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Editor's Note: The following article is reprinted with permission from DomesticPreparedness.com.

Bioterrorism Exercise: A Taste of the Real Thing

Stephanie Ostrowski & Crystal Castillo

By 8:30 a.m. on Monday, 23 June 2008, members of the staff of the South Dakota Office of Disease Prevention (SD ODP) in Pierre, South Dakota, had received dozens of notifications from around the state informing them that many people had become ill following the “Taste of Central South Dakota,” an annual cultural event in Pierre that last year had been attended by more than 75,000 people. The most common symptoms reported were vomiting, diarrhea, blurred vision, and dry mouth and throat.

As additional reports came in, the SD ODP staff began to suspect that what initially had been perceived as a foodborne outbreak of a still unknown disease might actually be a bioterrorism event. The staff first assessed the common-risk factors among the sick, then initiated active disease surveillance in order to investigate further. Epidemiologists decided to conduct a so-called “cohort study” by using the SD ODP’s web-based Confidential Food History Questionnaire to gather additional information.

Fortunately, the situation described above was only a tabletop exercise using simulated scenarios to assess existing plans, policies, and the operational procedures to be followed should this type of event actually occur “in real life.” The exercise was designed by Vickie Horan, bioterrorism/influenza surveillance coordinator for the South Dakota Department of Health (SD DOH) and Dr. Nato Tarkhashvili, a CDC (Centers for Disease Control and Prevention) Career Epidemiology Field Officer (CEFO) assigned to South Dakota.

The purpose of the exercise was to test the preparedness protocols of the SD DOH for a foodborne bioterrorism outbreak, with a particular focus on response operations. The SD DOH was tasked with applying the basic methods used in epidemiological outbreak investigations to

the data collected, using the department's web-based questionnaire to determine whether there was an association between the symptoms and the specific foods eaten at the annual event.

Building Strengths Out of Weakness

Participants in the exercise evaluated not only the strengths but also the weaknesses noted during the exercise to determine what would and/or would not work during actual emergency operations. One important gap was identified when some of the participants who were acting as patients were unable to log on to the website used in the exercise and fill out the questionnaire, as they had been told to do. In addition, it became apparent that the information technology (IT) component of the exercise scenario had been over-promised; IT staff members were unable to meet the four-hour deadline that had been set for web-posting of the questionnaire, thus missing the benchmark for IT support that had been set.

Because the data collection could not be completed within the time allotted, SD DOH epidemiologists did not receive the promised data to analyze, and therefore not only could not determine whether the symptoms noted were strongly associated with a specific food item but also could not identify other common factors in the outbreak.



Dr. Nato Tarkhashvili, a trilingual physician from the Republic of Georgia, accepted a preparedness assignment with the South Dakota Health Department following two years of training with the CDC Epidemic Intelligence Service (EIS) program. Dr. Tarkhashvili completed her epidemiology studies at Tbilisi State Medical University (1999) in the Republic of Georgia, and at the State Medical Academy of Post Diploma Education (2000), before working in the Department of Cholera and Enteric Diseases at the Republic's National Center for Disease Control (1999-2004). She joined the CDC in 2004 and has been affiliated with the CEFO program (assigned to South Dakota) since 2006.

Fortunately, Dr. Tarkhashvili and the other exercise controllers and planners were well prepared for that possibility, so were able to provide summarized data and tables as an exercise “inject,” or simulated outcome. The players eventually determined that chokecherry salsa was the source of *Clostridium botulinum* Type A – the most severe type of botulism – that had provoked the previously mentioned symptoms.

After reviewing the lessons learned, Dr. Tarkhashvili concluded that it was “clearly more beneficial to iron out as many wrinkles as possible during an exercise rather than learn in the middle of an actual event” – which is, of course, the reason most such exercises are planned and carried out. And having used this opportunity to correct the problems that had been identified means that the South Dakota Office of Disease Prevention is better prepared to respond in the future to a large-scale foodborne bio-terrorism outbreak, should one become more than just a simulation.

Captain (USPHS) Stephanie R. Ostrowski is one of two national-level CDC (Centers for Disease Control and Prevention) supervisory epidemiologists for field assignees of the CDC's CEFO (Career Epidemiology Field Officer) program. Before joining the CEFO staff she served for six years as an emergency-response coordinator in CDC's Coordinating Center for Environmental Health and Injury Prevention, Office of Terrorism Preparedness and Emergency Response. During that period she served as a headquarters technical coordinator and/or field responder in programs and activities involving, among other potentially lethal agents and materials: anthrax; ricin; the H5N1 Avian Influenza; and foot and mouth disease. She also participated in several programs involving various hazmat events.

Crystal Castillo co-authored the article.

Colorectal Cancer in South Dakota, 2006

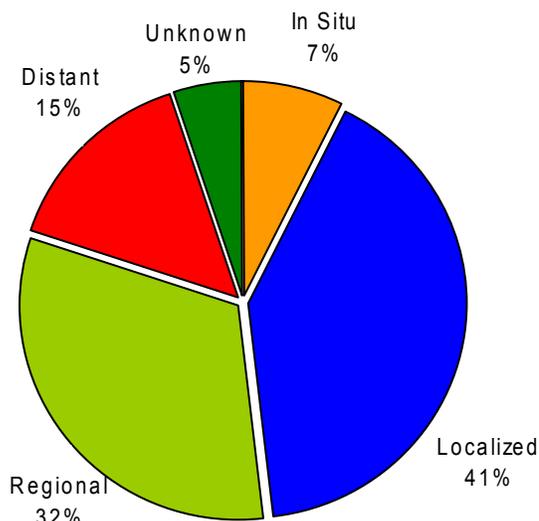
By the South Dakota Cancer Registry, South Dakota Department of Health

The South Dakota Cancer Registry has released the 2006 colorectal cancer data. For 2002-2006, the average number of new colorectal cancer cases per year is 485 and the average number of annual deaths due to colorectal cancer is 165.

Incidence 2006		Mortality 2006	
Number of cases		Number of deaths	
Total	416	Total	149
Males	213	Males	81
Females	203	Females	68
White	395	White	142
American Indian	17	American Indian	5
Median age at diagnosis	72 yrs	Median age at death	78 yrs
Mode	76 yrs	Mode	81 yrs
Age range at diagnosis	33-100 yrs	Age range at death	46-99 yrs
SD age-adjusted incidence rate	50.7	SD age-adjusted death rate	17.3
US SEER age-adjusted incidence rate (2005)	*47.2	US SEER age-adjusted death rate (2005)	*17.3

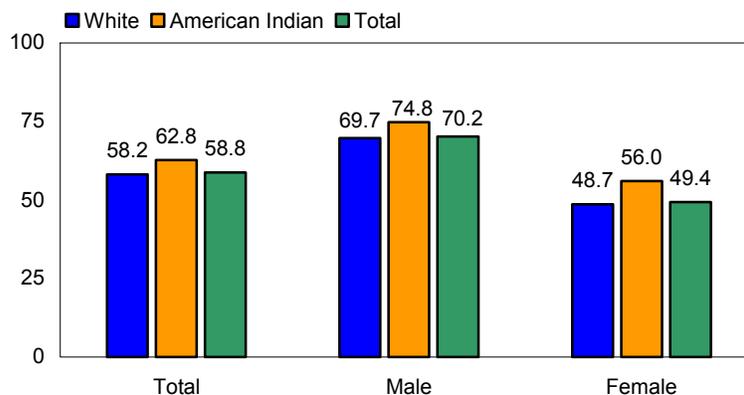
Rates per 100,000 U.S. 2000 standard population
 * 2006 US SEER age-adjusted rates not available
 Source: South Dakota Department of Health

The circle graph at the right displays the SEER Summary Stage at diagnosis for 2006 colorectal cancer cases. As shown, almost half of the cases were diagnosed at the more advanced stages of regional and distant. Patient survival rates decline when diagnosed at a more advanced stage.



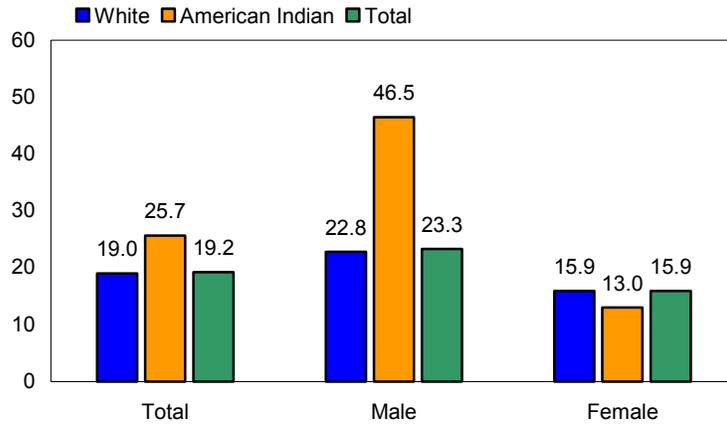
Source: South Dakota Department of Health

See below for the age-adjusted colorectal cancer incidence rate by race and gender in South Dakota for 2002-2006. Please note the rate for the American Indian population is slightly higher than the rate for whites.



Source: South Dakota Department of Health

Although the incidence rate for Native American males is only slightly higher than white males; the age-adjusted colorectal cancer mortality rate for Native American males is significantly higher. See below for the age-adjusted death rates by race and gender for South Dakota, 2002-2006.



Source: South Dakota Department of Health

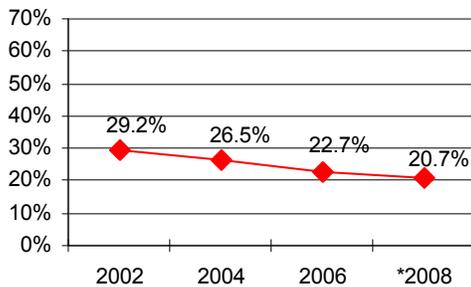
Colorectal Cancer Screening

The Healthy People 2010 Objective 3-12 is to increase the proportion of adults who receive a colorectal cancer screening examination. The 2010 target is 50% of the applicable population for each of the following screenings.

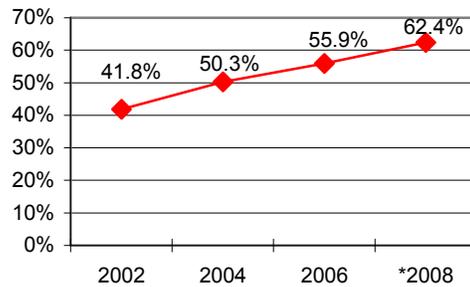
- a. Adults aged 50 years and older who have received a fecal occult blood test (FOBT) within the preceding two years.
- b. Adults aged 50 years and older who have ever received a sigmoidoscopy or colonoscopy.

The percentage of fecal occult blood tests is declining in South Dakota; while the reverse is occurring with sigmoidoscopy/colonoscopy screenings. See below for the percentages within South Dakota.

Blood Stool Tests



Sigmoidoscopy or Colonoscopy



Source: Behavior Risk Factor Surveillance System
*2008 percentages provisional

For additional information, please contact Kay Dosch, SD Cancer Registry Coordinator, at 605-773-6345 or 800-592-1861 or see the website: <http://doh.sd.gov/SDCR/Default.aspx>.

Characteristics of South Dakota HIV/AIDS Infected Persons as of December 31, 2008



	Total HIV/AIDS Diagnoses <i>Total number of persons diagnosed with HIV or AIDS</i>		Persons Living with HIV/AIDS <i>Minimum estimate of persons living with HIV or AIDS</i>		Department of Health Confidential HIV Testing Centers <i>or call Toll Free 1-800-592-1861</i>
	Cases	Percent	Cases	Percent	
TOTAL	588	100%	365	100%	Aberdeen 402 S. Main St. Aberdeen, SD 57401 605-626-2373 1-866-805-1007
Sex					
Male	451	77%	257	70%	
Female	137	23%	108	30%	
Ethnicity					Rapid City 909 E. St. Patrick Rapid City, SD 57701 605-394-2289 1-866-474-8221
American Indian	101	17%	59	16%	
Black	86	15%	79	22%	
Hispanic and Other **	23	4%	15	4%	
White	378	64%	212	58%	
Country of Origin					Watertown 2001 9th Avenue SW Suite 500 Watertown, SD 57201 1-866-817-4090
United States	522	89%	302	83%	
Other	66	11%	63	17%	
Age Group	<i>(Age at HIV Diagnosis)</i>		<i>(Age December 31, 2008)</i>		
< 2 years	9	1%	2	1%	
2-12 years	7	1%	4	1%	
13-24 years	82	14%	16	4%	
25-44 years	389	66%	178	49%	
45-65 years	100	17%	155	42%	
>65	1	1%	10	3%	
Exposure Category					Sioux Falls 1200 N. West Ave. Sioux Falls, SD 57104 605-367-5365 1-866-315-9214
Heterosexual	121	21%	97	27%	
IDU	88	15%	55	15%	
MSM	246	42%	132	36%	
MSM & IDU	26	4%	12	3%	
Perinatal/Pediatric	12	2%	9	2%	
Transfusion/Hemophilia	20	3%	10	3%	
Unspecified	75	13%	50	14%	
HIV Planning Region					Pierre 302 E Dakota Pierre, SD 57501 605-773-5348 1-866-229-4927
American Indian	32	5%	20	6%	
Black Hills	171	30%	100	27%	
Central	24	4%	13	4%	
Northeast	49	8%	23	6%	
Southeast	302	51%	209	57%	
Unknown/Other***	10	2%	0	0%	

Percentages may not add up to 100% due to rounding.

**Hispanic and Other denotes cases that are Asian, Hispanic, or Multi-race.

***Unknown/Other denotes cases in which the HIV/AIDS county is unknown or in a state other than South Dakota.

Dupree
Ziebach County
Court House
Dupree, SD 57623
605-365-5164
1-866-778-5157
CDC HOTLINE
1-800-232-4636
Questions regarding the surveillance report may be directed to Christine Olson 605-773-3737.

Rabies Surveillance, South Dakota, 2008

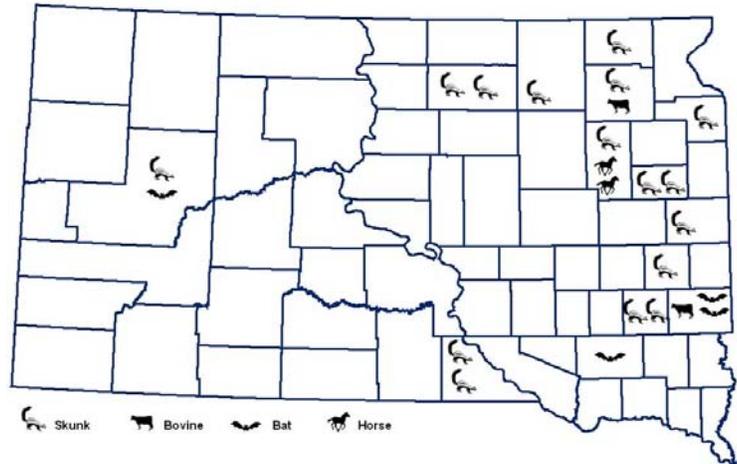
Rabies is a fatal viral disease and a serious public health concern in South Dakota. In 2008, 679 animals were tested for rabies with 24 animals testing positive. This is a decrease of -11% from last year, the fifth consecutive year of decreasing rabies and the lowest number of rabid animals reported since at least 1960. The 24 rabid animals included 20 wild animals (16 skunks and 4 bats) and 4 domestic animals (2 cattle and 2 horses). The last human rabies case in South Dakota was in 1970.

Animals testing negative in 2008 include 241 cats, 138 dogs, 120 bats, 61 cattle, 24 raccoons, 18 skunks, 11 squirrels, 7 muskrats, 6 horses, 5 coyotes, 3 deer, 3 sheep, 3 mice, 2 each beaver, elk, gopher, ground squirrel, mole, opossum, rat, weasel and woodchuck.

During 2008 rabid animals were detected in 14 South Dakota counties (see map and table). Animals were submitted for testing from all counties except Bennett, Buffalo, Campbell, Corson, Dewey, Harding, Jones, Mellette, Shannon, Todd and Ziebach.

During the 10-year period (1999-2008) 813 of 9,530 (9%) animals tested were positive for rabies. During these years animals were tested from all counties, and rabid animals were detected in all counties except Bennett, Shannon, Todd, and Ziebach. The most animals were submitted for testing from Minnehaha County and Ziebach submitted the fewest.

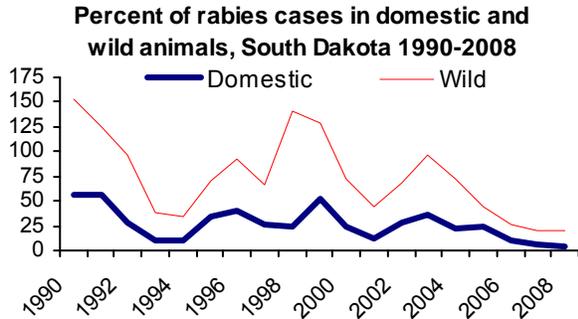
Animal rabies, South Dakota, 2008



Animal	2008		1999 - 2008		
	Pos	Total tested	Pos	Total tested	% Pos
Skunk	16	34	525	781	67%
Cattle	2	63	92	1055	9%
Bat	4	124	62	2169	3%
Cat	0	241	46	2562	2%
Dog	0	138	46	1687	3%
Horse	2	8	34	276	12%
Goat	0	2	3	19	16%
Fox	0	2	2	46	4%
Raccoon	0	24	1	426	0%
Woodchuck	0	1	1	21	5%
Badger	0	0	1	6	17%
Rodents*	0	7	0	89	0%
Squirrel, chipmunk	0	11	0	77	0%
Deer, elk, donkey,	0	4	0	76	0%
Sheep	0	3	0	68	0%
Opossum	0	1	0	40	0%
Weasel, ferret, mink	0	3	0	34	0%
Muskrat	0	7	0	29	0%
Coyote, wolf	0	5	0	28	0%
Rabbit, hare	0	0	0	13	0%
Pig	0	0	0	6	0%
Bison	0	0	0	5	0%
Shrew, mole	0	1	0	4	0%
Mountain lion	0	0	0	3	0%
Bobcat, bear	0	0	0	1	0%
Other animals	0	0	0	9	0%
TOTAL	24	679	813	9530	9%

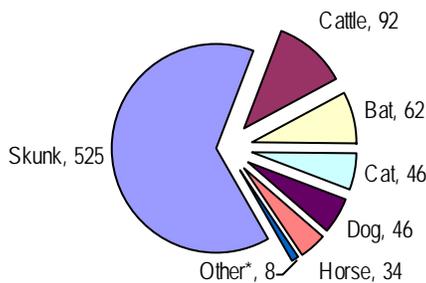
*Rodents: rat, mouse, prairie dog, gopher, ground squirrel, beaver, porcupine, vole

Since 1999, 27% of rabies cases in South Dakota have been domestic animals. There were 46 rabid dogs and 46 rabid cats, many of which were unvaccinated strays. Rabid livestock included 92 cattle, 34 horses and 3 goats.



The common skunk (*Mephitis mephitis*) is the enzootic rabies reservoir in South Dakota. Since 1999, 67% of skunks tested have been rabid. Bat rabies is also enzootic in South Dakota with 62 of 2,107 (3%) bats testing positive over the past 10 years.

Rabid animals, South Dakota 1999-2008



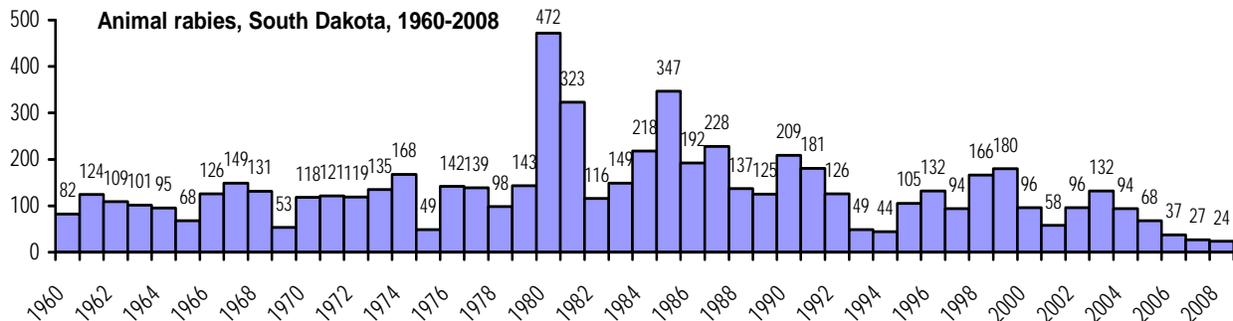
*Others include goat 3, fox 2, badger 1 raccoon 1, woodchuck 1.

Although rabies is not enzootic in other wild animals in South Dakota, since 1999 rabies has been detected in 2 foxes, 1 badger, 1 raccoon, and 1 woodchuck. These other animals are likely spillover rabies following exposure to rabid skunks.

While rabid animal events occur throughout the year in South Dakota, most rabies events occur during the spring and summer months.

County	2008		1998 - 2008		
	Pos	Neg	Pos	Neg	% Pos
Aurora	0	1	9	41	18%
Beadle	0	9	23	123	16%
Bennett	0	0	0	4	0%
Bon Homme	0	2	9	49	16%
Brookings	1	29	43	416	9%
Brown	2	31	47	307	13%
Brule	0	7	10	64	14%
Buffalo	0	0	1	5	17%
Butte	0	16	13	180	7%
Campbell	0	0	4	16	20%
Charles Mix	0	15	23	144	14%
Clark	3	9	22	72	23%
Clay	0	2	8	77	9%
Codington	0	22	15	208	7%
Corson	0	0	2	6	25%
Custer	0	4	3	32	9%
Davison	0	25	18	265	6%
Day	2	9	28	77	27%
Deuel	0	9	21	126	14%
Dewey	0	0	3	19	14%
Douglas	0	6	5	33	13%
Edmunds	1	6	10	56	15%
Fall River	0	9	2	95	2%
Faulk	0	2	8	33	20%
Grant	1	3	15	95	14%
Gregory	2	3	12	63	16%
Haakon	0	3	4	30	12%
Hamlin	2	6	32	116	22%
Hand	0	7	8	52	13%
Hanson	0	3	7	26	21%
Harding	0	0	2	13	13%
Hughes	0	18	13	201	6%
Hutchinson	1	21	24	180	12%
Hyde	0	1	7	68	9%
Jackson	0	6	1	35	3%
Jerauld	0	1	6	34	15%
Jones	0	0	3	8	27%
Kingsbury	0	11	30	143	17%
Lake	1	13	21	173	11%
Lawrence	0	11	6	99	6%
Lincoln	0	11	5	149	3%
Lyman	0	4	1	37	3%
Marshall	1	4	20	71	22%
McCook	2	7	22	113	16%
McPherson	0	3	9	60	13%
Meade	2	9	11	142	7%
Mellette	0	0	1	6	14%
Miner	0	4	13	65	17%
Minnehaha	3	175	62	2316	3%
Moody	0	2	31	111	22%
Pennington	0	40	12	799	1%
Perkins	0	1	4	15	21%
Potter	0	1	1	11	8%
Roberts	0	11	13	142	8%
Sanborn	0	4	15	40	27%
Shannon	0	0	0	38	0%
Spink	0	8	11	75	13%
Stanley	0	1	2	14	13%
Sully	0	1	4	4	50%
Todd	0	0	0	50	0%
Tripp	0	4	12	81	13%
Turner	0	18	16	184	8%
Union	0	6	5	72	6%
Walworth	0	15	17	233	7%
Yankton	0	6	8	104	7%
Ziebach	0	0	0	1	0%
South Dakota	24	655	813	8717	9%

In 2008 there was a human rabies death in the state of Missouri. Nationally there have been 26 human rabies cases in the United States since 2000. Nineteen of the human cases (73%) were associated with bat-rabies virus, 6 (23%) had dog rabies virus (all foreign imports) and 1 (4%) was a raccoon virus variant. These 26 human rabies cases were from Arkansas, California (6), Florida, Georgia, Indiana, Iowa, Minnesota (2), Mississippi, Missouri, New York, Oklahoma, Puerto Rico, Tennessee, Texas (4), Virginia and Wisconsin (2).



The latest national animal rabies surveillance data reported are for year 2007 (Blanton, et. al., 2008). Nationally, there was a 2% increase over the previous year with 7,060 cases of animal rabies reported (93% wild animals. 7% domestic animals). Nationally, rabid domestic animals included 262 cats, 93 dogs, 57 cattle, 41 horses/mules, 13 goats/sheep, and 3 swine. Nationally, wild animals testing positive for rabies included 2,549 raccoons, 1,935 bats, 1,476 skunks, 462 foxes, 46 groundhogs, 35 bobcats, 33 coyotes, 32 mongooses, 6 deer, 6 otters, 4 beavers, 2 opossums, 1 bear, 1 fisher, 1 wolf and 1 wolf-hybrid.

Two laboratories offer rabies tests in South Dakota: (1) the Animal Disease Research Diagnostic Laboratory (ADRDL) in Brookings, and (2) the State Public Health Laboratory (SDPHL) in Pierre. Both laboratories use the direct fluorescent antibody (DFA) technique. The ADRDL performed 413 rabies tests on South Dakota animals in 2008 with 15 being positive, 4%; and the SDPHL performed 301 tests in 2008 with 9 being positive, 3% (indeterminate results included). The case definition of a confirmed animal rabies case is a positive DFA test, performed preferably on central nervous system tissue, or isolation of the rabies virus in cell culture or in a laboratory animal. Human serum rabies antibody titers on previously vaccinated people may be ordered through SDPHL.

Rabies consultations are available from the Office of Disease Prevention, South Dakota Department of Health, 7 days a week. Consultations are based on current Centers for Disease Control and Prevention (CDC) recommendations*. We strive to recommend appropriate rabies prevention measures and to minimize unnecessary and inappropriate post-exposure testing and prophylactic treatment.

Distribution of terrestrial rabies virus variants in the United States (Blanton et al, 2008)



References and resources

*CDC. Human rabies prevention – United States, 2008: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2008; 57 (RR-3).

www.cdc.gov/mmwr/preview/mmwrhtml/rr5703a1.htm

CDC. Compendium of animal rabies prevention and control, 2008: National Association of State Public Health Veterinarians. MMWR 2008; 57 (RR-2).

www.cdc.gov/mmwr/preview/mmwrhtml/rr5702a1.htm

CDC. Compendium of measures to prevent disease associated with animals in public settings, 2007: National Association of State Public Health Veterinarians. MMWR 2007; 56 (RR-5). www.cdc.gov/mmwr/PDF/rr/rr5605.pdf

Blanton, JD, D Palmer, KA Christian, and CE Rupprecht. 2007. Rabies surveillance in the United States during 2007. Journal of the American Veterinary Medical Association 233: 884-897. (see also erratum table)

Addresses, telephone numbers and websites

Department of Health (rabies consultations)

615 East Fourth Street

Pierre, SD 57501-1700

Phone: 1-800-592-1861 or 605-773-3737; after hours 605-280-4810

<http://doh.sd.gov/DiseaseFacts/Rabies>

Department of Health, Public Health Laboratory (rabies testing)

615 East Fourth Street

Pierre, SD 57501-1700

Phone: 1-800-592-1861 or 605-773-3368

<http://doh.sd.gov/Lab/rabies.aspx>

CDC Rabies: www.cdc.gov/rabies

Animal Disease Research and Diagnostic Laboratory (rabies testing)

Box 2175, North Campus Drive

South Dakota State University

Brookings, SD 57007-1396

Phone: 605-688-5171

<http://vetsci.sdstate.edu>

SD Animal Industry Board

(livestock and other animal veterinary and regulatory issues)

441 S. Fort Street, Pierre, SD 57501

Phone: 605-773-3321

www.state.sd.us/aib

South Dakota Bat Working Group

<http://nathist.sdstate.edu/SDBWG/SDBWG.html>

2007 National Animal Rabies State Cases

Alabama	80
Alaska	45
Arizona	159
Arkansas	33
California	188
Colorado	56
Connecticut	219
Delaware	11
Dst Columbia	43
Florida	128
Georgia	301
Hawaii	0
Idaho	12
Illinois	113
Indiana	13
Iowa	31
Kansas	110
Kentucky	20
Louisiana	6
Maine	86
Maryland	431
Massachusetts	152
Michigan	210
Minnesota	40
Mississippi	3
Missouri	38
Montana	23
Nebraska	31
Nevada	9
New Hampshire	54
New Jersey	283
New Mexico	17
New York	559
North Carolina	474
North Dakota	30
Ohio	86
Oklahoma	78
Oregon	12
Pennsylvania	439
Rhode Island	45
South Carolina	162
South Dakota	27
Tennessee	132
Texas	969
Utah	16
Vermont	730
Virginia	165
Washington	22
West Virginia	77
Wisconsin	26
Wyoming	19
Puerto Rico	47
TOTAL	7060

Two rabies laboratories in South Dakota: Brookings and Pierre

Pierre: Submission of specimens to the South Dakota Public Health Laboratory for Rabies Testing 615 East Fourth Street, Pierre, SD 57501-1700

1. Call the South Dakota Department of Health to report the possible exposure and to seek guidance in how to submit the animal for testing. Call 800-592-1861 or 605-773-3737 during regular business hours. For emergencies, after hours, on weekends or holidays, call the mobile phone (605-280-4810). Staff will be able to answer questions and concerns. If at all possible, please call before destroying the suspect animal.
2. Call one of the above numbers to make special arrangements for shipping an animal specimen after regular business hours, on weekends or holidays.
3. Notify the South Dakota Public Health Laboratory (SDPHL) of all impending shipments of animal specimens before actual transport. Call the lab at 800-592-1861 or 605-773-3368 during regular business hours. After hours, on weekends or holidays, contact an individual listed in #1.
4. Be careful not to destroy the head of the animal by gunshot or bludgeoning. Take the animal to a veterinarian for removal of the head in order to preserve the brain tissue and prevent unnecessary exposure to a diseased animal.
5. Include with the specimen, a SDPHL submission form with the following information:
 - Name and birth date of person exposed (or owner if pet exposure)
 - Type of animal and exposure, including exposure date/suspect animal death date
 - Symptoms and/or unusual behavior of suspect animal
 - Name and phone number of veterinarian or physician(Submission forms are available from veterinarians or physicians)
6. Wrap animal head carefully and either ship or deliver directly to the lab in an insulated container with ice or ice packs. SPECIMEN MUST NOT BE FROZEN. Transport the specimen by the quickest means possible.

Direct additional questions to SDPHL 605-773-3368.

<http://doh.sd.gov/Lab/rabies.aspx>

Brookings: Submission of rabies specimens to Animal Disease Research & Diagnostic Laboratory Box 2175, North Campus Drive, South Dakota State University, Brookings, SD 57007-1396

Source : South Dakota Animal Disease Research & Diagnostic Laboratory User's Guide (8/7/07),
<http://vetsci.sdstate.edu/userguide/ADRDL%20Users%20Guide%208.07.07.pdf>

Animals suspected of having rabies that have exposed a human should be euthanized and tested as soon as possible, and staff at the ADRDL is qualified to perform the needed rabies FA test. Since the FA test is so quick and reliable, after hours testing is rarely required anymore; however, ANY AFTER HOURS, WEEKEND OR HOLIDAY EMERGENCY RABIES TEST should be directed to the South Dakota Public Health Laboratory in Pierre.

HOW TO SUBMIT RABIES-SUSPECT CASES TO ADRDL

To meet CDC guidelines for rabies testing, the ENTIRE BRAIN WITH BRAINSTEM must be submitted FRESH to the laboratory. This will allow for testing of both sides of the brain and brainstem as per CDC guidelines. ADRDL staff will fix the brain from domestic animals and some wild animals in formalin for histopathology examination after rabies testing has been completed.

1. Package the brain in a sterile plastic bag placed inside a crush-proof container. Submit to the lab in an appropriate leak-proof, insulated shipping container with adequate ice packs to keep specimen chilled during shipping. DO NOT FREEZE the fresh brain.
2. As always, the laboratory WILL NOT ACCEPT LIVE ANIMALS for rabies testing. Whole bodies, complete heads, or removed brains are all acceptable specimens for submission. ADRDL staff will remove brains upon arrival, at no additional charge.
3. Fill out the standard ADRDL submission form with complete information, including the rabies section at the bottom. Clearly identify as a rabies suspect and clearly indicate if human exposure has occurred with the route of exposure and date included. A referring veterinarian must be listed on the form. The submission form can be downloaded from <http://vetsci.sdstate.edu>

4. Samples arriving to the laboratory before 12 PM (noon) will have results available the same day. Samples arriving after 12 PM (noon) will be tested the next business day.
5. Additional tests, if requested, will not be performed on a rabies suspect case until the rabies FA has been completed and is negative.
6. The ADRDL is open 8 AM to 5 PM Monday through Friday, excluding holidays. A SPECIMEN DROP-OFF COOLER is accessible to the public 24 hours a day, so samples can be delivered to the lab on nights or weekends and left in this cooler for testing the next business day. The cooler is adjacent to the loading dock on the east side of the building. The on-call diagnostician can be reached at (605) 690-1576 if problems or questions arise.
7. Testing after hours, weekends or holidays IS NOT AVAILABLE at the ADRDL. See information from the State Public Health Lab.

FEE POLICY

DOMESTIC ANIMALS - The fee is \$42 for South Dakota clients and \$48 for out-of-state clients. This fee includes not only the rabies FA test, but also routine histopathology and additional laboratory testing (such as virology and/or bacteriology) if requested or found necessary to determine the cause of the animal's death. A \$10 necropsy fee is added if a necropsy is requested for the purpose of further diagnostics. If needed, toxicology testing fees are extra.

WILD ANIMALS - Wild animals that originated in South Dakota and have caused a "significant risk to human health" (see definition below), will be accepted for rabies testing **NO CHARGE** to the submitter. The South Dakota Game, Fish and Parks Department pays for the testing under these circumstances and only the rabies FA test is completed (no additional testing). Wild animals that have not caused a risk to human health can be submitted for rabies testing, but the submitter will be charged the same fee as for domestic animals. If adult bats are submitted with bat pups (baby bats), only the adults will be tested.

HUMAN HEALTH RISK DEFINITION - The exposure of a human or domestic animal to saliva from the suspect animal either through a bite, exposure of mucous membranes, exposure of an open wound, or scratches.
OR

The exposure of a human or domestic animal to central nervous system tissue from the suspect animal either through exposure of mucous membranes or exposure of an open wound.

RESULTS AND REPORTING

1. Laboratory results are reported by telephone as soon as they are available to the referring veterinary clinic listed on the submission form.
2. Test results are reported as "no test" when ANY part of the brain required for testing (per CDC guidelines) is missing for any reason (including autolysis, trauma and/or only half of brain submitted fresh) and the FA result is negative.
3. Test results are also reported as "no test" when brain tissue cannot be identified for any reason (most often due to marked autolysis and/or severe brain trauma) and the FA test is not performed.
4. In addition to the referring veterinary clinic, all **POSITIVE** rabies FA results from domesticated animals will also be reported to the State Health Department and Animal Industry Board in the state where the animal resided.
5. All **POSITIVE** rabies FA results from wild, non-domesticated animals will be reported to the State Health Department, the Animal Industry Board and Game, Fish and Parks Department in the state where the animal resided; additionally, the referring veterinary clinic (if one is listed) will also be notified.

South Dakota Rabies Control Laws

RABIES CONTROL STATUTE: Chapter 40-12 (Section 12-1, 2, 3, 4, 5, 6)

40-12-1. Confinement of animals required in localities where rabies exists -- Neglect as misdemeanor. In localities where rabies exists, the animal industry board may require that any animal deemed likely to spread such disease shall be muzzled, caged, tied or confined in any manner that may be deemed necessary. It is a Class 1 misdemeanor for any owner or person in charge of any animal so ordered to be muzzled, caged, tied or confined, to refuse or neglect to carry out such order.

40-12-2. Destruction of rabid animal required. If the animal industry board determines that rabies exists in any animal, the board may kill such animal and any animal there is reason to believe has been bitten by any animal affected with rabies.

40-12-4. Definition of terms. Terms used in this chapter mean:

- (1) "Department," the department of health;
- (2) "Owner," any person who has a right of property in a pet, keeps or harbors a pet or who has it in his care or acts as its custodian, or permits a pet to remain on or about any premises occupied by him;
- (3) "Pet," any dog, cat or other species of carnivore kept for domestication or display.

40-12-5. Confinement of pet after attack upon person -- Violation as misdemeanor. The department may serve written notice upon the owner of any dog or cat which has attacked or bitten a person to confine the animal at the owner's expense upon his premises or at a city pound or other place designated in the notice for a period of at least ten days after the animal has attacked or bitten any person. The department may examine the animal at any time within the ten-day period of confinement to determine whether such animal shows symptoms of rabies. In the case of any pet other than a dog or cat, which has attacked or bitten a person, the department may serve written notice upon the owner of such animal that the owner shall have the animal euthanized immediately and submit the brain to an approved laboratory for rabies examination. Any owner who fails to comply with a written notice served pursuant to this section is guilty of a Class 1 misdemeanor.

40-12-6. Confinement of pet bitten by animal suspected of having rabies -- Violation as misdemeanor. The department may serve written notice upon the owner of a dog or cat known to have been bitten by an animal known or suspected of being affected by rabies, requiring the owner to confine such dog or cat for a period of not less than six months. However, if such dog or cat had been properly treated with an antirabic vaccine, confinement shall be for a period of not less than three months. In the case of any pet other than a dog or cat, the department may serve written notice upon the owner of such animal that the owner shall have the animal euthanized immediately. Any owner who fails to comply with a written notice served pursuant to this section is guilty of a Class 1 misdemeanor.

SHERIFF: Chapter 7-12 (Section 7-12-29) Taking and holding animal suspected of being dangerous -- Formal determination -- Disposal of dangerous animal. The sheriff may take possession of any animal suspected of being dangerous. The sheriff may hold such animal until a formal determination can be made of the extent of the danger such animal poses. If the animal has attacked or bitten a human or an animal pet, the formal determination shall include consultation with the Department of Health for the purposes of rabies control. The sheriff may dispose of any animal so determined to be dangerous.

REPORTABLE DISEASES: Administrative Rule 44:20:01:03 Category I reportable diseases have a potential for epidemic spread or require rapid application of public health measures to prevent a serious threat to public health or safety. Category I reportable diseases include: Rabies, human and animal;

CONTROL MEASURES: Administrative Rule 44:20:03:10

44:20:03:10. Application of public health measures to animals. The department may instruct a person who owns or is in possession of an animal known or suspected to be a carrier of an infectious agent in public health measures for preventing infection and spread of disease. If the department knows or has reason to believe, because of testing or epidemiological information, that an animal is infected with an infectious agent and is a threat to the public health, it may issue a public health notice directing the person who owns or is in possession of the animal to take one or more of the following actions:

- (1) To examine or test the animal to determine whether it is infected with an infectious agent capable of causing human disease
- (2) To report to an authorized department representative for counseling on methods for preventing transmission of the infectious agent;
- (3) To confine or quarantine the animal for the duration of the incubation period or contagious period;
- (4) To destroy the animal or provide treatment until it is cured or free from the infection and to follow measures for preventing reinfection;
- (5) To cease from specific activities involving the infected animal that endanger the health of others;
- (6) To cooperate with the department in implementation of reasonable public health measures.

Health requirements for dogs and cats on exhibit: Administrative Rule 12:02:10:03 All dogs for exhibition must be accompanied by a health certificate signed by a licensed accredited veterinarian within 30 days before entry to the South Dakota State Fair. The health certificate shall indicate the dates of vaccination for rabies, canine distemper, and canine parvovirus. All vaccines must be current. All cats for exhibition must be accompanied by a health certificate signed by a licensed accredited veterinarian within 30 days before entry to the South Dakota State Fair. The health certificate shall indicate the dates of vaccination for rabies and feline distemper. All vaccines must be current.

Health certificate for imported cats and dogs: Administrative Rule 12:68:06:09 Any cat or dog imported into South Dakota must be accompanied by a health certificate as described in SDCL 40-14-2 issued by a state or federal government veterinary official of the originating state or by a licensed veterinarian. The certificate must state that the animal has not been exposed to rabies, that it is free from signs of any contagious or communicable disease, that it has been currently vaccinated by a licensed veterinarian, the date of vaccination, the type of vaccine used, and the date the animal is due for boosting for rabies immunization.

State launches Statewide Emergency Registry of Volunteers (SERV SD)

Immediately following the attacks on September 11, 2001, tens of thousands of individuals spontaneously showed up at ground zero in New York City to offer assistance. Many who arrived on scene were there to provide medical assistance. Unfortunately, authorities were unable to utilize most of the volunteers because they were unable to distinguish those who were qualified from those who were not. Additionally, because the response was unsolicited, there was no method of coordination, which ultimately reduced the effectiveness and efficiency of the overall response.



Experiences such as September 11th, Hurricane Katrina and, more recently, the I-35W bridge collapse in Minneapolis have shown that many of our nation's medical professionals are eager and willing to volunteer their services when a large-scale disaster occurs. During these times of extraordinary demand, hospitals and other health care providers need to depend upon the services that health volunteers can provide. However, in a time of emergency, utilizing the capabilities of health volunteers presents a major challenge to hospital, public health and emergency authorities. Therefore, a federal program, the Emergency System for the Advanced Registration of Volunteer Health Professionals (ESAR-VHP), was created to help eliminate the number of significant problems encountered when seeking to utilize medical and health care volunteers in complex emergency situations. As part of the ESAR-VHP program, each state, including South Dakota, has been awarded funds to create and establish a local program (or system) for the advanced registration of medical and health care volunteers.

Operating under the auspices of the South Dakota Department of Health, the Statewide Emergency Registry of Volunteers in South Dakota (SERV SD) will coordinate the pre-registration of medical and health care professionals who may be willing to volunteer for duty in the event of an emergency. The goal of SERV SD will be to register qualified individuals, verify their respective credentials, and subsequently provide education and training in the area of disaster response. Additionally, SERV SD will create a database of medical and health care volunteers who, in the event of an emergency, can be mobilized immediately in response.

To volunteer, register online at <https://sdhan.sd.gov/volunteermobilizer/>. The SERV SD pre-registration system will collect information regarding your identity, licensing, credentialing, accreditation and privileging, be it in a hospital(s) or other medical facilities. In addition, volunteers will be asked questions regarding where they are willing to be "deployed" in response to an emergency/disaster – volunteers can choose to respond to county, state, regional and national disasters, as well as how long they are willing to be deployed.

The department understands and respects the sensitivity of the information provided on behalf of volunteers and has taken the following precautions to protect your information:

- Information provided is protected by an industry-standard firewall;
- An SSL certificate ensures secure transactions between Web servers and browsers; and
- Authentication is required to access the system via user name and password.

Additionally, SERV SD is a state-owned-and-operated registry and will not provide your name and information to agencies without your permission. For additional information regarding the program or registration process, you may contact Rick Labrie at rick.labrie@state.sd.us or Courtney Leonard at courtney.leonard@state.sd.us.

Following the tragic events of our recent past, we have all been reminded of our vulnerabilities and have become more appreciative of our freedoms and more understanding of our personal responsibility for the safety of our families, our neighbors and our nation. By registering medical and health care professionals in advance, along with collecting some key information regarding licensing and credentials prior to the occurrence of the next large-scale emergency, volunteers can be used more effectively and more lives can be saved. Please consider volunteering: your compassion, expertise and action will be invaluable in the effort to bring order and healing should another large-scale disaster occur.

South Dakota Medical Professions Student Preparedness Training

On February 6, 2009, 180 medical professions students were trained in the response to large scale disasters. All first and second year medical students, physician assistant students and nursing students from the University of South Dakota participated in a day long educational event designed to familiarize them with their potential role in disaster response. Medical professions students are not yet licensed medical professionals; however, they possess valuable skills and abilities which would prove beneficial in a large scale emergency when licensed professionals are overwhelmed.

This educational event was a collaborative effort between the University of South Dakota, Sanford School of Medicine, the South Dakota State Medical Association, the Physician Leadership Initiative, the City of Sioux Falls Health Department, and the South Dakota Department of Health.

As a pre-requisite to the day long educational event, students were required to complete the online course entitled: Core Disaster Life Support (eCDLS). This course is an introduction to the skills and concepts necessary for the health and medical response to disaster. It is a competency based course approximately four hours in length with both pre and post tests. This and other disaster medical courses are administered by the National Disaster Life Support Foundation.

The day of instruction began with a series of plenary presentations lasting one hour and fifteen minutes followed by two hours of small group concurrent sessions, a one hour and fifteen minute functional triage exercise, and concluding with a thirty minute debriefing and wrap-up.

Dr. Janet Lindemann, USD Dean of Medical Student Education welcomed the students and set the stage by describing the important role medical professions students could play in large scale emergencies. Dr. Jack Horner from the National Disaster Life Support Foundation gave an introduction and historical overview of the health and medical response to disaster. Dr. Matthew Owens, a South Dakota Physician Leader, introduced the principals of TRIAGE and the emerging standard for mass casualty triage, SALT. Dr. Howard Burns, also a South Dakota Physician Leader, discussed the DISASTER paradigm. The plenary presentations were concluded by Mr. Tom Welch, South Dakota Office of Emergency Management with a presentation on incident command.

At the conclusion of the plenary session, students were broken up into 12 pre-determined small groups of 15 students each. One student from each group was also pre-designated as the radio student for their particular group. Each designated radio student was provided with a hand-held digital radio and given brief instruction on its operation.



Each of the 12 groups then moved to their assigned small group session for the start of the concurrent workshops. The small group workshops were conducted in twenty minute sessions covering six preparedness topics. Workshop sessions were designed to provide a very brief overview with the majority of the session devoted to the development of hands-on skills and techniques. Each workshop session was led and assisted by two to six instructors depending upon the particular topic. At the conclusion of each twenty minute session, hand-held radios were used to signal each group that it was time to move to the next session. Six topics were covered in the workshops with two simultaneous sessions of each. Topics included:

Personal Protective Equipment – An introduction to the proper selection and use of PPE was discussed along with demonstrations of Powered Air Purifying Respirators and N-95 masks. Each student had the opportunity to DON and DOFF an Air-Mate PAPR and to converse and communicate while wearing PPE.

Immunizations and Anaphylaxis – Instruction was given on the proper administration of various immunizations and the recognition and treatment of anaphylaxis. Each student had the opportunity to administer and receive a saline injection to and from a fellow student.

Autoinjectors and Chempack – An introduction to the South Dakota Chempack stockpile was provided along with training on the recognition of signs and symptoms of nerve agent exposure. Students also had the opportunity to administer Mark1 antidote trainer kits to fellow students. Discussion included the pharmacology of nerve agent antidotes.

Smallpox Vaccination Technique - Students were introduced to the prospect of large scale vaccinations for smallpox. Proper technique was demonstrated along with the current contraindications for vaccination as well as how to interpret various vaccination outcomes. Adverse reaction events were presented and discussed. Students also had the opportunity to administer saline to fellow students utilizing smallpox vaccination tools and techniques.

State Radio System – Instruction was given on the basic operation of the statewide digital radio system utilizing hand-held radios. Features and limitations of the system were discussed. Students also had the opportunity to initiate communications to the central office over two hundred miles away. Students from this session also gave the command over the radio to each of the other small group sessions when it was time to move to the next session.

Points of Dispensing - Students were briefed on South Dakota POD locations and operations. Their potential role in POD operations was discussed and each student was assigned to a specific POD location. Potential student deployment scenarios were discussed along with the logistics of deployment. Students are typically assigned to a POD location in or near their hometown.

At the conclusion of the small group sessions, preparations were begun for the functional triage exercise. The scenario for the exercise was a pipe-bomb explosion involving 100 middle school children on a tour of the university. The students were pre-assigned roles for the exercise. Sixty were identified as responders and were given red vests to wear during the exercise. One hundred were assigned as victims with a pre-determined signs and symptom card inserted in their name badge for the day. Ten were assigned as evaluators and ten in various other roles.



The exercise was conducted in three, twenty minute sessions after which the students would exchange roles and the exercise was repeated. In this manner, every student had the opportunity to play the role of responder as well as a couple other roles. The objective for the exercise was to introduce students to a mass casualty event and to give them the opportunity to practice mass casualty triage skills learned earlier in the day. Triage tags were used to identify victim triage status. Spot checks by Physician Leaders indicated less than a five percent disagreement with Physician Leader triage assessments.

After the exercise, students gathered in the lecture hall where Physician Leaders and others gave their observations of the exercise. Student evaluators also provided valuable observations and comments about the exercise. Lively discussion and student feedback provided training organizers with numerous opportunities to improve the next medical professions student training event.

The intent is to repeat the medical professions student training every two years as well as to expand this opportunity to other medical professions students in South Dakota. The potential target number of students exceeds 1,800 in a two year cycle.

Thirty-seven individuals participated as planners, coordinators, presenters, or facilitators. Nearly all of the faculty and staff providing the training conducted their activities as part of their day to day responsibilities. This type of training would not be possible without the in-kind contribution by all the organizations participating.

The value of having one-hundred and eighty medical professions students trained, ready, willing, and able to assist with a health and medical response may never be known. However, this is a human resource which could prove invaluable in any large scale public health and medical emergency.

South Dakota Department of Health - Infectious Disease Surveillance

Morbidity Report, 1 January – 28 February 2009

(provisional numbers) see <http://doh.sd.gov/ID/site.aspx>

	Disease	2009 year- to-date	5-year median	Percent change
Vaccine-Preventable Diseases	Diphtheria	0	0	n/a
	Tetanus	0	0	n/a
	Pertussis	4	1	+300%
	Poliomyelitis	0	0	n/a
	Measles	0	0	n/a
	Mumps	0	0	n/a
	Rubella	0	0	n/a
	<i>Haemophilus influenza</i> type b	0	0	n/a
Sexually Transmitted Infections and Blood-borne Diseases	HIV infection	1	5	-80%
	Hepatitis B, acute	1	0	+100%
	Chlamydia	499	420	+19%
	Gonorrhea	74	46	+61%
	Syphilis, early	0	0	0%
Tuberculosis	Tuberculosis	2	2	0%
Invasive Bacterial Diseases	<i>Neisseria meningitides</i>	0	1	-100%
	Invasive Group A <i>Streptococcus</i>	7	2	+250%
Enteric Diseases	<i>E. coli</i> , Shiga toxin-producing	0	1	-100%
	Campylobacteriosis	14	14	0%
	Salmonellosis	53	18	+194%
	Shigellosis	1	11	-91%
	Giardiasis	11	8	+38%
	Cryptosporidiosis	6	4	+50%
	Hepatitis A	0	1	-100%
Vector-borne Diseases	Animal Rabies	1	5	-80%
	Tularemia	0	0	0%
	Rocky Mountain Spotted Fever	0	0	0%
	Malaria (imported)	0	0	0%
	Hantavirus Pulmonary Syndrome	0	0	0%
	Lyme disease	1	0	+100%
	West Nile Virus disease	0	0	0%
Other Diseases	Legionellosis	0	1	-100%
	<i>Streptococcus pneumoniae</i> , drug-resistant	0	1	-100%
	Additionally, the following were reported: Group B <i>Strep</i> , invasive (3); Hepatitis B, chronic (3); Hepatitis C, chronic (59); MRSA, invasive (15); Strep Pneumo < 5, (4)			

Communicable diseases are obligatorily reportable by physicians, hospitals, laboratories, and institutions.

The **Reportable Diseases List** is found at <http://doh.sd.gov/Disease/report.aspx> or upon request.

Diseases are reportable by telephone, mail, fax, website or courier.

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". **Secure website:** www.state.sd.us/doh/diseasereport.htm.

3,200 copies of this Bulletin were printed by the Department of Health at a cost of \$0.40 per copy.