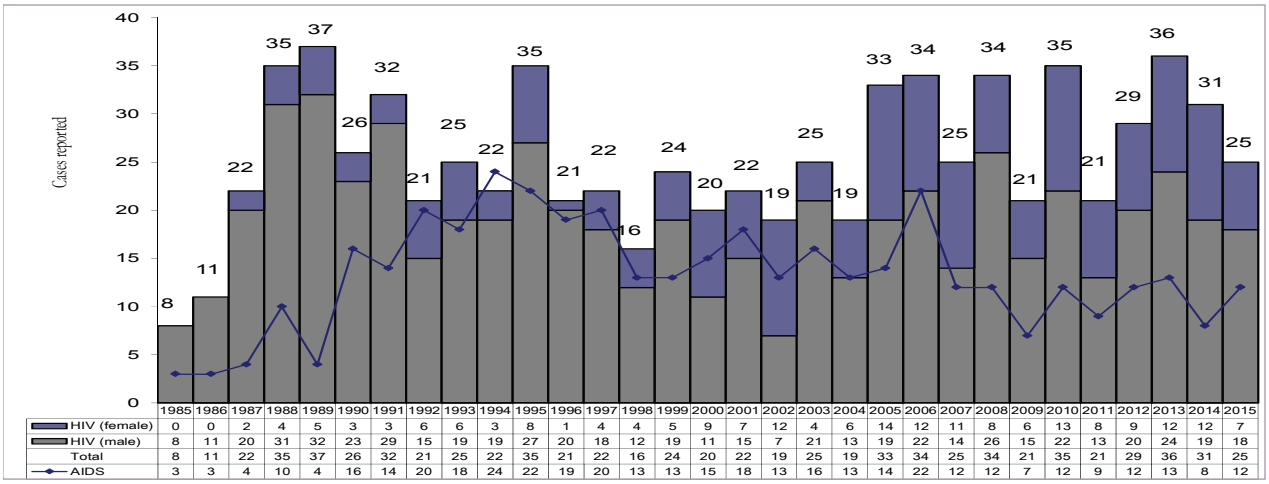
- Blacks: 23% of living cases, 1% of the population.
- Native Americans: 16% of living cases, 9% of the population.

Late Testers: Persons who are diagnosed with AIDS within 12 months of their initial HIV diagnosis, were 32% of all cases, 2010 through 2015.

South Dakota Residents Reported Infected with HIV/AIDS: Cumulative Cases by County, 1985 - 2015



South Dakota Residents Infected by HIV, by Gender, 1985-2015



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
HIV (female)	0	0	2	4	5	3	3	6	6	3	8	1	4	4	5	9	7	12	4	6	14	12	11	8	6	13	8	9	12	12	7
HIV (male)	8	11	20	31	32	23	29	15	19	19	27	20	18	12	19	11	15	7	21	13	19	22	14	26	15	22	13	20	24	19	18
Total	8	11	22	35	37	26	32	21	25	22	35	21	22	16	24	20	22	19	25	19	33	34	25	34	21	35	21	29	36	31	25
AIDS	3	3	4	10	4	16	14	20	18	24	22	19	20	13	13	15	18	13	16	13	14	22	12	12	7	12	9	12	13	8	12

At the end of 2015, 786 SD residents had been reported as infected with HIV (582 male, 204 female) and 428 of those had also been diagnosed with AIDS. Some cases may have been reported as an HIV case in a different year than they were diagnosed with AIDS.

HIV Co-infection with Chlamydia, Gonorrhea, Hepatitis C, Syphilis and TB, by Sex and Age 2010-2015

	Total	Sex		13-24 Years	25-44 Years	45-65 Years
		Female	Male			
Chlamydia	37	25	22	8	30	9
Gonorrhea	21	13	18	6	21	13
Hepatitis C	30	8	22	0	7	23
Syphilis	30	1	29	2	11	14
TB	5	4	1	0	3	2
Total	123	51	92	16	72	61

Characteristics of South Dakota HIV/AIDS Infected Persons as of December 31, 2015

	Total HIV/AIDS Diagnoses *Total number of persons diagnosed with HIV or AIDS 2010-2015*		Persons Living with HIV/AIDS *Minimum estimate of persons living with HIV or AIDS as of December 31, 2015*	
	Cases	**Percent**	**Cases**	**Percent**
TOTAL	175	100%	547	100%
Sex				
Female	61	35%	168	31%
Male	114	65%	379	69%
Race & Ethnicity				
American Indian	39	22%	88	16%
Black	47	27%	125	23%
Hispanic & Other*	17	10%	34	6%
White	72	41%	300	55%
Country of Origin				
United States	127	73%	436	80%
Other	48	27%	111	20%
Age Group				
< 2 years	0	0%	0	0%
2-12 years	5	3%	9	2%
13-24 years	16	9%	13	2%
25-44 years	95	54%	183	33%
45-65 years	57	33%	304	56%
> 65 years	2	1%	38	7%
Exposure Category				
Heterosexual	72	41%	163	30%
IDU (Injection Drug User)	23	13%	83	15%
MSM (Men Who Have Sex With Men)	51	29%	194	35%
MSM & IDU	10	6%	22	4%
Perinatal/Pediatric	5	3%	10	2%
Transfusion/Hemophilia	0	0%	10	2%
Unspecified	14	8%	68	12%
HIV Prevention Region				
Central	4	2%	22	4%
Northeast	18	10%	46	8%
Southeast	102	58%	315	59%
West	51	29%	164	30%

*Hispanic and Other denotes cases that are Asian, Hispanic, or Multi-race.
Due to rounding totals may not equal 100.
Questions regarding the surveillance report may be directed to Christine Olson 605-773-3737 or Christine.Olson@state.sd.us.

Department of Health Confidential HIV Testing Centers
Call Toll Free
1-800-592-1861

Aberdeen
402 South Main Street
Aberdeen, SD 57401
605-626-2373
1-866-805-1007

Pierre
740 East Sioux Avenue
Suite 107
Pierre, SD 57501
605-773-5348
1-866-229-4927

Rapid City
909 East Saint Patrick Street
Suite 9
Rapid City, SD 57701
605-394-2289
1-866-474-8221

Sioux Falls
1200 North West Avenue
Sioux Falls, SD 57104
605-367-5365
1-866-315-9214

Watertown
2001 9th Avenue South West
Suite 500
Watertown, SD 57201
605-882-5096
1-866-817-4090

CDC HOTLINE
1-800-232-4636

The South Dakota Department of Health is authorized by SDCL 34-22-12 and ARSD 44:20 to collect and process mandatory reports of communicable diseases.

How to report:
Secure Website:
www.state.sd.us/doh/diseasereport
Telephone: 1-800-592-1804 (Confidential answering device) or 1-800-592-1861 or 605-773-3737

South Dakota Department of Health – Infectious Disease Surveillance

Selected Morbidity Report, 1 January – 29 February 2016

(provisional numbers) see http://doh.sd.gov/statistics/surveillance/

	Disease	2016 year-to-date	5-year median	Percent change
Vaccine-Preventable Diseases	Diphtheria	0	0	n/a
	Tetanus	1	0	n/a
	Pertussis	5	4	+25%
	Poliomyelitis	0	0	n/a
	Measles	2	0	n/a
	Mumps	0	0	n/a
	Rubella	0	0	n/a
	Haemophilus influenza type b	3	0	n/a
Sexually Transmitted Infections and Blood-borne Diseases	HIV infection	3	6	-50%
	Hepatitis B, acute	1	0	n/a
	Chlamydia	737	678	+9%
	Gonorrhea	223	113	+97%
	Syphilis, early	5	3	+67%
Tuberculosis	Tuberculosis	1	2	-50%
Invasive Bacterial Disease	Meningococcal, invasive	1	1	0%
Enteric Diseases	*E. coli*, Shiga toxin-producing	5	3	+67%
	Campylobacteriosis	48	14	+243%
	Salmonellosis	24	17	+41%
	Shigellosis	3	1	+200%
	Giardiasis	9	14	-36%
	Cryptosporidiosis	22	14	+57%
	Hepatitis A	1	0	n/a
Vector-borne Diseases	Animal Rabies	3	3	0%
	Tularemia	0	0	0%
	Rocky Mountain Spotted Fever	0	0	0%
	Malaria (imported)	2	0	-100%
	Hantavirus Pulmonary Syndrome	0	0	0%
	Lyme disease	0	0	0%
	West Nile Virus disease	0	0	0%
Other Diseases	Legionellosis	0	0	0%
	Additionally, the following were reported: Chicken Pox (5); Hep B, chronic (4); Hep C (113); MRSA, invasive (25).			

Communicable diseases are obligatorily reportable by physicians, hospitals, laboratories, and institutions. The **Reportable Diseases List** is found at http://doh.sd.gov/diseases/infectious/reporting-communicable-diseases.aspx or upon request. Diseases are reportable by telephone, fax, mail, website, or courier.
Secure website: www.state.sd.us/doh/diseasereport
Telephones: 24 hour answering device 1-800-592-1804; for a live person at any time call 1-800-592-1861; after hours emergency 605-280-4810.
Fax 605-773-5509.
Mail in a sealed envelope addressed to the DOH, Office of Disease Prevention, 615 E. 4th Street, Pierre, SD 57501, marked "Confidential Medical Report".