SOUTH DAKOTA DEPARTMENT OF HEALTH

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Clostridium Difficile Prevention and Reduction Project

The South Dakota Department of Health Healthcare Associated Infections (HAI) program and the Great Plains Quality Innovation Network, through the South Dakota Foundation for Medical Care, are working on a Center for Medicare and Medicaid Services quality improvement initiative. The goal is to prevent and reduce *Clostridium difficile* (*C. difficile*) and enhance infection control in nursing homes. The initiative will support 16 South Dakota nursing homes with technical assistance and guidance in the submission of data into Centers for Disease Control and Prevention's National Healthcare Safety Network, providing long term care facilities with a customized system to track infections in a streamlined and systematic way. The system will also provide analysis and creation of a national baseline for C. *difficile* infections in nursing homes across the nation.

In addition to education on antibiotic stewardship and infection prevention and control principles and strategies, the department's HAI program will provide on-site infection control assessments to nursing homes participating in the project. The assessments will cover:

- Infection control program and infrastructure
- Healthcare personnel and resident safety
- Surveillance and disease reporting
- Hand hygiene
- Personal protective equipment (PPE)
- Respiratory/cough etiquette
- Antibiotic stewardship
- Injection safety and point of care testing
- Environmental cleaning
- Reportable diseases and outbreaks in South Dakota
- Resources and guidance to evidence-based infection control guidelines including APICs *Infection Preventionist's Guide to Long-term Care* text.

Recruitment of nursing homes to participate is now underway along with on-site infection control assessments. The initial NHSN education will begin in July and the project is anticipated to run through December 2018. For more information, contact Lori Hintz, lori.hintz@area-a.hcqis.org or Angela Jackley, angela.jackley@state.sd.us.

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Early Hearing Detection and Intervention (EHDI) in South Dakota, report from the South Dakota Newborn Screening Program, EHDI, 2010-2015

Hearing loss is one of the most common birth defects in the United States. Approximately one to three in 1,000 babies are born with permanent hearing loss, making hearing loss one of the most common birth defects in the United States. The goal of the Early Hearing Detection and Intervention (EHDI) Program at the South Dakota Department of Health (DOH) is to identify infants with hearing loss and follow-up enrollment and early intervention based on nationally accepted guidelines put forth by the Joint Committee on Infant Hearing. Before newborn hearing screening, children who were deaf or hard of hearing sometimes were not identified until 2½ to 3 years of age. This delayed identification can negatively impact the child's speech and language acquisition, academic achievement, and social and emotional development. If hearing loss is detected soon after birth, the negative impacts can be reduced and even eliminated through early intervention.
While there are no state statutes to govern the administration of newborn hearing screening in South Dakota, the South Dakota Newborn Screening Program (SDNSP) EHDI Program collaborates with physicians, hospitals, certified nurse midwifes, audiologists and other partners toward timely screening in compliance with state and national guidelines known as "1-3-6".

1 = Hearing **SCREENING** before one month of age

3 = Audiology **DIAGNOSTICS** for hearing loss before 3 months of age

6 = Enrollment into early **INTERVENTION** services before 6 months of age

In an effort to promote quality improvement in meeting the national 1-3-6 timeline, the South Dakota EHDI program receives funding support from the Centers for Disease Control and Prevention (CDC) and the Maternal Child Health Bureau Grant from the Health Resources and Services Administration (HRSA). The CDC EHDI Cooperative Agreements assist state EHDI programs with developing and maintaining sustainable, centralized newborn hearing screening tracking and surveillance systems In South Dakota, the Electronic Vital Records Screening System (EVRSS) is the surveillance system for all three components of the EHDI process (screening, diagnostics, and intervention). EVRSS is able to provide EHDI data that is unduplicated and individually identifiable for occurrent births. EHDI data are voluntarily reported to the Department of Health, Newborn Screening Program by birthing hospitals, physicians, specialists, audiologists and other healthcare providers across the state.

In comparison, the purpose of HRSA EHDI Grant funding is to concentrate efforts to reduce the loss of documentation/loss to follow-up (LTF/D) percentage rates by 5% yearly through the engagement of quality improvement activities. From 2007 to 2015 South Dakota did not receive HRSA EHDI funds. In 2015, the South Dakota Newborn Screening Program collaborated with the University of South Dakota to form the South Dakota EHDI Collaborative for the application and implementation of HRSA EHDI funds.

Described in this report is South Dakota's progress toward the national EHDI goals "1-3-6" for South Dakota 2010-2015 births.

Goal 1: South Dakota newborns will be screening for hearing loss no later than 1 month of age, preferably before hospital discharge. (Figure 1, Indicators 1-4.)

The average percentage of infants receiving a hearing screening remains strong at 97.9%. Contributing to the high percentage is universal newborn hearing screening becoming a standard of care in 100% of birthing hospitals since 2002. Screening of infants by one month of age remains stable between 2010 and 2015 at 98.1%.

The Joint Committee of Infant Hearing states all infants who do not pass the initial hearing screen and the subsequent rescreening should have appropriate audiologic and medical evaluations to confirm the presence of

[1] *Pediatrics*, Position Statement Joint Committee on Infant Hearing (JCIH) 2000, endorsed 2007

hearing loss before 3 months of age. For rescreening, a complete screening on both ears is recommended, even if only one ear failed the initial screen. Separate protocols are recommended for neonatal intensive care unit (NICU) and well-baby nurseries. NICU babies admitted for more than 5 days are to have a hearing screening by auditory brainstem response (ABR). For infants who do not pass an automated ABR in the NICU, a referral directly to an audiologist for rescreening is recommended.

Goal 2: South Dakota newborns who fail to pass the newborn hearing screening will have a diagnostic audiologic evaluation before 3 months of age. (Table 1, Indicators 5-7)

It is important to consider the challenges of the EHDI process post hospital discharge such as hospital transfers, moving, unidentified primary healthcare provider, and inability to contact the parent. For infants who do not pass the hearing screening prior to hospital discharge, some hospitals offer an appointment to return to the birth facility for a rescreen or the infant may receive a hearing rescreen at a well-baby visit with the physician. To address the follow-up challenges of the "not passed" infants, the SDNSP-EHDI initiated 2 new procedures in 2014: 1) Fax notification every month to birthing hospitals of the missing or not passed hearing screening results, for which the SDNSP-EHDI requests a report back of their findings. 2) Fax notification to the physician of missing or not passed hearing screening results, with a request to report back. In 2015, the fax notification to physicians was expanded to include faxing audiologists and otolaryngologists according to the referral information reported back from physicians and hospitals. The corresponding years show improved percentages for quality indicators 4 and 5 (Figure 1).

Goal 3: South Dakota newborns with hearing loss will receive appropriate early intervention services before 6 months of age (early intervention). (Table 1, Indicators 8-9)

According to EVRSS data, the South Dakota EHDI program is currently not meeting the national goal. Intervention data are limited due to the Family Educational Rights and Privacy Act, which regulates the sharing of confidential health information for the Birth to Three Connections Program (Part C). CDC- specified EHDI intervention reporting of "referral" should also include data on enrollment and eligibility. For the SD EHDI program to receive early intervention data from the Department of Education, Birth to Three Program, a parental authorization for the release of enrollment and eligibility dates is required. Pediatric audiologists assist the SD EHDI program with obtaining a signed authorization at the time of the audiology evaluation.

Loss to Follow-up/Documentation (Table 1 & Figure 1, Quality Indicator 5)

Loss to follow-up describes an event in which an infant needs a specific follow-up action but does not receive it, while loss to documentation describes an event in which the infant receives a specific follow-up action, but neither confirmation that the follow-up was provided nor the results were reported to the EHDI program. The CDC EHDI data are gathered by using the Hearing Screening and Follow-up Survey. The survey is sent annually to the EHDI programs across the country. The 2013 National CDC EHDI Data Summary indicates the national percentage LTF/D is 32.1% (range 0.0 – 86.8%). CDC has reported limitations to consider when interpreting the LTF/D percentage rates. Rates depend on confirmed diagnostic results, which may not have been reported to the EHDI program. The SD EHDI program reduced the LTF/D rate during the years of this report – from 84.6% in 2010 to 62.2% in 2015. Efforts to reduce the LTF/D rates will be ongoing through the SD EHDI Collaborative. The SD EHDI Collaborative will provide EHDI support and engagement activities with hospitals, physicians, audiologists, certified nurse midwives and parents.

If you would like more information, please visit the Newborn Hearing Screening Website at: http://doh.sd.gov/family/newborn/hearing/

[2] Morbidity and Mortality Weekly Report (MMWR), Progress in Identifying Infants with Hearing Loss – United States, 2006-2012, April 10, 2015

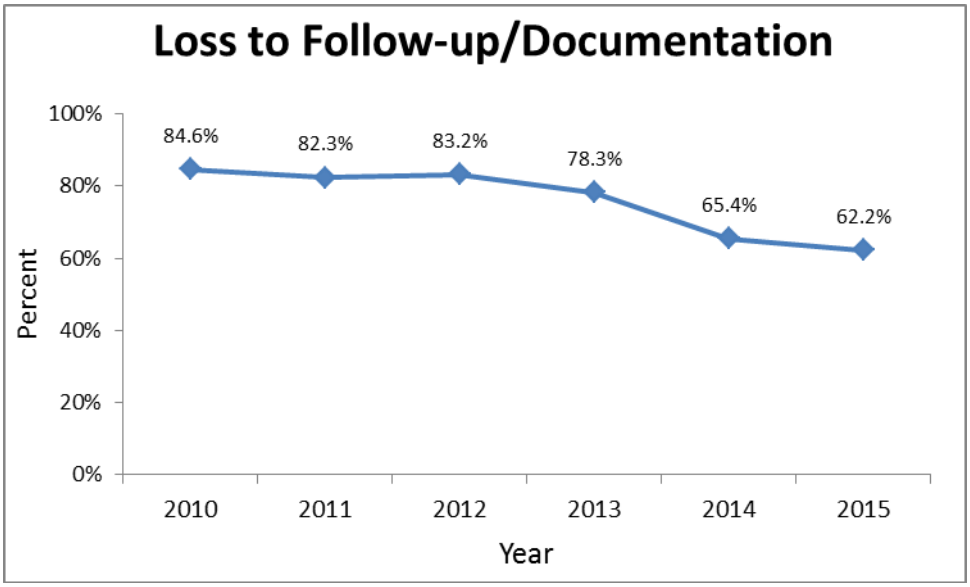
[3] EHDI 2015 are provisional

Table 1. EHDI Quality Indicators, SD EVRSS Data, 2010-2015

Quality Indicators	2010	2011	2012	2013	2014	2015*
Number of occurrent births in South Dakota	12382	12470	12722	12926	12958	12969
Percentage of infants screened for hearing loss	98.1%	97.1%	98.1%	98.0%	98.6%	97.6%
Percentage of infants screened for hearing loss who were screened before 1 month of age	98.2%	98.0%	98.2%	98.4%	98.0%	97.9%
Percentage of infants screened that did not pass initial screen	2.2%	2.3%	2.2%	2.8%	1.8%	1.9%
Percentage of infants that did not pass the initial screen and received a rescreen	62.3%	61.7%	62.0%	51.9%	72.6%	74.2%
Percentage of infants that did not pass who were loss to follow-up/documentation	84.6%	82.6%	83.2%	78.3%	65.4%	62.2%
Percentage of infants who received a diagnostic audiology evaluation that received the evaluation before 3 months of age	58.3%	89.5%	81.1%	77.3%	83.9%	81.3%
Number of infants identified with hearing loss	7	15	27	29	33	30
Number of infants referred to Birth to Three Program	4	5	7	6	7	4
Number of infants enrolled & eligible before 6 months of age into Birth to Three Program	data not available	data not available	data not available	data not available	1	1

*2015 data are provisional

Figure 1: Trends Over Time in Loss to Follow-up/Documentation of Infants That Did Not Pass Screening. There has been a significant decrease in the percent lost to follow-up documentation between 2010 and 20-15 ($p<0.001$).



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10 Leading causes of death by year, South Dakota, 1994 – 2015

Rank	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	Heart 2,275	Heart 2,273	Heart 2,187	Heart 2,124	Heart 2,102	Heart 2,016	Heart 2,105	Heart 1,984	Heart 1,933	Heart 1,942	Heart 1,775	Heart 1,764	Heart 1,743	Heart 1,623	Heart 1,677	Heart 1,778	Cancer 1,651	Cancer 1,655	Heart 1,652	Heart 1,617	Heart 1,695	Heart 1,712
2	Cancer 1,470	Cancer 1,564	Cancer 1,540	Cancer 1,548	Cancer 1,569	Cancer 1,635	Cancer 1,604	Cancer 1,598	Cancer 1,561	Cancer 1,645	Cancer 1,559	Cancer 1,610	Cancer 1,561	Cancer 1,606	Cancer 1,561	Cancer 1,506	Heart 1,611	Heart 1,615	Cancer 1,623	Cancer 1,574	Cancer 1,679	Cancer 1,632
3	Stroke 496	Stroke 533	Stroke 481	Stroke 568	Stroke 537	Stroke 544	Stroke 561	Stroke 491	Stroke 518	Stroke 475	Stroke 463	Stroke 511	Accident 443	CLRD 458	CLRD 486	CLRD 440	CLRD 451	CLRD 485	CLRD 479	Accident 424	Accident 461	CLRD 500
4	Accident 303	CLRD 325	Accident 339	CLRD 337	Accident 347	Accident 340	CLRD 387	Accident 382	CLRD 382	Accident 390	Accident 407	CLRD 440	Stroke 437	Stroke 408	Alzheimer 401	Stroke 417	Stroke 411	Stroke 442	Alzheimer 462	Alzheimer 420	CLRD 440	Accident 467
5	CLRD 298	Accident 313	CLRD 294	Accident 300	CLRD 315	CLRD 338	Accident 318	CLRD 360	Accident 344	CLRD 379	CLRD 393	Accident 396	CLRD 375	Accident 357	Stroke 391	Alzheimer 402	Alzheimer 401	Alzheimer 423	Accident 417	Stroke 414	Stroke 439	Alzheimer 421
6	I & P 284	I & P 313	I & P 287	I & P 268	I & P 283	I & P 262	I & P 208	Diabetes 210	I & P 239	I & P 223	Alzheimer 255	Alzheimer 289	Alzheimer 330	Alzheimer 345	Accident 372	Accident 348	Accident 391	Accident 407	Stroke 410	CLRD 413	Alzheimer 433	Stroke 381
7	Diabetes 178	Diabetes 169	Diabetes 180	Diabetes 195	Diabetes 210	Diabetes 195	Alzheimer 180	I & P 186	Diabetes 193	Diabetes 201	Diabetes 227	I & P 242	Diabetes 261	Diabetes 246	Diabetes 216	Diabetes 200	Diabetes 241	Diabetes 267	Diabetes 219	Diabetes 239	Diabetes 223	Diabetes 282
8	Suicide 98	Suicide 86	Suicide 126	Suicide 126	Suicide 115	Alzheimer 156	Diabetes 179	Alzheimer 159	Alzheimer 169	Alzheimer 175	I & P 180	Diabetes 239	I & P 173	I & P 189	I & P 186	I & P 135	I & P 166	I & P 178	I & P 188	I & P 186	I & P 180	I & P 213
9	Liver 86	Kidney 76	Alzheimer 78	Senility 88	Kidney 93	Suicide 103	Kidney 130	Mental 135	Mental 144	Mental 159	Suicide 114	Suicide 123	Suicide 125	Suicide 101	Suicide 123	Suicide 128	Suicide 139	Suicide 125	Suicide 135	Suicide 147	Suicide 141	Suicide 173
10	Kidney 83	Liver 76	Mental 74	Kidney 75	Senility 77	Kidney 99	Suicide 95	Suicide 108	Kidney 128	Kidney 131	Liver 97	Liver 83	Liver 83	Liver 94	Liver 100	Kidney 99	EHPRD 93	Dementia 117	Liver 113	Liver 121	Liver 128	Liver 137
Total	**6,724**	**6,901**	**6,793**	**6,855**	**6,850**	**6,941**	**7,014**	**6,915**	**6,886**	**7,109**	**6,811**	**7,074**	**7,038**	**6,800**	**7,056**	**6,913**	**7,087**	**7,287**	**7,283**	**7,079**	**7,500**	**7,724**
CDR	966	992	976	985	984	997	929	911	904	927	880	907	893	853	877	851	870	882	874	838	879	900
AADR	779	798	788	790	791	799	805	786	772	787	742	758	732	695	712	689	713	716	707	677	710	*

ICD-9 codes 1994-1998; ICD-10 codes 1999-2015.
Heart: Heart disease
CLRD: Chronic lower respiratory disease, also as COPD chronic obstructive pulmonary disease
Liver: Chronic liver disease and cirrhosis
Kidney: Nephritis, nephrotic syndrome and nephrosis
*2015 population estimates by age group needed to calculate age-adjusted rates are not available at this time

CDR: Crude death rate per 100,000 population
Cancer: Malignant neoplasms
I & P: Influenza and pneumonia
EHPRD: Essential (primary) Hypertension & Hypertensive Renal Disease
Senility: Senile and presenile organic psychotic conditions

AADR: Age-adjusted death rate per 100,000 population
Stroke: Cerebrovascular diseases
Mental: Organic, including symptomatic, mental disorders

Local physicians or coroners assign and document causes of death, and then submit death certificates to the South Dakota Department of Health. Over the past 22 years, 1994-2015, the two most common causes of death were heart disease and cancer. During these years heart disease deaths have dramatically decreased, whereas cancer deaths increased slightly. Stroke deaths declined and were the sixth leading cause of death in 2015. Deaths due to accidents, chronic lower respiratory disease, Alzheimer's, diabetes, suicide, and liver disease have increased during these years.

Age-grouped deaths during the 5-year period, 2011-2015, show accidental deaths as the leading cause of death in children and young adults in the 1-44 year age groups, cancer death is most common in the 45-84 year age groups, and heart disease death is most common in the elderly 85 years and older.

Source: South Dakota Vital Statistics Reports, 1994-2015.

10 Leading causes of death by age group, South Dakota, 2011-2015

	Age Groups											
	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Rank	Total 422	Total 83	Total 117	Total 492	Total 605	Total 933	Total 2,162	Total 4,050	Total 5,529	Total 8,687	Total 13,771	Total 36,851
1	Conditions originating perinatal per. 174	Accidents 30	Accidents 46	Accidents 214	Accidents 226	Accidents 200	Cancer 567	Cancer 1,403	Cancer 1,924	Cancer 2,360	Heart disease 3,792	Heart disease 8,291
2	Congenital abnormalities 103	Homicide 13	Cancer 14	Suicide 153	Suicide 124	Cancer 127	Heart disease 361	Heart disease 882	Heart disease 1,207	Heart disease 1,867	Cancer 1,714	Cancer 8,164
3	Accidents 40	Congenital abnormalities 10	Suicide 14	Homicide 28	Liver disease 38	Heart disease 126	Accidents 256	Accidents 234	Chron. low resp. disease 467	Chron. low resp. disease 743	Alzheimer's disease 1,594	Chron. low resp. disease 2,317
4	SIDS 39	Cancer 7	Influenza & pneumonia 5	Cancer 26	Heart disease 35	Liver disease 116	Liver disease 161	Chron. low resp. disease 201	Diabetes 247	Stroke 570	Stroke 1,119	Accidents 2,176
5	Unknown causes 17	Unknown causes 6	Congenital abnormalities 5	Heart disease 14	Cancer 22	Suicide 112	Suicide 140	Diabetes 193	Stroke 212	Alzheimer's disease 457	Chron. low resp. disease 847	Alzheimer's disease 2,159
6	Influenza & pneumonia 9	Influenza & pneumonia 3	Homicide 4	Diabetes 7	Homicide 19	Diabetes 35	Diabetes 85	Liver disease 145	Accidents 158	Accidents 300	Influenza & pneumonia 561	Stroke 2,086
7	Homicide 8	Bronchitis 2	Septicemia 3	Undetermined intent 5	Diabetes 14	Stroke 17	Chron. low resp. disease 55	Stroke 110	Alzheimer's disease 88	Diabetes 289	Accidents 472	Diabetes 1,230
8	Other metabolic disorders 6	Undetermined intent 2	Heart disease 3	Cerebral palsy 5	Pregnancy & childbirth 11	Homicide 17	Stroke 50	Suicide 110	Liver disease 83	Influenza & pneumonia 181	Unspecified dementia 412	Influenza & pneumonia 945
9	Other viral diseases 3		Cerebral palsy 3	Paroxysmal disorders 4	Undetermined intent 10	Septicemia 16	Alcohol use 50	Septicemia 58	Influenza & pneumonia 81	Parkinson's disease 158	Diabetes 359	Suicide 721
10	Heart disease 3		Other viral diseases 2	Influenza & pneumonia 4	Influenza & pneumonia 9	Undetermined intent 13	Septicemia 32	Influenza & pneumonia 49	Kidney disease 58	Unspecified dementia 126	Hypertension 288	Liver disease 597
	All other 20	All other 10	All other 18	All other 32	All other 97	All other 154	All other 405	All other 665	All other 1,004	All other 1,636	All other 2,613	All other 8,165

Top 5 causes of death are highlighted.

Source: South Dakota Vital Statistics Reports, 2011-2015.

South Dakota Department of Health – Infectious Disease Surveillance

Selected Morbidity Report, 1 January – 30 June 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	0	0	n/a
	Pertussis	9	14	-36%
	Poliomyelitis	0	0	n/a
	Measles	0	0	n/a
	Mumps	1	0	n/a
	Rubella	0	0	n/a
	Haemophilus influenza type b	13	0	n/a
Sexually Transmitted Infections and Blood-borne Diseases	HIV infection	21	16	+31%
	Hepatitis B, acute	2	1	+100%
	Chlamydia	2,142	1,909	+12%
	Gonorrhea	603	350	+72%
	Syphilis, early	17	11	+55%
Tuberculosis	Tuberculosis	7	6	+17%
Invasive Bacterial Disease	Meningococcal, invasive	1	2	-100%
Enteric Diseases	*E. coli*, Shiga toxin-producing	26	14	+86%
	Campylobacteriosis	228	160	+43%
	Salmonellosis	129	88	+47%
	Shigellosis	11	5	+120%
	Giardiasis	46	42	+19%
	Cryptosporidiosis	78	58	+34%
	Hepatitis A	0	0	n/a
Vector-borne Diseases	Animal Rabies	12	18	-33%
	Tularemia	7	4	+75%
	Rocky Mountain Spotted Fever	0	0	0%
	Malaria (imported)	4	2	+100%
	Hantavirus Pulmonary Syndrome	0	0	0%
	Lyme disease	2	0	+200%
	West Nile Virus disease	6	4	+50%
Other Diseases	Legionellosis	1	0	+100%
	Zika	0	0	n/a
	Additionally, the following were reported: Chicken Pox (18); CRE (24); coccidioidomycosis (3); Hep B, chronic (17); Hep C (367); MRSA, invasive (76); Q fever (2).			

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".