

Department of Health 2010 Initiative

Improve Birth Outcomes and Health of Infants, Children and Adolescents in South Dakota

- ❖ Promote early and regular prenatal care for South Dakota mothers
- ❖ Improve South Dakota's age-appropriate immunization rate
- ❖ Reduce risky behaviors among children and adolescents

Key Performance Measures

- Reduce the infant mortality rate to from 6.5 per 1,000 births in 2003 to 6 by 2010
- Increase the percent of two-year olds who are age-appropriately immunized from 83.4% in 2003 to 90% by 2010
- Reverse the trend and reduce the percent of school-age children & adolescents who are overweight or obese from 17% in 2003 to 15% by 2010
- Reduce the teen pregnancy rate from 19 per 1,000 births to teens age 15-17 in 2003 to 15 by 2010

Improve the Health Behaviors of South Dakotans to Reduce Chronic Disease (i.e., heart disease, cancer, stroke, diabetes)

- ❖ Enhance data collection systems to assess the chronic disease burden in South Dakota
- ❖ Strengthen our ability to promote healthy behaviors
- ❖ Implement the *Healthy South Dakota Initiative* to help South Dakotans be physically active, eat healthy and live healthier lives

Key Performance Measures

- Reduce the percent of adults who are overweight or obese from 60% in 2003 to 55% by 2010
- Increase the percent of adults who are physically active on a regular basis from 45% in 2003 to 50% by 2010
- Increase the percent of adults who eat 5 fruits & vegetables a day from 19% in 2003 to 25% by 2010
- Reduce percent of adults who smoke cigarettes from 22.7% in 2003 to 18% by 2010



Guiding Principles

- Encourage Use of Technology
- Emphasize Customer Service
- Reduce Health Disparities
- Work in Partnership

Strengthen the Health Care Delivery System in South Dakota

- ❖ Sustain a competent workforce
- ❖ Provide effective oversight and assistance to assure quality health facilities, professionals and services
- ❖ Sustain essential healthcare services in rural and underserved areas
- ❖ Encourage development and use of technology for the provision of healthcare services

Key Performance Measures

- At least 75% of vacancies for health professionals are filled each year
- Data from critical access hospitals shows at least 10% improvement in quality indicators for heart failure
- At least 20% of all South Dakota hospitals use electronic medical records

Advance South Dakota's Response to Emerging Public Health Threats

- ❖ Develop and maintain a standardized system for assessment and response of emerging public health threats
- ❖ Enhance the state's capacity to effectively manage emerging public health threats and emergencies
- ❖ Strengthen the department's capacity to respond to environmental health issues

Key Performance Measures

- Increase the percent of reportable diseases that are reported to the DOH within required time frames to 90%
- Increase the percent of health care providers and first responders who are trained to recognize and address emerging health threats to 75%
- Increase the percent of health care facilities that are able to perform key response activities to 100%

Improve Birth Outcomes and Health of Infants, Children and Adolescents in South Dakota

- ❖ Promote early and regular prenatal care for South Dakota mothers (*Darlene Bergeleen*)
 - Identify barriers to accessing early and regular prenatal care and work with health care providers to address the barriers
 - Increase public awareness of the importance of early and regular prenatal care and the impact life choices have on a healthy pregnancy and infant
 - Strengthen links between public programs serving pregnant mothers and primary care providers to improve birth outcomes
- ❖ Improve South Dakota's age-appropriate immunization rate (*Bonnie Jameson*)
 - Educate providers and the public about the importance of immunizations
 - Enhance the immunization registry to allow for real-time access to immunization data for all public and private immunization providers in the state
 - Utilize non-traditional avenues for providing childhood immunizations
- ❖ Reduce risky behaviors among children and adolescents (*Kayla Tinker*)
 - Enhance activities directed at reducing the incidence of childhood obesity
 - Enhance activities designed to reduce teen pregnancy and the rate of sexually transmitted diseases among adolescents
 - Work with other organizations and state agencies addressing child/adolescent issues (i.e., seatbelt use, suicide, alcohol/drug use)

Improve the health behaviors of South Dakotans to reduce chronic disease (i.e., heart disease, cancer, stroke, diabetes)

- ❖ Enhance data collection systems to assess the chronic disease burden in South Dakota (*Kathi Mueller*)
 - Work with partners to improve collection and timely access to disease/illness information
 - Enhance DOH data collection systems to improve the quality and timeliness of data
 - Improve accessibility and usability of DOH data and analysis
- ❖ Strengthen our ability to promote healthy behaviors (*Colleen Winter*)
 - Work with partners to develop a statewide plan for nutrition and physical activity
 - Enhance state- and community-based tobacco control efforts
 - Provide technical assistance and resources to assist individuals, families, communities, schools, employers, and health care providers in the promotion of healthy behaviors
 - Promote the development of policies that support healthy behaviors
- ❖ Implement the *Healthy South Dakota Initiative* to help South Dakotans to be physically active, eat healthy and live healthier lives (*Linda Ahrendt*)
 - Develop a *Healthy South Dakota* website
 - Conduct a public education campaign in support of the *Healthy South Dakota Initiative*
 - Utilize DOH as a model for workplace wellness programs and activities

Strengthen the health care delivery system in South Dakota

- ❖ Sustain a competent workforce (*Sandi Durick*)
 - Develop reliable healthcare workforce projections and plan for future healthcare workforce needs
 - Promote healthcare careers to school-aged children and young adults
 - Promote health profession recruitment and retention programs
- ❖ Provide effective oversight and assistance to assure quality health facilities, professionals and services (*Bob Stahl*)
 - Assure healthcare facilities meet minimum standards for quality
 - Enhance technical assistance, training, and resources for healthcare facilities and providers to meet identified needs
 - Work with health profession licensing boards to make information available to the public that is consistent, coordinated, understandable, and easily accessible
- ❖ Sustain essential healthcare services in rural areas and underserved areas (*Bernie Osberg*)
 - Promote and support health care planning at the community level to assure an integrated approach to healthcare
 - Assist communities identify resources for operation, maintenance and replacement of essential healthcare services
- ❖ Encourage development and use of technology for the provision of health services (*Ken Doppenberg/Doug Knutson*)
 - Support increased utilization of technology throughout the healthcare industry
 - Support continued development and enhancement of telemedicine for the provision of healthcare services
 - Support development and use of distance education for the healthcare workforce

Advance South Dakota's Response to Emerging Public Health Threats

- ❖ Develop and maintain a standardized system for assessment and evaluation of emerging public health threats (*Lon Kightlinger*)
 - Enhance the existing disease surveillance system for the rapid collection, analysis and identification of health threats and the timely dissemination of information
 - Develop and exercise state/local public health response plans
 - Routinely evaluate state/local response to disease outbreaks and other health threats
 - Clearly identify roles and responsibilities in the event of new and emerging health threats and disasters
- ❖ Enhance the state's capacity to effectively manage emerging public health threats and emergencies (*Bill Chalcraft*)
 - Assess and improve the safety and security of healthcare facilities
 - Provide education and training regarding new and emerging diseases
 - Identify, coordinate and train the state, local, private, and volunteer public health workforce
 - Identify state, local and regional healthcare facility capacity and essential equipment for response to a public health emergency
- ❖ Strengthen the department's capacity to respond to environmental health issues (*Dave Micklos/Mike Smith*)
 - Identify resources to support an environmental health capacity within the DOH
 - Clearly identify roles and responsibilities to address environmental health issues
 - Work with other organizations and state agencies addressing environmental health issues



South Dakota Department of Health 2020

Promote, protect, and improve the health and well-being of all South Dakotans

Improve Birth Outcomes and Health of Infants, Children and Adolescents in South Dakota

- ❖ Increase awareness of the importance of healthy lifestyle choices among women of childbearing age
- ❖ Promote awareness and implementation of infant safe sleep practices
- ❖ Improve South Dakota's age-appropriate immunization rate
- ❖ Reduce risky behaviors among children and adolescents

Key Performance Measures

- Reduce infant mortality rate from 8.6 per 1,000 births in 2012 to 6.0 by 2020
- Increase proportion of pregnant women who receive prenatal care in the first trimester from 70.5% in 2012 to 80% by 2020
- Increase percent of two-year olds who are age-appropriately immunized from 77% in 2012 to 90% by 2020
- Increase percent of adolescents ages 13-17 who have received at least 1 dose of Tdap from 67% in 2012 to 80% by 2020
- Reverse trend and reduce the percent of school-age children & adolescents who are obese from 16% in the 2012-13 school year to 14% by 2020
- Reduce percentage of youth in grades 9-12 who currently smoke from 16.5% in 2013 to 15% by 2020

Strengthen the Healthcare Delivery System in South Dakota

- ❖ Provide effective oversight and assistance to assure quality health facilities, professionals and services
- ❖ Sustain essential healthcare services in rural and underserved areas
- ❖ Provide effective coordination of health information technology (HIT) and health information exchange (HIE) efforts among public and private stakeholders

Key Performance Measures

- Increase the number of health career camp attendees from 975 in the 2012-13 school year to 1,500 by 2020
- Increase the percent of South Dakota nursing facilities that participate in resident-directed or person-centered care from 69% in 2009 to 80% by 2020
- Maintain a closure rate of zero for rural hospitals determined to be "access critical"
- Increase the percentage of health care providers and facilities that are meaningful users of certified electronic health record technology from 50% in 2013 to 90% by 2020
- Increase the percentage of health care providers and facilities participating in South Dakota Health Link Direct and Point of Care Exchange services from 25% in 2013 to 70% by 2020

Improve the Health Behaviors of South Dakotans to Reduce Chronic Disease (i.e., heart disease, cancer, stroke, diabetes)

- ❖ Work with partners to implement statewide plans to reduce the burden of chronic disease
- ❖ Help South Dakotans across the lifespan to be physically active, eat healthy and be tobacco free
- ❖ Increase the number of people screened for chronic disease (i.e., mammograms, pap smears, colorectal cancer, diabetes, cholesterol, hypertension, etc.)

Key Performance Measures

- Reverse the trend and reduce the percent of adults who are obese from 28.1% in 2013 to 23% by 2020
- Increase the percent of adults who meet the current guideline of 150 minutes of physical activity per week from 46.1% in 2011 to 55% by 2020
- Reverse the trend and increase the percent of adults who eat 3 or more vegetables a day from 9.4% in 2011 to 18% by 2020
- Reduce the percent of adults who smoke cigarettes from 22% in 2012 to 19% in 2020
- Increase the number of adults over age 50 who have had colorectal screening from 64% in 2012 to 80% by 2020

Guiding Principles
 Reduce Health Disparities
 Maximize Use of Technology
 Emphasize Customer Service
 Work in Partnership

Strengthen South Dakota's Response to Current and Emerging Public Health Threats

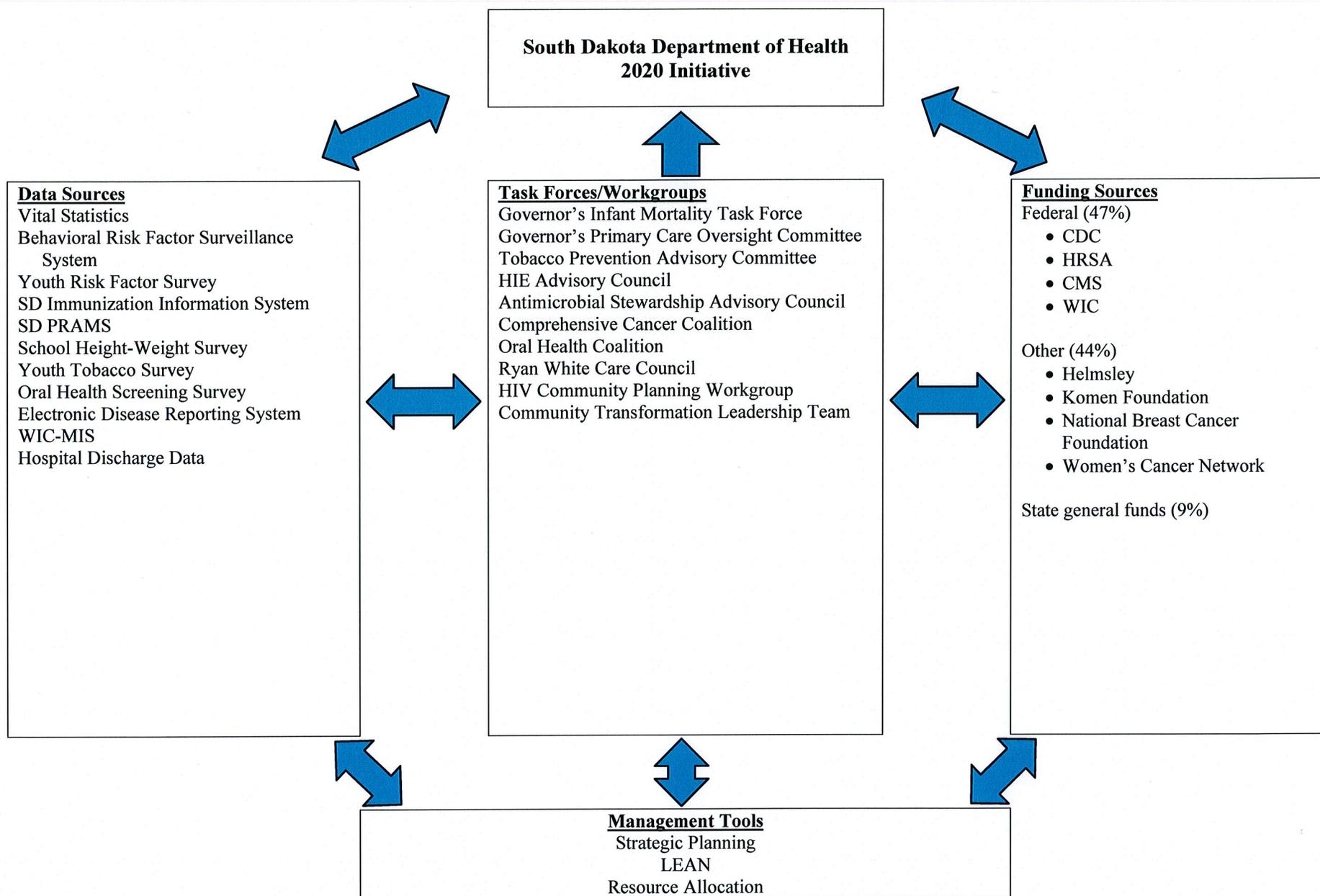
- ❖ Maintain and improve the identification, assessment, and response to current and emerging public health threats
- ❖ Enhance the state's capacity to effectively coordinate the response to current and emerging public health threats
- ❖ Establish a dedicated environmental health program within the Department of Health to respond to environmental health issues

Key Performance Measures

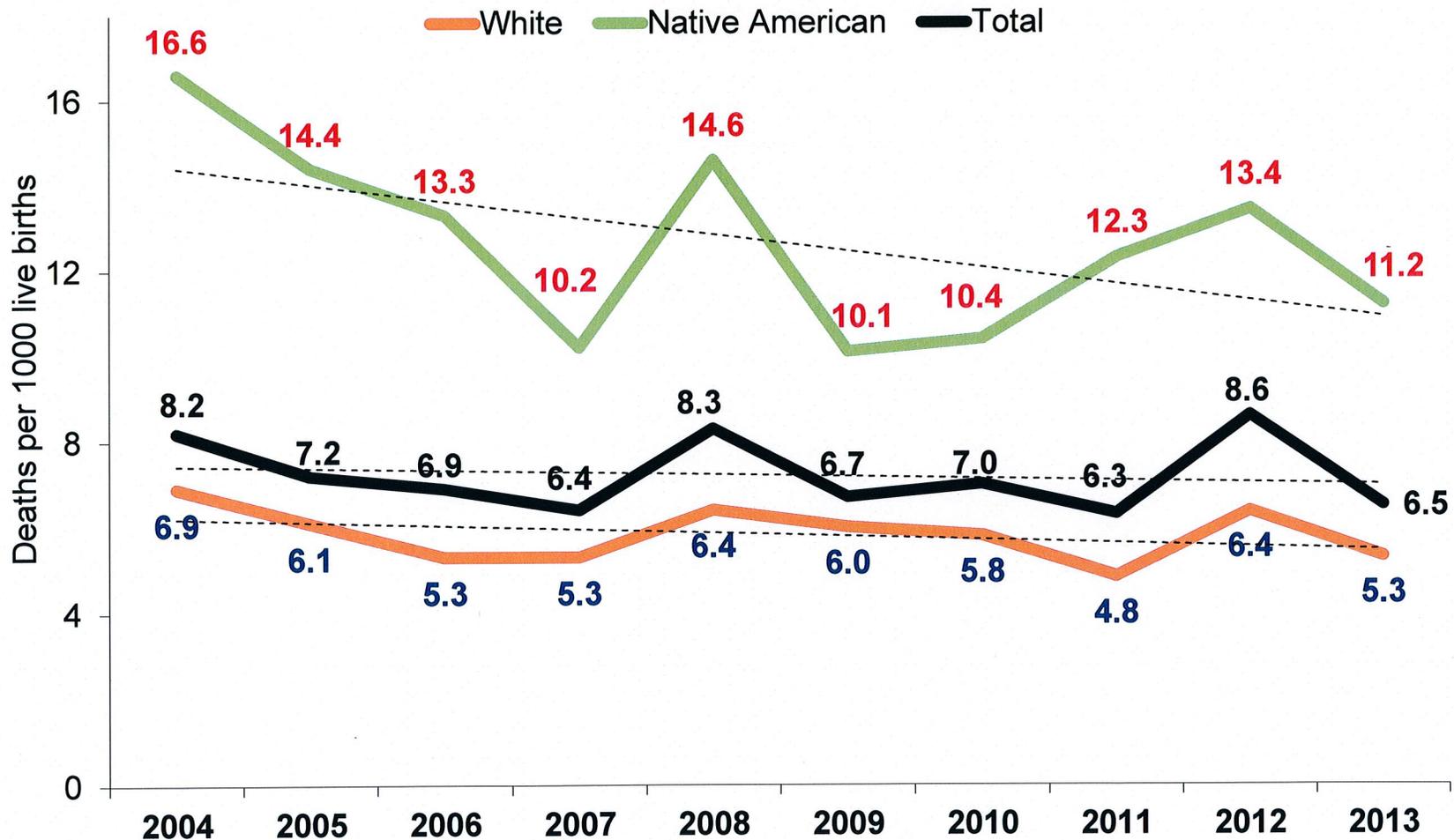
- Increase the rate of disease reporting electronically from 64% of reports in 2009 to 90% by 2015
- Double the number of healthcare volunteers registered in SERV-SD from 911 in 2013 to 1,280 by 2020
- Increase the expertise of DOH environmental health staff by achieving 100% of staff meeting the qualifications of being a Registered Environmental Health Specialist according to the National Environmental Health Association by 2020 (50% in 2013)

Strategies for Achieving 2020 Objectives

<p>Improve Birth Outcomes and Health of Infants, Children and Adolescents in South Dakota</p> <ul style="list-style-type: none"> ❖ Increase awareness of the importance of healthy lifestyle choices to women of child bearing age (<i>Peggy Seurer</i>) <ul style="list-style-type: none"> – Promote the importance of prenatal care for South Dakota mothers – Maintain collaboration between public programs serving pregnant women and primary care providers to improve birth outcomes – Enhance activities and increase public awareness regarding the dangers of tobacco use by pregnant women and exposure to secondhand smoke ❖ Promote awareness and implementation of infant safe sleep practices (<i>Peggy Seurer</i>) <ul style="list-style-type: none"> – Develop crib distribution program for families in need of safe sleep environment for their infant – Develop comprehensive safe sleep education program to reduce the risk of injury and death of infants due to unsafe sleep practices – Work in partnership to distribute safe sleep information throughout communities ❖ Improve South Dakota's age-appropriate immunization rate (<i>Bonnie Jameson</i>) <ul style="list-style-type: none"> – Educate providers and the public about the importance of immunizations – Create interface between electronic health records and the immunization registry – Utilize non-traditional avenues for providing childhood immunizations ❖ Reduce risky behaviors among children and adolescents (<i>Darlene Bergeleen</i>) <ul style="list-style-type: none"> – Enhance activities to reduce the incidence of childhood obesity and the use of tobacco among children and adolescents – Enhance activities designed to reduce rates of pregnancy and sexually transmitted diseases among adolescents – Enhance partnerships/collaboration with other state agencies to address risky behaviors 	<p>Improve the Health Behaviors of South Dakotans to Reduce Chronic Disease (i.e., heart disease, cancer, stroke, diabetes)</p> <ul style="list-style-type: none"> ❖ Work with partners to implement statewide plans to reduce the burden of chronic disease (<i>Linda Ahrendt</i>) <ul style="list-style-type: none"> – Develop and implement policies and environmental changes to support healthy behaviors and manage chronic disease – Engage additional partners (i.e., health providers, communities, service organizations, etc.) to expand the reach and impact of state chronic disease plans ❖ Help South Dakotans across the lifespan to be physically active, eat healthy and be tobacco free (<i>Derrick Haskins</i>) <ul style="list-style-type: none"> – Utilize current communication methods and technology to market and promote programs to help South Dakotans live healthier lives – Enhance efforts to provide technical assistance and resources for individuals, families, communities, schools, employers, and health care providers to promote healthy behaviors and prevent chronic disease ❖ Increase the number of people screened for chronic diseases (i.e., mammograms, pap smears, colorectal screening, diabetes, cholesterol, hypertension, etc.) (<i>Karen Cudmore</i>) <ul style="list-style-type: none"> – Increase public awareness of the importance of chronic disease screenings – Work with partners to assure accessibility to chronic disease screening for all South Dakotans
<p>Strengthen the Healthcare Delivery System in South Dakota</p> <ul style="list-style-type: none"> ❖ Provide effective oversight and assistance to assure quality health facilities, professionals and services (<i>Chris Qualm</i>) <ul style="list-style-type: none"> – Assure healthcare facilities meet minimum standards for quality of care – Enhance technical assistance, training, and resources for healthcare facilities and providers to meet identified needs – Assure information regarding healthcare facilities, providers, and services is available to the public in a coordinated, understandable, and easily accessible manner – Increase coordination with health professional licensing boards to address quality of care and access to care issues ❖ Sustain essential healthcare services in rural and underserved areas (<i>Halley Lee</i>) <ul style="list-style-type: none"> – Build and sustain South Dakota's healthcare workforce – Develop and promote systems of care to assure high quality, readily accessible, and well-coordinated healthcare services statewide – Develop and promote innovative primary care delivery models in rural areas – Develop and implement quality improvement programming and services – Assist healthcare organizations identify resources for operation, maintenance, and replacement of healthcare facilities ❖ Provide effective coordination of HIT/HIE efforts among public and private stakeholders (<i>Kevin DeWald</i>) <ul style="list-style-type: none"> – Encourage adoption and meaningful use of certified electronic health records (EHR) through use of federal incentive programs – Promote participation in/use of South Dakota Health Link Direct and Point of Care Exchange – Link hospitals and providers with educational and technical assistance resources for implementation of certified EHR technology available through HealthPOINT and other resources 	<p>Strengthen South Dakota's Response to Current and Emerging Public Health Threats</p> <ul style="list-style-type: none"> ❖ Maintain and improve the identification, assessment, and response to current and emerging public health threats (<i>Lon Kightlinger</i>) <ul style="list-style-type: none"> – Improve timeliness and effectiveness of prevention and controls of public health threats – Develop and maintain State Public Health Laboratory proficiency in all applicable Laboratory Response Network procedures – Increase electronic disease reporting and maintain continuing functional electronic laboratory reporting competency within the Department of Health ❖ Enhance the state's capacity to effectively coordinate the response to current and emerging public health threats (<i>Bill Chalcraft</i>) <ul style="list-style-type: none"> – Improve the Department of Health's ability to electronically monitor and track response efforts and interventions – Enhance the Department of Health's ability to communicate with partners about emerging public health threats – Identify, coordinate, and train the state, local, private, and volunteer public health workforce ❖ Establish a dedicated environmental health program within the Department of Health to respond to environmental health issues (<i>Mike Smith</i>) <ul style="list-style-type: none"> – Develop key capacity to respond to current and emerging environmental health issues (i.e., lead, mold, indoor air, nuisance investigations, etc.) – Identify, train, and maintain staff proficient in dealing with environmental health issues



Infant Mortality Disparity, South Dakota, 2004 – 2013 (Infant deaths per 1,000 live births)



SD-DOH SDVSR (single race formula)

Infant Mortality

An Overview: 2012		
Infant Deaths		
Number		104
Rate per 1,000 Live Births		8.60
Neonatal Deaths		
Number		69
Rate per 1,000 Live Births		5.71
Postneonatal Death		
Number		35
Rate per 1,000 Live Births		2.89

In comparison, there were 75 infant deaths in 2011, with the infant mortality rate of 6.34 per 1,000 live births. Caution should be used when comparing these annual rates, because the number of South Dakota resident births creates a relatively small denominator to determine infant mortality rates; a small change in the number of infant deaths can result in a relatively large rate change. For example, as Table 32, below, and Figure 6, on the next page, displays, large downward spikes occurred in 1996 and 2000. Decreases of 39 infants from 1995 to 1996 and 37 infants from 1999 to 2000 caused large downward spikes in infant mortality rates. Therefore, infant mortality rates should be monitored over a period of time.

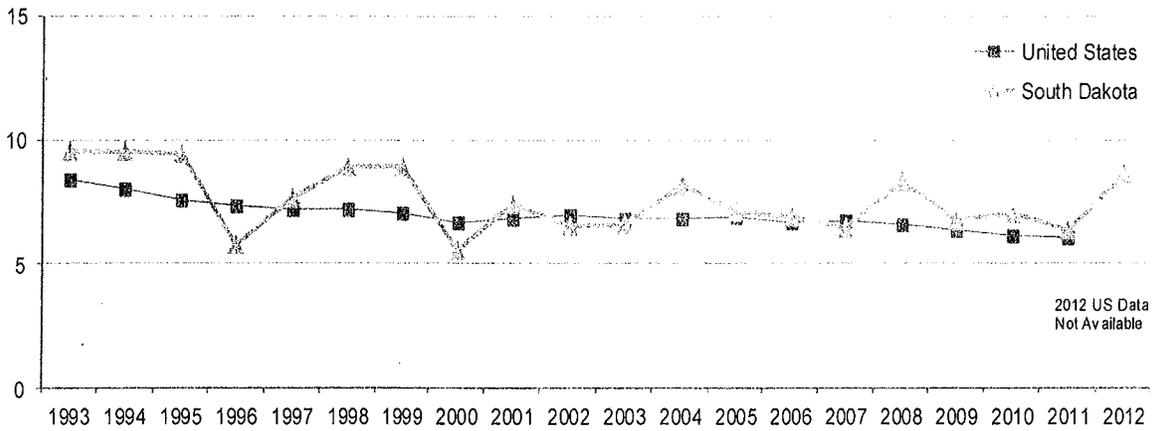
During 2012, there were 104 South Dakota resident infant deaths reported for an infant mortality rate of 8.60 per 1,000 live births.

Table 32
Resident Infant Deaths and Infant Mortality Rates,
South Dakota and United States, 1993-2012

Year	United States		South Dakota	
	Number	Mortality Rate	Number	Mortality Rate
2012	NA	NA	104	8.60
2011	*23,910	*6.05	75	6.34
2010	24,586	6.15	83	7.04
2009	26,412	6.39	80	6.71
2008	28,059	6.61	100	8.28
2007	29,138	6.75	79	6.45
2006	28,527	6.69	82	6.88
2005	28,440	6.87	82	7.15
2004	27,936	6.79	93	8.20
2003	28,025	6.85	73	6.62
2002	28,034	6.97	70	6.54
2001	27,568	6.85	78	7.45
2000	27,200	6.70	57	5.51
1999	27,937	7.06	94	8.94
1998	28,371	7.20	92	8.95
1997	28,045	7.21	78	7.67
1996	28,487	7.32	60	5.73
1995	29,583	7.59	99	9.46
1994	31,710	8.02	100	9.52
1993	33,466	8.37	102	9.52

Note: * U.S. 2011 data are provisional.
 Infant mortality rates are per 1,000 live births.
 Source: National Center for Health Statistics
 South Dakota Department of Health, Office of Health Statistics

Figure 6
Resident Infant Mortality Rates, South Dakota and United States, 1993-2012

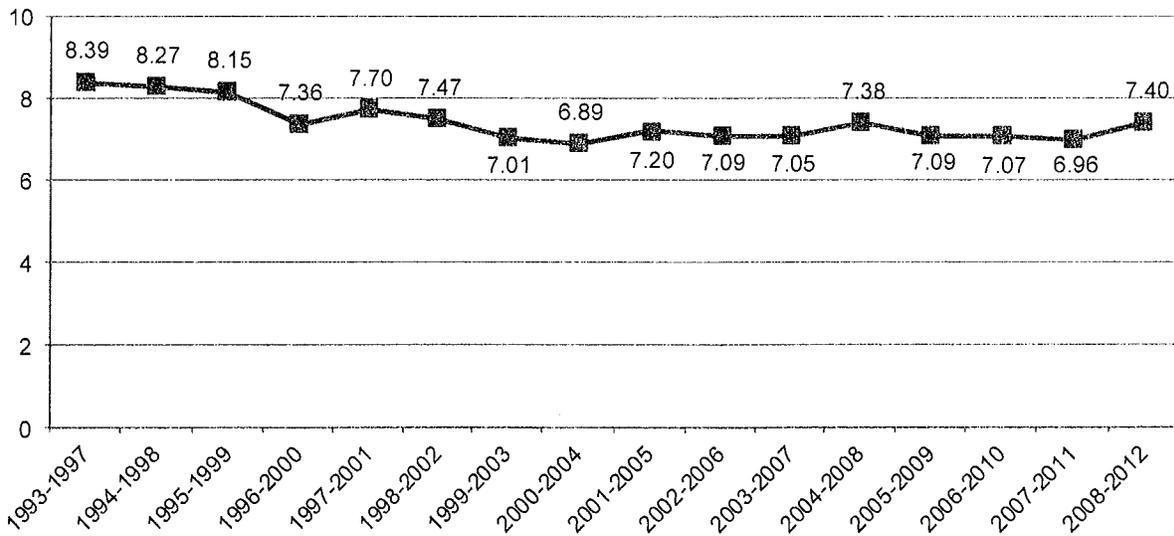


Note: Rate Per 1,000 Live Births. U.S. 2011 data are provisional.
 Source: National Center for Health Statistics and South Dakota Department of Health, Office of Health Statistics

Figure 7, below, displays South Dakota's infant mortality rate grouped in five year increments. This graph shows that since the early 1990's South Dakota's infant mortality

rate has decreased slightly, but in more recent years, the infant mortality has remained steady.

Figure 7
Resident Infant Mortality Rates for South Dakota, 1993-2012



Note: Rate Per 1,000 Live Births.
 Source: South Dakota Department of Health, Office of Health Statistics

Table 33, below, lists the overall leading causes of infant death in 2008-2012. The leading causes of infant death in 2012 can be broken down as follows: certain

conditions in perinatal period, 45.2 percent; congenital malformations, 27.9 percent; accidents, 8.7 percent; and sudden infant death syndrome with 5.8 percent.

Table 33
South Dakota Resident Leading Causes of Infant Death, 2008-2012

	Total	2008	2009	2010	2011	2012
Total Deaths	442	100	80	83	75	104
Certain Conditions in the Perinatal Period (P00-P96)	180	34	32	36	31	47
Extreme immaturity (Less than 28 comp wks of gestation) (P07.2)	52	10	11	8	11	12
Other preterm infants (28 comp wks or more but < 37 comp wks of gestations) (P07.3)	14	3	3	4	2	2
Neonatal cardiac failure (P29.0)	11	1	6	0	1	3
Newborn affected by chorioamnionitis (P02.7)	9	2	0	2	2	3
Necrotizing enterocolitis of newborn (P77)	7	1	2	1	2	1
Hypoxic ischemic encephalopathy of newborn (P91.6)	6	0	1	1	1	3
Newborn affected by premature rupture of membranes (P01.1)	6	0	0	3	1	2
Primary atelectasis of newborn (P28.0)	6	0	2	2	1	1
Unspecified intraventricular (nontraumatic) hemorrhage of newborn (P52.3)	5	2	0	0	0	3
Newborn affected by incompetent cervix (P01.0)	5	0	0	0	3	2
Newborn affected by other forms of placental separation and hemorrhage (P02.1)	5	0	1	2	0	2
Hydrops fetalis not due to hemolytic disease (P83.2)	5	1	1	1	0	2
Neonatal cardiac dysrhythmia (P29.1)	5	4	0	0	0	1
Congenital Malformations, Deformations, & Chromosomal Abnormalities (Q00-Q99)	109	24	18	21	17	29
Congenital malformations of the heart (Q20-Q24)	24	3	5	3	6	7
Chromosomal abnormalities (Q90-Q99)	22	7	2	5	5	3
Patau's syndrome (Q91.4-Q91.7)	9	3	1	3	2	0
Edward's syndrome (Q91.0-Q91.3)	7	3	0	0	3	1
Congenital malformations of the nervous system (Q00-Q07)	22	5	6	6	2	3
Anencephaly (Q00.0)	13	5	3	2	2	1
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	10	3	2	2	0	3
Congenital malformations of the urinary system (Q60-Q64)	8	1	1	1	1	4
Congenital malformation, unspecified (Q89.9)	6	1	2	0	2	1
Sudden Infant Death Syndrome (R95)	46	12	13	7	8	6
Accidents (V01-X59, Y85-Y86)	34	7	6	7	5	9
Accidental suffocation and strangulation in bed (W75)	18	5	4	3	2	4
Unspecified threat to breathing (W84)	7	1	2	1	1	2
III-Defined and Unknown Causes of Mortality (R96-R99)	13	6	1	2	2	2
Symptoms, Signs, and Abnormal Clinical and Lab Findings (R00-R94)	10	8	2	0	0	0
Influenza and Pneumonia (J09-J18)	7	1	1	0	3	2
Assault (homicide) (X85-Y09, Y87.1)	6	0	1	2	2	1
Heart Disease (I00-I09, I11, I13, I20-I51)	5	2	0	0	0	3
All Other Causes	32	6	6	8	7	5

Source: South Dakota Department of Health, Office of Health Statistics

There were 69 neonatal deaths (deaths occurring to infants from birth through 27 days old) for a rate of 5.71 deaths per 1,000 live births. There were 35 postneonatal deaths (deaths occurring to infants 28 days

to 1 year of age) for a rate of 2.89 deaths per 1,000 live births. In comparison, in 2011 neonatal and postneonatal rates were 3.89 and 2.45 per 1,000 live births, respectively.

Infant Mortality by Race

Beginning with the 2004 data, race is assigned based on standards set forth by the National Center for Health Statistics and the US Census Bureau in order for South Dakota's race data to be comparable. Race is no longer allocated as it had been since the 2000 Census started allowing multiple races to be reported. All race data in this section are now categorized in the following manner:

- Single-race White
- Single-race American Indian
- Two or more races

The remaining single-race categories (Black, Asian, Pacific Islander) are included in the totals, but are not shown specifically in any tables.

Table 34a, below, indicates that from 2011 to 2012, the number of South Dakota resident infant deaths increased for whites and American Indians. Table 34b, below, displays infant mortality grouped by five-year increments.

Table 34a
South Dakota Resident Infant Deaths and Mortality Rates
by Infant's Race, 2004-2012

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2012	58	6.37	26	13.43	10	25.06	104	8.60
2011	43	4.82	24	12.29	4	11.76	75	6.34
2010	54	5.84	19	10.35	8	24.54	83	7.04
2009	56	6.00	19	10.08	2	5.87	80	6.71
2008	60	6.36	29	14.56	9	29.80	100	8.28
2007	51	5.33	21	10.22	6	21.43	79	6.45
2006	50	5.34	26	13.33	2	7.41	82	6.88
2005	55	6.13	25	14.36	1	2.07	82	7.15
2004	62	6.95	28	16.63	2	4.07	93	8.20

Note: Infant mortality rates are per 1,000 live births.
Source: South Dakota Department of Health, Office of Health Statistics

Table 34b
South Dakota Resident Infant Deaths and Mortality Rates by Infant's Race,
Five-Year Increments, 2004-2012

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2008-2012	271	5.89	117	12.19	33	19.32	442	7.40
2007-2011	264	5.68	112	11.52	29	18.25	417	6.96
2006-2010	271	5.77	114	11.73	27	17.77	424	7.07
2005-2009	272	5.83	120	12.47	20	11.94	423	7.09
2004-2008	278	6.01	129	13.69	20	10.96	436	7.38

Note: Infant mortality rates are per 1,000 live births.
Source: South Dakota Department of Health, Office of Health Statistics

When analyzed by race, Table 35a, below, indicates that the South Dakota resident neonatal mortality rate per 1,000 live births increased for both whites and American Indians from 2011 to 2012. The American Indian neonatal mortality rate has been

consistently higher than white neonatal mortality rates for each year since 2004. In Table 35b, below, the neonatal mortality is grouped in five-year increments. This indicates that the neonatal mortality rate has shown little change since 2004.

Table 35a
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, 2004-2012

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2012	43	4.72	15	7.75	6	15.04	69	5.71
2011	30	3.36	10	5.12	3	8.82	46	3.89
2010	37	4.00	14	7.63	4	12.27	56	4.75
2009	34	3.64	7	3.71	2	5.87	45	3.77
2008	40	4.24	12	6.02	7	23.18	61	5.05
2007	37	3.87	9	4.38	4	14.29	51	4.16
2006	30	3.20	10	5.13	1	3.70	43	3.61
2005	41	4.57	9	5.17	1	2.07	52	4.54
2004	44	4.93	12	7.13	1	2.04	57	5.03

Note: Neonatal mortality rates are per 1,000 live births.
Source: South Dakota Department of Health, Office of Health Statistics

Table 35b
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2004-2012

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2008-2012	184	4.00	58	6.04	22	12.88	277	4.64
2007-2011	178	3.83	52	5.35	20	12.59	259	4.32
2006-2010	178	3.79	52	5.35	18	11.85	256	4.27
2005-2009	182	3.90	47	4.88	15	8.96	252	4.23
2004-2008	192	4.15	52	5.52	14	7.67	264	4.47

Note: Neonatal mortality rates are per 1,000 live births.
Source: South Dakota Department of Health, Office of Health Statistics

Table 36a, below, indicates that the postneonatal mortality rate per 1,000 live births increased for white infants and decreased for American Indian infants from 2011 to 2012. The American Indian postneonatal mortality rate has been consistently higher than white postneonatal

mortality rates for each year since 2004. When looking at the data in five-year increments as shown in Table 36b, below, the postneonatal mortality for whites has shown little change and American Indians has decreased.

Table 36a
South Dakota Resident Postneonatal Deaths and Mortality Rates
by Infant's Race, 2004-2012

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2012	15	1.65	11	5.68	4	10.03	35	2.89
2011	13	1.46	14	7.17	1	2.94	29	2.45
2010	17	1.84	5	2.72	4	12.27	27	2.29
2009	22	2.36	12	6.37	0	0.00	35	2.93
2008	20	2.12	17	8.53	2	6.62	39	3.23
2007	14	1.46	12	5.84	2	7.14	28	2.29
2006	20	2.13	16	8.20	1	3.70	39	3.27
2005	14	1.56	16	9.19	0	0.00	30	2.62
2004	18	2.02	16	9.50	1	2.04	36	3.17

Note: Postneonatal mortality rates are per 1,000 live births.
Source: South Dakota Department of Health, Office of Health Statistics

Table 36b
South Dakota Resident Postneonatal Deaths and Mortality Rates
by Infant's Race, Five-Year Increments, 2004-2012

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2008-2012	87	1.89	59	6.15	11	6.44	165	2.76
2007-2011	86	1.85	60	6.17	9	5.66	158	2.64
2006-2010	93	1.98	62	6.38	9	5.92	168	2.80
2005-2009	90	1.93	73	7.59	5	2.99	171	2.87
2004-2008	86	1.86	77	8.17	6	3.29	172	2.91

Note: Postneonatal mortality rates are per 1,000 live births.
Source: South Dakota Department of Health, Office of Health Statistics

Table 37, below, shows the leading causes of infant death from 2008 to 2012. The overall leading cause of infant death for South Dakota residents from 2008 to 2012 was certain conditions in perinatal period. Certain conditions in perinatal period accounted for 40.7 percent of all infant deaths in South Dakota from 2008 to 2012. The largest contributor to this group was extreme immaturity.

When analyzed by race, the leading cause of death for white infants was certain conditions in perinatal period with 111 white infant deaths or 41.0 percent of all white infant deaths. The leading cause of death for American Indian infants was certain conditions in the perinatal period with 41 American Indian infant deaths or 35.0 percent of all American Indian infant deaths.

Table 37
South Dakota Resident Infant Deaths by Cause of Death and Race, 2008-2012

	Total		Race			
	Num	Rate	White		American Indian	
			Num	Rate	Num	Rate
Total Deaths	442	7.40	271	5.89	117	12.19
Certain Conditions in the Perinatal Period (P00-P96)	180	3.01	111	2.41	41	4.27
Extreme immaturity (Less than 28 comp wks of gestation) (P07.2)	52	0.87	23	0.50	13	1.35
Other preterm infants (28 comp wks or more but < 37 comp wks of gestation) (P07.3)	14	0.23	7	0.15	7	0.73
Neonatal cardiac failure (P29.0)	11	0.18	6	0.13	3	0.31
Newborn affected by chorioamnionitis (P02.7)	9	0.15	4	0.09	4	0.42
Necrotizing enterocolitis of newborn (P77)	7	0.12	4	0.09	1	0.10
Hypoxic ischemic encephalopathy of newborn (P91.6)	6	0.10	5	0.11	1	0.10
Newborn affected by premature rupture of membranes (P01.1)	6	0.10	5	0.11	1	0.10
Primary atelectasis of newborn (P28.0)	6	0.10	6	0.13	0	0.00
Unspecified intraventricular (nontraumatic) hemorrhage of newborn (P52.3)	5	0.08	2	0.04	2	0.21
Newborn affected by incompetent cervix (P01.0)	5	0.08	5	0.11	0	0.00
Newborn affected by other forms of placental separation and hemorrhage (P02.1)	5	0.08	5	0.11	0	0.00
Hydrops fetalis not due to hemolytic disease (P83.2)	5	0.08	4	0.09	1	0.10
Neonatal cardiac dysrhythmia (P29.1)	5	0.08	4	0.09	0	0.00
Congenital Malformations, Deformations, & Chromosomal Abnormality (Q00-Q99)	109	1.83	78	1.69	20	2.08
Congenital malformations of the heart (Q20-Q24)	24	0.40	17	0.37	5	0.52
Chromosomal abnormalities (Q90-Q99)	22	0.37	16	0.35	2	0.21
Patau's syndrome (Q91.4-Q91.7)	9	0.15	7	0.15	0	0.00
Edward's syndrome (Q91.0-Q91.3)	7	0.12	5	0.11	1	0.10
Congenital malformations of the nervous system (Q00-Q07)	22	0.37	17	0.37	3	0.31
Anencephaly (Q00.0)	13	0.22	12	0.26	1	0.10
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	10	0.17	8	0.17	1	0.10
Congenital malformations of the urinary system (Q60-Q64)	8	0.13	6	0.13	2	0.21
Congenital malformation, Unspecified (Q89.9)	6	0.10	4	0.09	2	0.21
Sudden Infant Death Syndrome (R95)	46	0.77	29	0.63	15	1.56
Accidents (V01-X59, Y85-Y86)	34	0.57	14	0.30	16	1.67
Accidental suffocation and strangulation in bed (W75)	18	0.30	7	0.15	9	0.94
Other accidental threats to breathing (W84)	7	0.12	3	0.07	3	0.31
Ill-Defined and Unknown Causes of Mortality (R96-R99)	13	0.22	5	0.11	6	0.62
Symptoms, Signs, and Abnormal Clinical and Lab Findings (R00-R94)	10	0.17	7	0.15	2	0.21
Influenza and Pneumonia (J09-J18)	7	0.12	3	0.07	4	0.42
Assault (homicide) (X85-Y09, Y87.1)	6	0.10	4	0.09	1	0.10
Heart Disease (I00-I09, I11, I13, I20-I51)	5	0.08	0	0.00	4	0.42
All Other Causes	32	0.54	20	0.43	8	0.83

Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Birth Weight

Table 38, below, displays infant mortality rates by birth weight. The highest mortality rate was for babies born who weighed less than 1,000 grams with an infant mortality rate of 498.59, a neonatal mortality rate of

467.61, and a postneonatal mortality rate of 30.99. The highest rates occurred below 2,500 grams which is considered low birth weight babies. The lowest rate occurred in the 3,500-3,999 gram group with 2.18.

Table 38
South Dakota Resident Infant Mortality Rates by Birth Weight, 2008-2012

Birth Weight (in Grams)	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,725	442	7.40	4.64	2.76
<1,000	355	177	498.59	467.61	30.99
1,000-1,499	343	19	55.39	37.90	17.49
1,500-1,999	740	27	36.49	27.03	9.46
2,000-2,499	2,353	34	14.45	8.07	6.37
2,500-2,999	9,421	45	4.78	2.23	2.55
3,000-3,499	23,101	77	3.33	0.87	2.47
3,500-3,999	17,910	39	2.18	0.50	1.68
4,000-4,499	4,779	19	3.98	1.05	2.93
4,500+	703	2	2.84	1.42	1.42

Note: Infant, neonatal, and postneonatal mortality rates are per 1,000 live births.
Failure of births to add to total is due to not stated birth weights.
Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Prenatal Care

Table 39, below, displays infant mortality rates by prenatal care. The highest infant mortality rate, 55.29, occurred when mothers did not have prenatal care. This is

true for neonatal and postneonatal mortality rates. In comparison, when mothers received prenatal care in the first trimester the infant mortality rate was only 5.98.

Table 39
South Dakota Resident Infant Mortality Rates by Prenatal Care, 2008-2012

Trimester Prenatal Care Began	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,725	442	7.40	4.64	2.76
First Trimester	40,645	243	5.98	3.57	2.41
Second Trimester	14,269	106	7.43	4.91	2.52
Third Trimester	3,236	29	8.96	4.33	4.64
No Prenatal Care	416	23	55.29	43.27	12.02

Note: Infant mortality rates are per 1,000 live births.
Failure of births and infant deaths to add to the total is due to not stated trimester prenatal care began.
Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Gestation Period

Table 40, below, displays infant mortality rates by gestation period. The highest infant mortality rate occurred to those with less than 25 weeks with a rate of 783.78. The

highest neonatal mortality rate and postneonatal mortality rate both occurred at less than 25 weeks with a rate of 751.35 and 32.43, respectively.

Table 40
South Dakota Resident Infant Mortality Rates by Gestation Period, 2008-2012

Weeks of Gestation	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,725	442	7.40	4.64	2.76
<25 Weeks	185	145	783.78	751.35	32.43
25-29 Weeks	347	42	121.04	95.10	25.94
30-31 Weeks	254	15	59.06	47.24	11.81
32 Weeks	236	5	21.19	12.71	8.47
33 Weeks	326	9	27.61	12.27	15.34
34 Weeks	533	10	18.76	9.38	9.38
35 Weeks	889	15	16.87	13.50	3.37
36 Weeks	2,112	17	8.05	4.26	3.79
37 Weeks	4,830	38	7.87	3.93	3.93
38 Weeks	10,001	40	4.00	0.90	3.10
39 Weeks	19,215	51	2.65	0.52	2.13
40 Weeks	15,308	35	2.29	0.91	1.37
41 Weeks	4,829	14	2.90	1.04	1.86
42+ Weeks	551	2	3.63	0.00	3.63

Note: Infant mortality rates are per 1,000 live births.
Failure of births and infant deaths to add to the total is due to not stated weeks of gestation.
Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Tobacco Use

Table 41, below, displays infant mortality rates by tobacco use of the mother. Mothers who reported they did use tobacco while pregnant had an infant mortality rate

of 11.27 while mothers who reported they did not use tobacco while pregnant had an infant mortality rate of 6.44.

Table 41
South Dakota Resident Infant Mortality Rates by Tobacco Use of Mother, 2008-2012

Tobacco Use of Mother	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,725	442	7.40	4.64	2.76
Yes	10,382	117	11.27	5.78	5.49
No	48,926	315	6.44	4.31	2.13

Note: Infant mortality rates are per 1,000 live births.
Failure of births to add to the total is due to not stated tobacco use of the mother.
Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Mother Demographics

The following tables, 42a-42d, compare infant mortality rates among different demographics of the mother, different previous pregnancy histories, different labor and delivery situations, and different post-delivery conditions. The comparison is done using the Chi-Square test. An explanation of this test is given in the Technical Notes section on page 230.

The rates denoted with an asterisk are the ones found to illustrate an association with the variables listed in the left column. For example, the test indicates that when there is a change in the education of the mother, there is an associated change with the

infant mortality rate as well as the neonatal and post-neonatal mortality rate.

However, it should be noted that this test does not consider relationships among multiple variables at the same time. Therefore, dependencies detected by Chi-square analyses may be unrealistic or non-causal. There may be other unseen factors that make the variables appear to be associated. However, if properly used, this test is a very useful tool for the evaluation of associations and can be used as a preliminary analysis of more complex statistical evaluations.

**Table 42a
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2008-2012**

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Education					
11 years or less	7,622	95	12.46*	7.48*	4.99*
12+ years	49,006	293	5.98*	3.92*	2.06*
Marital Status					
Single	22,897	222	9.70*	5.63*	4.06*
Married	36,795	207	5.63*	3.89*	1.74*
Mother's WIC Status					
No WIC	35,719	231	6.47*	4.79	1.68*
WIC	23,190	184	7.93*	3.97	3.97*
Age					
<20	5,125	57	11.12*	6.44	4.68*
20-24	15,214	124	8.15*	4.73	3.42*
25-29	20,047	124	6.19*	3.69	2.49*
30-34	13,432	81	6.03*	4.84	1.19*
35+	5,895	43	7.29*	4.75	2.54*
BMI					
Underweight (<18.5)	2,060	19	9.22*	2.43*	6.80*
Recommended (18.5-24.9)	28,650	164	5.72*	3.66*	2.06*
Overweight (25.0-29.9)	14,896	118	7.92*	5.10*	2.82*
Obese (30.0-34.9)	7,474	68	9.10*	5.89*	3.21*
Very Obese (35.0-39.9)	3,560	19	5.34*	4.49*	0.84*
Morbidly Obese (40.0+)	2,166	21	9.70*	6.00*	3.69*
Diabetes					
No Pre-Existing Diabetes	59,215	414	6.99*	4.42*	2.57*
Pre-Existing Diabetes	443	14	31.60*	22.57*	9.03*
Gestational Diabetes					
No Gestational Diabetes	56,653	416	7.34*	4.66	2.68
Gestational Diabetes	3,005	12	3.99*	2.66	1.33
Chlamydia					
No Chlamydia	58,294	414	7.10	4.61	2.49*
Chlamydia	1,323	13	9.83	1.51	8.31*
Hypertension-Eclampsia					
No Hypertension-eclampsia	59,531	425	7.14*	4.54	2.60
Hypertension-eclampsia	127	3	23.62*	15.75	7.87

Table 42a (continued)
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2008-2012

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Payment Source					
Medicaid	20,797	183	8.80*	4.81*	3.99*
Private Insurance	32,932	178	5.41*	4.01*	1.40*
Self-Pay	1,417	22	15.53*	10.59*	4.94*
Indian Health Service	1,718	28	16.30*	7.57*	8.73*
Champus/Tricare	1,689	8	4.74*	4.14*	0.59*
Other Government	233	4	17.17*	8.58*	8.58*
Other	525	0	0.00*	0.00*	0.00*

Note: *The Chi-square statistic is significant at the 0.05 level.

Source: South Dakota Department of Health, Office of Health Statistics

Table 42b
South Dakota Resident Infant Mortality Rates by Previous Pregnancy History, 2008-2012

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Number of Living Children					
0	21,873	161	7.36*	5.30*	2.06
1	18,517	120	6.48*	3.83*	2.65
2	10,744	81	7.54*	4.28*	3.26
3	4,903	27	5.51*	2.65*	2.86
4+	3,654	40	10.95*	7.12*	3.83
Number of Dead Children					
0	58,839	394	6.70*	4.21*	2.48*
1+	838	33	39.38*	27.45*	11.93*
Number of Previous Pregnancies					
0	18,046	120	6.65*	4.71*	1.94*
1	16,325	113	6.92*	4.35*	2.57*
2	11,291	82	7.26*	4.16*	3.10*
3	6,584	37	5.62*	3.65*	1.97*
4	3,456	29	8.39*	3.76*	4.63*
5+	3,944	46	11.66*	7.86*	3.80*
Previous Pre-Term Infant					
No	57,606	405	7.03*	4.46	2.57
Yes	2,052	23	11.21*	7.31	3.90
Other Poor Previous Pregnancy Outcomes					
No	57,466	397	6.91*	4.35*	2.56
Yes	2,192	31	14.14*	10.04*	4.11
Infertility Treatment					
No	58,863	413	7.02*	4.37*	2.65
Yes	795	15	18.87*	18.87*	0.00
Infertility Treatment – Drugs, Insemination					
No	59,102	414	7.00*	4.37*	2.64
Yes	555	14	25.23*	25.23*	0.00

Note: *The Chi-square statistic is significant at the 0.05 level.

Source: South Dakota Department of Health, Office of Health Statistics

Table 42c
South Dakota Resident Infant Mortality Rates by Labor and Delivery, 2008-2012

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Tocolysis					
No	58,431	389	6.66*	4.16*	2.50*
Yes	1,188	38	31.99*	23.57*	8.42*
Cervical Cerclage					
No	59,426	422	7.10*	4.49*	2.61
Yes	193	5	25.91*	20.73*	5.18
Premature Rupture of Membranes					
No	57,157	376	6.58*	4.04*	2.54
Yes	2,481	51	20.56*	16.12*	4.43
Antibiotics Received by the Mother During Labor					
No	44,195	301	6.81	4.14*	2.67
Yes	15,480	127	8.20	5.68*	2.52
Precipitous Labor					
No	57,342	397	6.92*	4.32*	2.60
Yes	2,296	30	13.07*	10.02*	3.05
Induction of Labor					
No	41,800	361	8.64*	5.45*	3.18*
Yes	17,875	67	3.75*	2.41*	1.34*
Augmentation of Labor					
No	43,298	365	8.43*	5.43*	3.00*
Yes	16,377	63	3.85*	2.20*	1.65*
Non-Vertex Presentation					
No	57,220	336	5.87*	3.32*	2.55
Yes	2,455	92	37.47*	32.99*	4.48
Steroids for Fetal Lung Maturation Received by the Mother Prior to Delivery					
No	58,826	401	6.82*	4.35*	2.46*
Yes	849	27	31.80*	17.67*	14.13*
Clinical Chorioamnionitis Diagnosed During Labor – Maternal Temp $\geq 38^{\circ}\text{C}$					
No	59,343	416	7.01*	4.38*	2.63
Yes	332	12	36.14*	33.13*	3.01
Fetal Intolerance of Labor Requiring In-Utero Resuscitative Measures, Further Fetal Assessment or Operative Delivery					
No	55,221	384	6.95*	4.35*	2.61
Yes	4,454	44	9.88*	6.96*	2.92
Epidural or Spinal Anesthesia During Labor					
No	18,280	184	10.07*	7.22*	2.84*
Yes	30,815	119	3.86*	1.98*	1.88*
Fetal Presentation					
Cephalic	56,828	333	5.86*	3.31*	2.55
Breech	2,209	86	38.93*	34.40*	4.53
Method of Delivery					
Vaginal	42,952	264	6.15*	3.96*	2.19
Vaginal after previous C-section	1,200	15	12.50*	8.33*	4.17
Primary C-section	9,014	103	11.43*	6.99*	4.44
Repeat C-section	6,506	46	7.07*	4.46*	2.61

Table 42c (continued)
South Dakota Resident Infant Mortality Rates by Labor and Delivery, 2008-2012

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Maternal Transfusion					
No	59,383	422	7.11*	4.48*	2.63
Yes	248	5	20.16*	20.16*	0.00
Unplanned Operating Procedure Following Delivery					
No	59,462	420	7.06*	4.46*	2.61
Yes	169	7	41.42*	35.50*	5.92

Note: *The Chi-square statistic is significant at the 0.05 level.

Source: South Dakota Department of Health, Office of Health Statistics

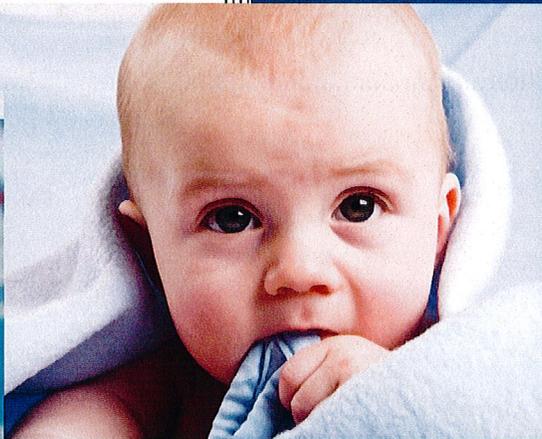
Table 42d
South Dakota Resident Infant Mortality Rates by Post Delivery Conditions, 2008-2012

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Five Minute APGAR Score					
0-7	1,956	258	131.90*	119.63*	12.27*
8	5,114	39	7.63*	2.54*	5.08*
9	48,044	110	2.29*	0.35*	1.94*
10	4,402	9	2.04*	0.00*	2.04*
Ten Minute APGAR Score					
0-2	154	136	883.12*	883.12*	0.00
3-7	232	40	172.41*	150.86*	21.55
8-10	103	7	67.96*	58.25*	9.71
Plurality					
1	57,906	376	6.49*	3.94*	2.56*
2+	1,808	53	29.31*	24.34*	4.98*
Breastfeeding at the Time of Discharge					
No	14,963	94	6.28*	2.07*	4.21*
Yes	43,935	109	2.48*	0.39*	2.09*
Assisted Ventilation Required Immediately Following Delivery					
No	56,999	316	5.54*	3.30*	2.25*
Yes	2,671	111	41.56*	30.70*	10.86*
Assisted Ventilation for More than Six Hours					
No	58,438	356	6.09*	3.78*	2.31*
Yes	1,232	71	57.63*	39.77*	17.86*
Neonatal Intensive Care Unit Admission					
No	54,451	296	5.44*	3.54*	1.89*
Yes	5,219	131	25.10*	14.75*	10.35*
Newborn Given Surfactant Replacement Therapy					
No	59,227	387	6.53*	4.15*	2.38*
Yes	443	40	90.29*	54.18*	36.12*
Antibiotics Received by the Newborn for Suspected Neonatal Sepsis					
No	56,879	361	6.35*	4.10*	2.25*
Yes	2,791	66	23.65*	13.26*	10.39*

Note: *The Chi-square statistic is significant at the 0.05 level.

Source: South Dakota Department of Health, Office of Health Statistics

South Dakota Governor's Task Force on Infant Mortality Final Report



December 2011

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MESSAGE FROM THE FIRST LADY

It was truly an honor to chair the Governor's Task Force on Infant Mortality. One of my greatest joys in life has been being a mother and watching my children grow. As a former teacher and librarian, I have a deep commitment to the health and well-being of all South Dakota children.

Almost 80 South Dakota babies die each year before they reach their first birthday. This is simply unacceptable. The Governor made it a priority to reach out to South Dakota's best experts to develop strategies to address this problem.

Fortunately, many of the factors that contribute to infant deaths in South Dakota are preventable. Too many mothers use tobacco when pregnant, not enough mothers receive prenatal care in the first trimester, and more families need to learn about the importance of safe sleep practices. The Governor's Task Force on Infant Mortality was made up of some of the state's finest medical experts, tribal health representatives, hospitals, providers, and state agencies. My sincere thanks to the members of the Task Force for their willingness to provide their time and expertise to look at this complex issue and make recommendations for sustainable activities to improve birth outcomes and the health of South Dakota infants.

As First Lady, I am eager to lend my support to help protect our state's most precious resource – our children. But we all have a role to play, whether you are a health care provider, hospital, parent or caregiver, grandparent, tribal member, community member or organization, or government entity. As we move forward, I challenge all South Dakotans to join me in our efforts to reduce infant mortality. Together we can make a difference.

Sincerely,



Linda Daugaard



GOVERNOR'S TASK FORCE ON INFANT MORTALITY

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EXECUTIVE SUMMARY

Infant mortality is considered a gold standard for measuring the health of a population. Unfortunately, since 2000, 877 South Dakota infants died before their first birthday – an average of 80 deaths each year.

While South Dakota saw dramatic improvements from the 1960s to the 1990s, over the past decade, the state's infant mortality rate has exhibited a worsening trend. For 2000-2010, South Dakota's infant mortality rate was 7.0 per 1,000 births which was higher than the national rate for the U.S. and higher than those of neighboring North Dakota, Minnesota, Iowa, Nebraska, and Montana. And while the infant mortality rate among American Indians in South Dakota has improved in recent years, it is still twice as high as the white infant mortality rate in South Dakota and the highest American Indian rate of any state in the nation at 12.4 per 1,000 births.



- South Dakota ranks 21st in the nation for its neonatal mortality rate (death of a live born infant from birth to 27 days old) of 4.3 per 1,000 live births but 40th for its postneonatal rate (death occurring 28 days to one year of age) of 3.0 per 1,000 live births.
- American Indians accounted for 18% of all births but 32% of all infant deaths.
- Low early prenatal care correlates strongly with high infant mortality rates. The national Healthy People 2020 goal is to have 78% of pregnant women receive prenatal care in the first trimester. There are five counties in South Dakota that have less than 50% of pregnant women receiving prenatal care in the first trimester; these same counties also have very high infant death rates.
- South Dakota ranks fifth highest in the U.S. for mothers smoking during pregnancy; 30% of American Indian women smoked during pregnancy vs. 17% for whites.

To address the problem, Governor Dennis Daugaard appointed a Task Force on Infant Mortality chaired by the First Lady Linda Daugaard to study infant mortality in the state and recommend strategies to improve birth outcomes and infant health in South Dakota. Task force members were a diverse group from rural and urban areas across the state representing family physicians, obstetricians, neonatologists, perinatologists, pediatricians, forensic pathologists, nurses, nurse midwives, nurse practitioners, hospitals, rural clinics, social work, the School of Medicine, Aberdeen Area Indian Health Services (IHS), Great Plains Tribal Epidemiology Center, and state agencies.

Throughout the Task Force's discussions, four overarching themes were identified that need to be incorporated into any recommendation or strategy in order to improve birth outcomes and health of infants in South Dakota. These themes include:

- Work in partnership
- Recognize cultural diversity
- Use evidence-based interventions
- Reduce health disparities

The Governor's Task Force on Infant Mortality developed six recommendations and accompanying strategies to reduce the state's infant mortality rate. Because South Dakota has a disproportionate number of its infants dying in the postneonatal period, many of the recommendations and strategies of the Task Force focus on providing a safe, healthy environment for the baby once home from the hospital.

- Recommendation 1 – Improve access to early, comprehensive prenatal care
- Recommendation 2 – Promote awareness and implementation of safe sleep practices
- Recommendation 3 – Develop community-based systems of support for families
- Recommendation 4 – Conduct statewide education campaigns to reduce infant mortality
- Recommendation 5 – Develop resources for health professionals specific to infant mortality prevention
- Recommendation 6 – Improve data collection and analysis

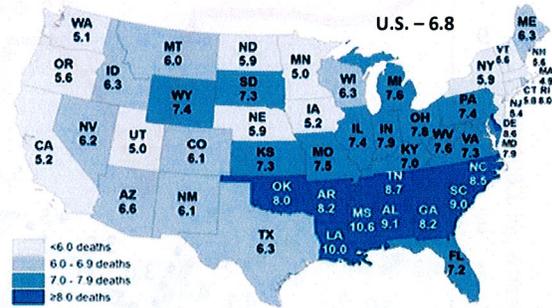
Infant mortality is a complex issue. The recommendations and accompanying strategies of the Task Force presented in this report are intended to be a starting point for action by state government, health care providers, hospitals, tribes, parents, communities, and others to reduce infant mortality and improve infant health in South Dakota.

INFANT MORTALITY IN SOUTH DAKOTA

Births, Infant Deaths, Infant Mortality Rates and Early Prenatal Care, South Dakota, 2000-2010				
County	Births	Infant Deaths	Infant Mortality Rate	% Early Prenatal Care
Aurora	337	2	5.9	77%
Beadle	2,389	15	6.3	61%
Bennett	719	7	9.7	45%
Bon Homme	671	3	4.5	79%
Brookings	3,846	20	5.2	76%
Brown	5,171	30	5.8	77%
Brule	738	3	4.1	66%
Buffalo	587	8	13.6	49%
Butte	1,425	11	7.7	76%
Campbell	139	0	0	76%
Charles Mix	1,722	22	12.8	62%
Clark	473	2	4.2	57%
Clay	1,721	6	3.5	78%
Codington	4,150	20	4.8	79%
Corson	948	12	12.7	50%
Custer	794	5	6.3	68%
Davison	2,986	16	5.4	77%
Day	723	5	6.9	71%
Deuel	571	3	5.3	85%
Dewey	1,607	14	8.7	53%
Douglas	355	1	2.8	71%
Edmunds	471	2	4.2	71%
Fall River	672	6	8.9	55%
Faulk	270	1	3.7	54%
Grant	866	6	6.9	72%
Gregory	460	4	8.7	66%
Haakon	226	0	0	68%
Hamlin	1,069	8	7.5	70%
Hand	364	4	11.0	73%
Hanson	578	2	3.5	70%
Harding	142	0	0	81%
Hughes	2,385	16	6.7	72%
Hutchinson	884	3	3.4	63%
Hyde	163	0	0	79%
Jackson	710	11	15.5	50%
Jerauld	267	0	0	68%
Jones	131	1	7.6	76%
Kingsbury	617	5	8.1	74%
Lake	1,359	5	3.7	73%
Lawrence	2,785	18	6.5	79%
Lincoln	6,953	36	5.2	78%
Lyman	744	8	10.8	55%
Marshall	506	5	9.9	63%
McCook	844	6	7.1	70%
McPherson	237	1	4.2	66%
Meade	3,968	38	9.6	77%
Mellette	416	7	16.8	43%
Miner	299	0	0	71%
Minnehaha	28,437	175	6.2	68%
Moody	941	11	11.7	63%
Pennington	16,630	125	7.5	72%
Perkins	330	2	6.1	65%
Potter	269	1	3.7	75%
Roberts	1,740	17	9.8	53%
Sanborn	287	2	7.0	79%
Shannon	4,045	58	14.3	52%
Spink	873	5	5.7	68%
Stanley	426	3	7.0	72%
Sully	218	2	9.2	75%
Todd	2,920	34	11.6	39%
Tripp	784	4	5.1	64%
Turner	994	5	5.0	72%
Union	1,919	5	2.6	83%
Walworth	723	4	5.5	66%
Yankton	2,826	18	6.4	84%
Ziebach	491	8	16.3	49%
Total	125,311	877	7.0	70%

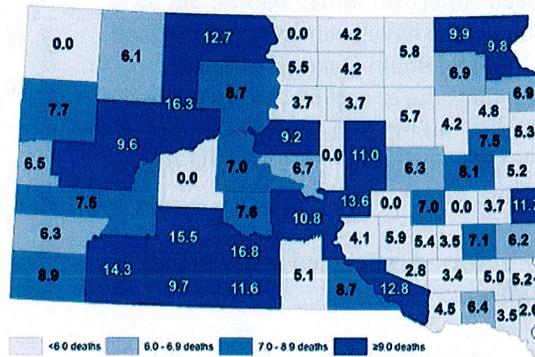
Every year approximately 11,500 South Dakota infants are born and 80 infants die, which is an infant mortality rate (IMR) of 7.0 infant deaths per 1,000 live births. Since 1960 infant mortality in South Dakota has decreased from nearly 500 infant deaths per year (28.1 IMR) to a low of 57 deaths (5.5 IMR) in 2000. For the past 10 years however, the number of infant deaths has not decreased.

Figure 1. Infant Mortality, United States 2004-2006
Infant deaths per 1000 live births
(NCHS, Health United States 2010, p 127, Table 18)



The national infant mortality rate is 6.8 deaths per 1,000 live births. State infant mortality rates range from a low of 4.9 in Massachusetts to a high of 10.6 in Mississippi (see Figure 1, above). South Dakota ranks 29th with an infant mortality rate of 7.3 for the most recently state comparable national data (2004-2006).

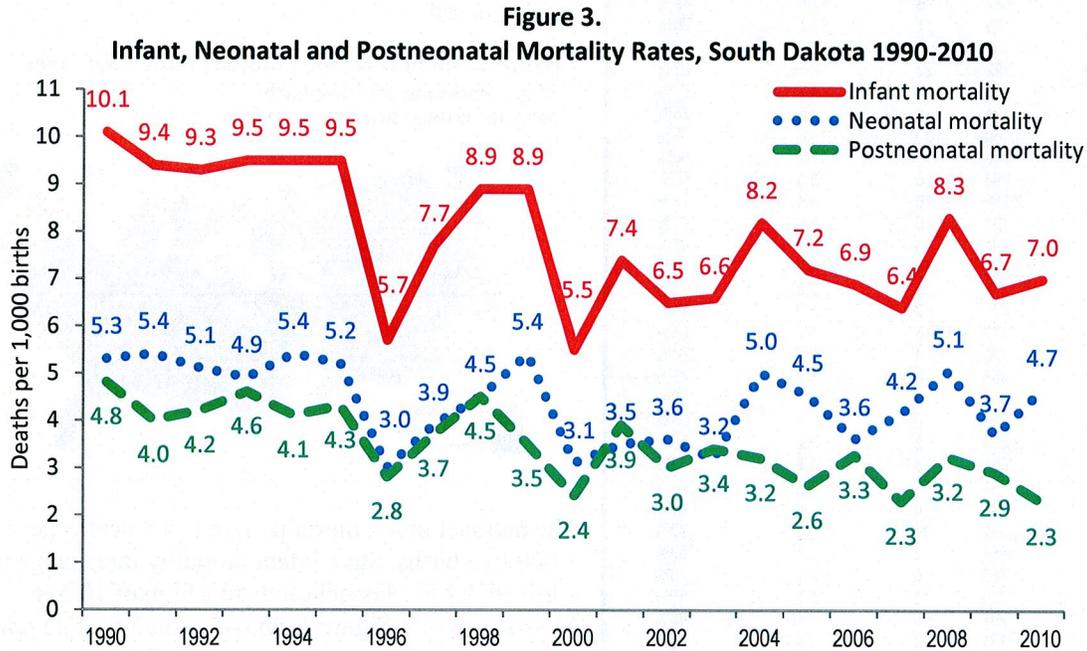
Figure 2. Infant Mortality, South Dakota 2000-2010
Infant deaths per 1000 live births



Within South Dakota county variation of infant mortality rates for the past decade has ranged from 0 to 16.8 deaths per 1,000 live births (see Figure 2, above).

South Dakota infants have a high postneonatal death rate. Thirty-nine percent of infant deaths occur within 24 hours of birth and are included in the 57% who died during their first 27 days (neonatal period). Forty-three percent of infants died during the post-neonatal period (28-365 days).

The national Healthy People 2020 goals target a neonatal mortality rate of 4.1 deaths per 1,000 live births and a postneonatal mortality rate of 2.0, which is approximately half the neonatal mortality rate. Although South Dakota achieved the neonatal mortality rate goal during six years since 2000, the postneonatal rate has been disproportionately high having never achieved the goal (see Figure 3).

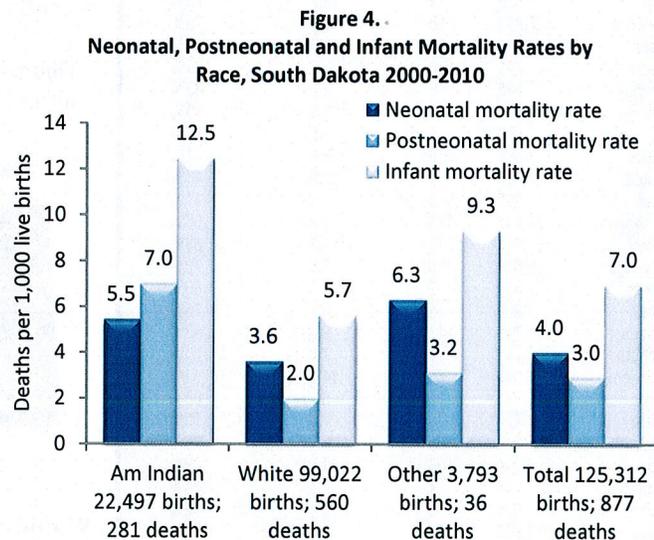


Infant Death Disparity

Since 2000, 18% of births in South Dakota have been American Indian babies, but 32% of infant deaths have been among American Indian infants. South Dakota American Indian infants die at approximately twice the rate of white infants and triple the rate of white infants during the postneonatal period (see Figure 4).

Risk Factors Associated with Infant Mortality

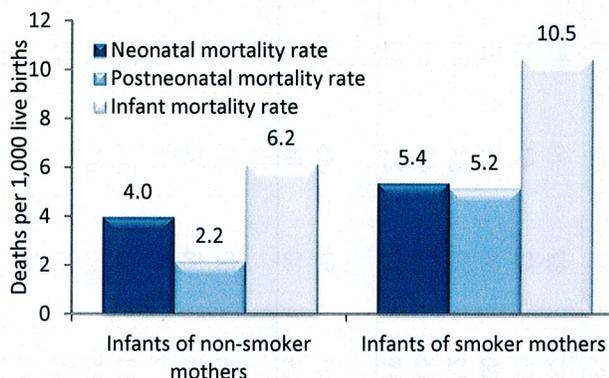
- ❖ **Low Birth Weight** – Low birth weight and extreme immaturity are predisposing factors for infant death. In South Dakota, 6.7% of infant birth-weights were less than 2.5 kg and 0.5% births were at 27 or fewer weeks gestation during the years 2000-2010.



❖ **Early Prenatal Care** – Early and regular prenatal care has a strong association with infant survival. Over the past five years 68.5% of South Dakota mothers received early prenatal care (first trimester of pregnancy). The infant mortality rate for mothers who started prenatal care during the first trimester was 5.8, but 7.8 for those starting care during the second trimester, 9.0 for those starting during the third trimester and 46.4 for those with no prenatal care. Most experts define regular prenatal care as about once each month for weeks 4-28, twice a month for weeks 28-36, and weekly for weeks 36 to birth.

❖ **Tobacco Use** – The infants of mothers who smoke during pregnancy die at a higher rate than infants of mothers who do not smoke. South Dakota has one of the highest rates of mothers smoking during pregnancy. Over the past five years 18.5% of mothers smoked while pregnant. The infant mortality rate for infants of mothers who smoke was 10.5 deaths per 1,000 live births, whereas the rate for infants of non-smoker mothers was 6.2 (see Figure 5).

Figure 5.
Smoking Associated with Neonatal, Postneonatal and Infant Mortality Rates, South Dakota 2006-2010



Causes of Infant Death in South Dakota

The following table shows the major causes of the 424 infant deaths in South Dakota during the past five years.

Major Causes of Infant Death, 2006-2010	All Infant Deaths	Neonatal Deaths	Postneonatal Deaths
Extreme immaturity (<27 weeks gestation)	37 (8.7%)	36 (14.1%)	1 (0.6%)
Other prematurity (28-36 weeks gestation)	12 (2.8%)	12 (4.7%)	0 (0%)
Congenital malformations, deformations & chromosomal abnormalities	115 (27.1%)	91 (35.5%)	24 (14.3%)
Sudden Infant Death Syndrome (SIDS)	52 (12.3%)	2 (0.8%)	50 (29.8%)
Accidents	31 (7.3%)	3 (1.2%)	28 (16.7%)
All other causes of infant death	177 (41.8%)	112 (43.8%)	65 (38.7%)
TOTAL	424	256	168

Infant Mortality Definitions

- **Infant Mortality Rate** – The number of deaths divided by the total number of live births multiplied by 1,000 (expressed as the ratio of infant death per 1,000 live births)
- **Infant Death** – Death of a live born infant less than one year (365 days) of age
- **Neonatal Death** – Death of a live born infant from birth to 27 days old
- **Postneonatal Death** – Death of an infant occurring 28 days to one year of age

Births and Infant Deaths, South Dakota 2000-2010

	<u>Year</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>Median</u>
Births		10,346	10,475	10,698	11,022	11,339	11,466	11,914	12,253	12,074	11,930	11,795	11,466
Infant deaths		57	78	70	73	93	82	82	79	100	80	83	80
Neonatal deaths		32	37	38	35	57	52	43	51	61	45	56	45
Postneonatal deaths		25	41	32	38	36	30	39	28	39	35	27	35
Infant mortality rate		5.5	7.4	6.5	6.6	8.2	7.2	6.9	6.4	8.3	6.7	7.0	6.9
Neonatal mortality rate		3.1	3.5	3.6	3.2	5.0	4.5	3.6	4.2	5.1	3.8	4.7	3.7
Postneonatal mortality rate		2.4	3.9	3.0	3.4	3.2	2.6	3.3	2.3	3.2	2.9	2.3	3.0
Gender													
Male infant deaths		32	52	40	47	50	47	52	45	60	44	46	47
Female infant deaths		25	26	30	26	43	35	30	34	40	36	37	34
Race													
White infant deaths		36	52	41	43	62	55	50	51	60	56	54	52
American Indian infant deaths		19	25	26	27	28	25	26	23	36	20	26	26
Other race infant deaths		2	1	3	3	3	2	6	5	4	4	3	3
White infant mortality rate		4.3	6.1	4.7	5.0	6.9	6.1	5.3	5.3	6.4	6.0	5.8	5.8
Am Indian infant mortality rate		11.3	14.1	14.4	12.9	13.3	11.6	12.0	10.1	16.2	9.3	12.5	12.5
White neonatal mortality rate		2.9	3.2	2.8	2.5	4.9	4.6	3.2	3.9	4.2	3.6	4.0	3.6
Am Indian neonatal mortality rate		4.2	5.1	6.6	5.3	5.7	4.2	4.6	4.8	7.7	3.7	8.2	5.1
White postneonatal mortality rate		1.4	3.0	2.0	2.4	2.0	1.6	2.1	1.5	2.1	2.4	1.8	2.0
Am Indian postneonatal mortality rate		7.1	9.0	7.8	7.7	7.6	7.4	7.4	5.3	8.6	5.6	4.3	7.4
Attributes and risk factors of all mothers or all births													
Early prenatal care (1 st trimester)		-	-	-	-	-	-	68.4%	69.7%	67.8%	65.8%	71.0%	68.4%
Low birth weight (<2.5 kg)		6.2%	6.4%	7.2%	6.7%	6.9%	6.6%	7.0%	7.0%	6.5%	5.9%	6.9%	6.7%
Extreme immaturity (≤27 wks gestation)		0.45%	0.48%	0.44%	0.54%	0.57%	0.59%	0.44%	0.47%	0.55%	0.53%	0.65%	0.53%
Mothers who smoke during pregnancy		-	-	-	-	-	-	19.2%	19.4%	18.5%	18.5%	17.1%	18.5%
Births to teen mothers (≤19 years)		11.4%	11.1%	10.7%	9.3%	10.0%	9.6%	9.5%	9.8%	9.4%	9.2%	8.3%	9.6%
Births to unmarried mothers		33.5%	33.5%	35.0%	34.3%	35.0%	36.2%	37.1%	38.4%	38.4%	38.3%	37.5%	36.2%
Major cases of infant death													
Extreme immaturity (≤27 weeks)		5	6	7	5	2	9	4	4	10	11	8	6
Sudden Infant Death Syndrome (SIDS)		9	15	13	14	8	7	12	8	12	13	7	12
Congenital malformations & chromosomal abnormalities		10	21	17	26	32	21	28	24	24	18	21	21
Accidents		3	8	2	3	5	4	7	4	7	6	7	5

RECOMMENDATIONS AND STRATEGIES

During his 2011 State of the State address, Governor Dennis Daugaard committed to addressing the problem of infant mortality in South Dakota. In May 2011, the Governor appointed a 27-member Task Force on Infant Mortality chaired by the First Lady Linda Daugaard to study infant mortality and recommend strategies to improve birth outcomes and infant health in South Dakota. Task force members were a diverse group from rural and urban areas across the state representing family physicians, obstetricians, neonatologists, perinatologists, pediatricians, forensic pathologists, nurses, nurse midwives, nurse practitioners, hospitals, rural clinics, social work, the School of Medicine, Aberdeen Area Indian Health Services (IHS), Great Plains Tribal Epidemiology Center, and state agencies.

The Task Force met throughout the summer and fall of 2011 with meetings held across the state – Sioux Falls, Rapid City, and Pierre – to allow for task force members to receive input from the public. Three subcommittees were established to specifically look at the issues of prenatal care, alcohol and tobacco use, and Sudden Infant Death (SIDS)/Sudden Unexplained Infant Death (SUID). The subcommittees were charged with identifying best practices in South Dakota and nationally that could be adapted or replicated statewide, identifying potential data gaps, and looking at clinical recommendations for consideration by the full Task Force.

South Dakota Infant Mortality Task Force Goals

- Reduce infant mortality rate to 6.0 per 1,000 live births by 2015
- Reduce neonatal mortality rate to 4.1 per 1,000 live births by 2015
- Reduce postneonatal mortality rate to 2.0 per 1,000 live births by 2015
- Increase the percent of women who receive first trimester prenatal care to 77.8% by 2015
- Reduce the percent of women who smoke during pregnancy to 15% by 2015

Throughout the Task Force's discussions, four overarching themes were identified that need to be incorporated into any recommendation or strategy in order to improve birth outcomes and health of infants in South Dakota. These themes include:



- ❖ Work in partnership
- ❖ Recognize cultural diversity
- ❖ Use evidence-based interventions
- ❖ Reduce health disparities

The Governor's Task Force on Infant Mortality developed six recommendations and accompanying strategies to reduce the state's infant mortality rate. Because South Dakota has a disproportionate number of its infants dying in the postneonatal period, many of the recommendations and strategies of the Task Force focus on providing a safe, healthy environment for the baby once home from the hospital.

Infant mortality is a complex issue. The recommendations and accompanying strategies of the Task Force presented in this report are intended to be a starting point for action by state government, health care providers, hospitals, tribes, parents, communities, and others to reduce infant mortality and improve infant health in South Dakota.

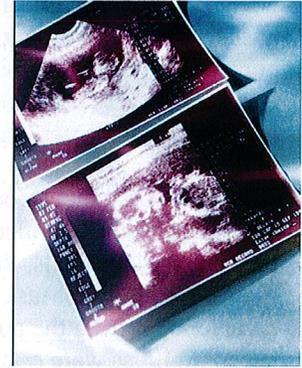
RECOMMENDATION 1

Improve access to early, comprehensive prenatal care

Early and regular prenatal care is an important part of improving pregnancy and health outcomes for the mother and baby. Regular prenatal care helps the health care provider monitor the pregnancy and identify and manage any potential health problems (i.e., gestational diabetes, preeclampsia) before they become serious.

Strategies:

- Pilot alternative models of delivery of prenatal care in rural South Dakota
- Replicate and expand best practice systems of prenatal care for pregnant women with chronic health conditions to ensure appropriate management of conditions to optimize birth outcomes
- Screen all pregnant women for tobacco, alcohol and drug use, mental health and domestic violence throughout pregnancy and provide support and referral to appropriate services
- Improve access to perinatology and neonatology services via regionalized systems of care
- Identify transportation assistance options for pregnant women to attend prenatal care visits
- Promote preconception and interconception education and care to women of childbearing age



RECOMMENDATION 2

Promote awareness and implementation of safe sleep practices



Safe sleep environments can lower the risk for sleep-related infant deaths, including SIDS/SUID. There are many preventive steps parents can take to ensure a safe sleep environment for their baby including placing the baby on their back to sleep, eliminating bed sharing, using a firm sleep surface with only a fitted sheet, removing soft objects and loose bedding from the crib (i.e., pillows, stuffed animals, bumper pads, quilts, etc.), prohibiting smoking around the baby, and avoiding overheating of the baby. Parents should also make sure everyone caring for their baby knows and follows these steps.

Strategies:

- Develop a crib distribution program for families in need of a safe sleep environment for their infant
- Develop a comprehensive, culturally diverse safe sleep education program to reduce the risk of injury and death of infants due to unsafe sleep practices
- Partner with health profession associations, healthcare providers, community organizations, worksites, senior centers, and child care to distribute safe sleep information throughout communities

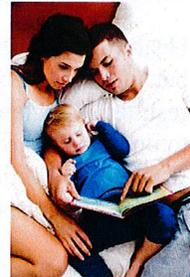
RECOMMENDATION 3

Develop community-based systems of support for mothers and families

Community-based systems of care help remove barriers and connect pregnant women and families to the resources they need during pregnancy and after delivery. These resources make it more likely their baby will be born healthy and cared for in a positive, safe home environment.

Strategies:

- Expand nurse home visiting programs to meet the needs of women, infants, and their families who are at high risk of poor birth outcome
- Seek partners and resources to expand incentive programs for pregnant and parenting women and families
- Encourage parents to seek ongoing primary and preventive care for their baby (i.e., immunizations, well baby check-ups, etc.)
- Identify transportation assistance options for mothers and families to attend well baby care visits
- Provide resources and education to parents and caregivers regarding infant crying and appropriate responses
- Facilitate access to appropriate services for tobacco use, alcohol/substance abuse, mental health, and domestic violence
- Provide breastfeeding support and education to new mothers and promote adoption of policies for breastfeeding in worksites



RECOMMENDATION 4

Conduct statewide education campaigns to reduce infant mortality



Public education campaigns help to create awareness, change attitudes, and motivate individuals and communities to engage in healthy behavior with the overall intent of reducing infant mortality. Successful campaigns target specific audiences taking into account the unique preferences and needs of each target population.

Strategies:

- Develop a statewide campaign to increase awareness of safe sleep recommendations for parents, grandparents, caregivers, and childcare providers
- Provide education for school-age children in out-of-school time and community-based organizations regarding alcohol/substance abuse, tobacco use, and healthy lifestyles
- Develop public education messages regarding pregnancy awareness and the importance of early and regular prenatal care
- Support ongoing messages and training regarding child safety seats, traumatic head injury/shaken baby syndrome, and other injury prevention efforts

- Develop public messaging to increase awareness of the effects of tobacco, alcohol, and drugs on pregnancy outcomes and infant mortality
- Utilize social media (i.e., texting, Facebook, Twitter, internet, etc.) to provide information regarding healthy behaviors before, during and after pregnancy

RECOMMENDATION 5

Develop resources for health professionals specific to infant mortality prevention

Health care professionals can have a significant influence on patients and their behaviors. Recent studies show that even brief advice from a patient's provider resulted in patient action or change. It is also important for health care providers to understand how social, cultural, and environmental factors impact pregnant women and families seeking pregnancy and infant care and have the necessary resources to respond to identified needs.



Strategies:

- Conduct series of Grand Rounds focused on neonatal, obstetric, and infant care (i.e., safe sleep practices, immunizations, etc.)
- Develop series of updates related to preconception, prenatal, and infant care (i.e., safe sleep practice, immunizations, etc.), for professional journals, newsletters, listservs, websites, etc.
- Develop resources for healthcare providers to screen and refer patients for tobacco, alcohol/drug use/addiction, mental health, and domestic violence
- Model safe sleep practices in hospitals

RECOMMENDATION 6

Improve data collection and analysis

Data is needed to identify and target the underlying causes of infant mortality in South Dakota and the populations most at risk as well as to monitor progress and evaluate programs and interventions. While vital records data can provide detailed information about an infant birth or death, additional data sources must be identified and enhanced to look at other medical, social, and environmental factors that can lead to infant mortality.

Strategies:

- Expand South Dakota's established infant mortality review committees to include areas not currently served
- Enhance technical assistance available to health care providers when completing birth and infant death certificates
- Enhance county coroner training to include death certificate completion
- Provide training on infant death scene investigations for county coroners and law enforcement
- Enhance state and county-level data regarding pregnancy experiences, risks, barriers, outcomes, and infant care practices

CALL TO ACTION



Infant mortality is a complex issue. The recommendations and strategies of the Governor's Task Force on Infant Mortality are intended to be a starting point for action by state government, health care providers, hospitals, tribes, parents, communities, and others to reduce infant mortality and improve infant health in South Dakota. No one entity can do it alone.

The following are a few ways we can all work together to make sure more South Dakota babies celebrate their 1st birthday.

Infant Mortality Task Force Members

- Advocate for implementation of Task Force recommendations and strategies within your practice, organization, health care system, professional association, and community to reduce infant mortality and improve infant health

Parents and Families

- Make sure you use recommended safe sleep and infant soothing practices and require others caring for your baby (i.e., grandparents, day care providers, etc.) to follow the same practices
- Adopt healthy behaviors before, during, and after pregnancy (i.e., healthy eating, avoidance of tobacco/alcohol, stress management, exercise, etc.)
- Make sure your baby receives well-child care (i.e., immunizations, developmental screenings, physical assessments, etc.)
- Seek community resources for needed services to assure a healthy pregnancy and healthy baby
- Act as a mentor to other new parents to promote activities designed to prevent infant mortality

Health Care Providers

- Facilitate access to first trimester prenatal care within your practice as a standard of care
- Educate yourself and your staff about resources available in your community and the state to refer patients for mental health, smoking, substance abuse, Medicaid, WIC, food pantries, lactation support, child care, etc.
- Provide culturally-appropriate information to patients and staff on a variety of topics affecting infant mortality (i.e., safe sleep practices, immunizations, diabetes, breastfeeding, preconception/interconception health, parenting, etc.)
- Participate in local and state partnership opportunities to raise awareness about the prevention of infant mortality

Hospitals and Health Systems

- Provide culturally-appropriate information to patients and staff on a variety of topics affecting infant mortality (i.e., safe sleep practices, immunizations, diabetes, breastfeeding, parenting, etc.)
- Participate in local and state partnership opportunities to raise awareness about the prevention of infant mortality
- Facilitate access to specialty prenatal and infant care via outreach, telemedicine, or other service delivery models
- Assure staff have appropriate training and tools to educate new parents on such topics as safe sleep practices, infant swaddling, infant soothing, etc.
- Educate staff about community resources available for families (i.e., mental health, car seats, WIC, breastfeeding, food pantries, etc.)

Tribal Health

- Participate in state and local partnership opportunities to raise awareness about the prevention of infant mortality
- Provide culturally-appropriate information to patients and staff on a variety of topics affecting infant mortality (i.e., safe sleep practices, immunizations, diabetes, breastfeeding, preconception/interconception health, parenting, etc.)
- Educate staff about resources available in the community and in the state to refer patients for mental health, smoking, substance abuse, Medicaid, WIC, food pantries, lactation support, child care, etc.

Communities

- Participate in partnership opportunities to raise awareness about the prevention of infant mortality within the community
- Support efforts to remove barriers to accessing needed services by pregnant women and families

Professional Organizations

- Provide training opportunities for members on topics affecting infant mortality (i.e., safe sleep practices, immunizations, diabetes, breastfeeding, parenting, etc.)
- Participate in state and local partnership opportunities to raise awareness about the prevention of infant mortality
- Support development of standards of care that include initiation of first trimester prenatal care, breastfeeding, immunizations, safe sleep practices, assessment/referral for tobacco/alcohol/drugs, etc.

State Government

- Enhance partnerships to address the factors that impact infant mortality and the health of infants
- Assure access to services provided through WIC, childhood immunizations, car seat program, Medicaid/Children's Health Insurance Program, nurse home visiting, and other programs for eligible families
- Identify potential state and federal funding sources to assist with implementation of recommendations and strategies
- Provide training and resources to child care providers on safe sleep practices
- Coordinate data collection and analysis activities in order to identify target populations, evaluate programs and interventions, and monitor progress towards goals