

# South Dakota Diabetes State Plan



**2007-2009**



## OFFICE OF THE SECRETARY

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Dear South Dakotans:

On behalf of the Department of Health and our partners in diabetes prevention and control, it is my pleasure to present to you South Dakota's first ever diabetes state plan.

Diabetes is a serious public health problem in our state. More than 50,000 South Dakotans have been diagnosed with this chronic disease and another 25,000 have the disease but do not know it. Unfortunately, both of these numbers are projected to continue increasing.

This plan provides South Dakota with a blueprint for the control of diabetes and the health complications associated with the disease. It is a comprehensive strategy for reducing the impact of diabetes and for helping those with diabetes manage their disease.

The ultimate goal of this plan is to put in place a more effective system of early diagnosis, access to quality care, promotion of healthy lifestyles, and education and awareness so South Dakotans with diabetes can live longer, healthier lives.

It is our hope that the collaboration that created this plan continues. Working together, we can better manage the diabetes epidemic and improve the quality of life for the individuals and families affected by this disease.

Thank you to the committed partners who have helped to develop this plan and are working with us to create a healthier South Dakota. To learn more about the state plan, contact the South Dakota Diabetes Prevention and Control Program at (605) 773-3737.

Sincerely,

A handwritten signature in black ink that reads "Doneen B. Hollingsworth". The signature is written in a cursive style.

Doneen B. Hollingsworth  
Secretary of Health

# **South Dakota Diabetes State Plan 2007-2009**

**Published February 2007**

**Doneen Hollingsworth, Secretary  
South Dakota Department of Health**

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## EXECUTIVE SUMMARY

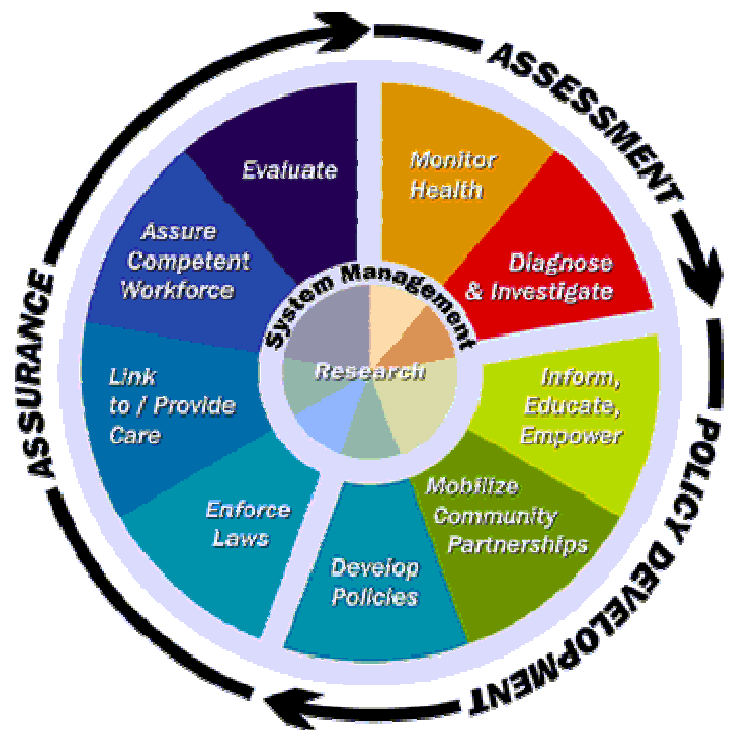
More than 50,000 South Dakotans have diabetes and projections show that number will continue to increase. Diabetes can cause severe complications including heart disease and stroke, blindness, lower extremity amputations, kidney failure, dental disease, depression and increased susceptibility to infections. There can be significant personal and social costs resulting from impaired health and quality of life for people affected by diabetes. The disease also carries a significant economic cost of approximately \$132 billion yearly for the nation.

The good news is that we currently have an understanding of diabetes and how to control it. It is imperative for us to take advantage of that scientific understanding and work together to maximize human and economic resources to lessen the burden of diabetes.

The *South Dakota Diabetes State Plan 2007-2009* was developed by the South Dakota Diabetes Strategic Planning Coalition, a large group of diverse partners - health care professionals, advocacy groups, government agencies, tribal health, persons with diabetes and concerned family members, quality improvement and wellness programs and many others.

The plan covers a three-year time frame (2007 through 2009) and is organized around the 10 Essential Public Health Services. These 10 services are considered the foundation for public health policies and practices and are applicable to all chronic disease conditions. They include:

1. Monitor health status to identify and solve community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure a competent public and personal health care workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.



CDC's national goals for diabetes and the Healthy People 2010 objectives are the long-term benchmarks for this plan.

The intent is that the committed partners in this effort will lead the way to put these recommendations into action for the health of all South Dakotans. This plan is a call to action, urging individuals, communities and organizations to get involved to achieve this vision. The success of this plan depends upon all of us taking action.



## WHAT IS DIABETES?

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Diabetes is a disorder of metabolism – the way our bodies use digested food for growth and energy. Most of the food we eat is broken down into glucose, the form of sugar in the blood. Glucose is the main source of fuel for the body. After digestion, glucose passes into the bloodstream, where it is used by cells for growth and energy. For glucose to get into cells, insulin must be present. Insulin is a hormone produced by the pancreas, a large gland behind the stomach.

When we eat, the pancreas automatically produces the right amount of insulin to move glucose from blood into our cells. In people with diabetes, however, the pancreas either produces little or no insulin, or the cells do not respond appropriately to the insulin that is produced. Glucose builds up in the blood, overflows into the urine, and passes out of the body in the urine. Thus, the body loses its main source of fuel even though the blood contains large amounts of glucose.

### Type 1 Diabetes

Type 1 diabetes is an autoimmune disease. An autoimmune disease results when the body's system for fighting infection (the immune system) turns against a part of the body. In diabetes, the immune system attacks and destroys the insulin-producing beta cells in the pancreas. The pancreas then produces little or no insulin. A person who has type 1 diabetes must take insulin daily to live.



At present, scientists do not know exactly what causes the body's immune system to attack the beta cells, but they believe that genetic, autoimmune, and environmental factors are involved. Type 1 diabetes accounts for 5 to 10 percent of diagnosed diabetes in the US. It develops most often in children and young adults but can appear at any age.

Symptoms of type 1 diabetes usually develop over a short period of time, although beta cell destruction can begin years earlier. Symptoms may include increased thirst and urination, constant hunger, weight loss, blurred vision, and extreme fatigue. If not diagnosed and treated with insulin, a person with type 1 diabetes can lapse into a life-threatening diabetic coma, also known as diabetic ketoacidosis.

### Type 2 Diabetes

About 90 to 95 percent of people with diabetes have type 2 diabetes and about 80 percent of people with type 2 diabetes are overweight. Type 2 diabetes is increasingly being diagnosed in children and adolescents. However, national data on prevalence in youth is not available.

The symptoms of type 2 diabetes develop gradually. Their onset is not as sudden as in type 1 diabetes. Symptoms may include fatigue, frequent urination, increased thirst and hunger, weight loss, blurred vision, and slow healing of wounds or sores. Some people have no symptoms.

Risk factors for type 2 diabetes include:

- Family history of diabetes
- Obesity
- Racial and/or ethnic heritage (with African-Americans, Hispanic Americans, Native Americans, Asian Americans, and Pacific Islanders having a higher risk)
- Age over 45
- Previous impaired glucose tolerance (pre-diabetes)
- Hypertension (equal to or greater than 140/90 mm Hg)
- History of gestational diabetes mellitus or delivery of a baby weighing more than nine pounds
- Sedentary lifestyle



When type 2 diabetes is diagnosed, the pancreas is usually producing enough insulin but the body cannot use it effectively. This condition is called insulin resistance. After several years, insulin production decreases. The result is the same as for type 1 diabetes – glucose builds up in the blood and the body cannot make efficient use of its main source of fuel.

### Pre-diabetes

A related condition, called pre-diabetes, occurs when a person's blood sugar level is higher than normal, but not high enough for a diagnosis of diabetes. People with pre-diabetes have impaired fasting glucose (fasting blood sugar level of 100 to 125 milligrams per deciliter (mg/dl)) or impaired glucose intolerance (blood sugar level of 140 to 199 mg/dl after a 2-hour glucose tolerance test). Most people with pre-diabetes develop type 2 diabetes within 10 years.

### Gestational Diabetes

About 4 percent of pregnant women in the United States develop gestational diabetes during their pregnancy<sup>1</sup>. As with type 2 diabetes, gestational diabetes occurs more often in some ethnic groups and among women with a family history of diabetes. Gestational diabetes is caused by the hormones of pregnancy or a shortage of insulin. Women with gestational diabetes may not experience any symptoms.

Although this form of diabetes usually disappears after the baby's birth, women who have had gestational diabetes have a 20 to 50 percent chance of developing type 2 diabetes within 5 to 10 years. Maintaining a reasonable body weight and being physically active may help prevent its development. Untreated or poorly controlled gestational diabetes can cause health problems for the infant. Studies show babies born to mothers with gestational diabetes are at increased risk for development of type 2 diabetes.

# BURDEN OF DIABETES IN SOUTH DAKOTA

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## State Demographics

South Dakota is one of the least densely populated states in the nation with 775,933 people living within its 75,885 square miles for an average population density of 9.9 people per square mile. Nearly 60 percent of South Dakota's total population live in small, rural communities of 5,000 or fewer people, with communities of less than 500 people comprising a large portion of this population group. The population of South Dakota is predominantly white with Native American being the largest minority, 88.0 percent and 8.4 percent respectively. Adults age 65 and older comprise 14.2 percent of the population which is higher than the national average of 12.4 percent.<sup>2</sup>



The percent of South Dakotans living below 100 percent of the federal poverty level is 12.4 percent. Four of the five counties in the United States with the lowest per capita income are on South Dakota Indian reservations.<sup>2</sup>

Another factor to consider is transportation to access services. For some, this means traveling great distances (over 50 miles) to see a primary care provider and even further to see a specialist. Access to primary care physicians is limited in the state with over two-thirds of the state designated by the federal government as a Health Professional Shortage Area. Access to comprehensive diabetes care teams is even more limited.

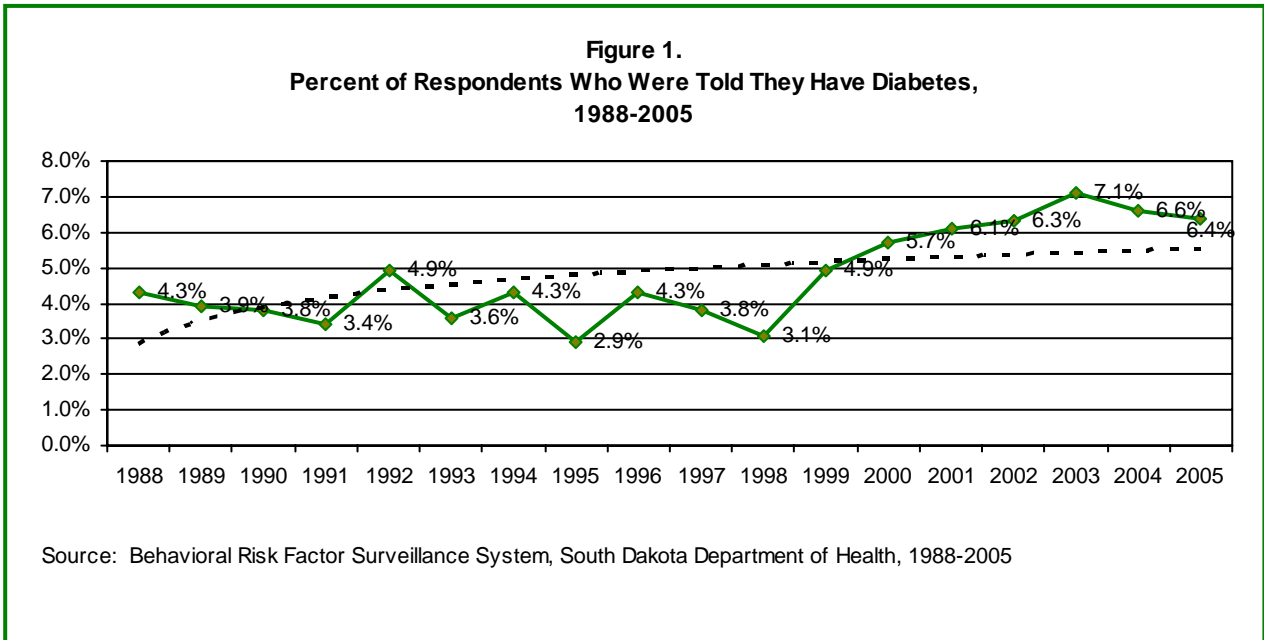
## Prevalence of Diabetes

Diabetes prevalence rates in the United States have increased dramatically since the mid-1930's. The 2005 Behavioral Risk Factor Surveillance System (BRFSS) reports that the prevalence of diagnosed diabetes in South Dakotans over the age of 18 was 6.4 percent – 35,825 adults (Figure 1). The prevalence of persons with diagnosed diabetes in South Dakota has doubled since 1998. Data from the South Dakota BRFSS indicate prevalence of diagnosed diabetes generally increases as age increases.<sup>3</sup>

In addition, national estimates indicate that about 30 percent of people with diabetes don't know they have it.<sup>4</sup> Using this estimate, another 15,350 South Dakotans are likely to have the disease. According to a survey of South Dakota new mothers who gave birth between August 2004 and January 2005, 4.2 percent reported having diabetes before or during their pregnancy.<sup>5</sup>

The Centers for Disease Control and Prevention estimate that about one in every 400 to 600 children and adolescents aged 20 or younger has type 1 diabetes. In 2005, the prevalence of type 1 and type 2 diabetes in South Dakotans 17 years and younger was 0.5%.<sup>3</sup>

For the past few decades, the prevalence of overweight and obesity has steadily increased which puts South Dakotans at an increased risk for type 2 diabetes. South Dakota's percentage of overweight and obese adults (defined as a body mass index of 25.0 or above) has increased from 53.0 percent in 1993 to 62.8 percent in 2005. In addition, 22.5 percent of adult South Dakotans reported no leisure time physical activity in 2005.<sup>3</sup>



Though still rare, type 2 diabetes is occurring more frequently in children and adolescents, particularly among Native Americans, African Americans, and Hispanic/Latinos. Overweight is a risk factor for development of type 2 diabetes. The 2004-2005 School Height and Weight Report for South Dakota students shows increasing rates of obesity in our children with 16.4 percent of K-12<sup>th</sup> grade students considered overweight and an additional 16.6 percent at risk for overweight.<sup>6</sup>

### Disparities

Racial and ethnic sub-populations in the United States suffer from diabetes at disproportionately higher rates than the majority population. South Dakota's 2005 Behavioral Risk Factor Surveillance System data reflects this racial disparity. The prevalence of diagnosed diabetes among Whites was 6.1 percent compared to Native Americans at 13.2 percent – more than two times the prevalence among whites.<sup>3</sup>

## Risk Reduction

While there are no known modifiable risk factors that can lower a person's probability of developing type 1 diabetes, making lifestyle changes such as improved nutrition, weight control, and regular physical activity can reduce the risk of developing type 2 diabetes. Recent clinical trials have established that intensive control of blood glucose levels greatly reduces complications for people with type 1 diabetes and type 2 diabetes. In 2002, results from the Diabetes Prevention Program demonstrated that type 2 diabetes can be prevented or delayed by weight loss and increased physical activity for many people at risk for the disease.

## Preventive Health Practices

People who have diabetes suffer an increased risk of developing a number of disabling and life-threatening complications including heart disease, stroke, kidney failure, blindness, neuropathy, and peripheral vascular disease. However, much of this burden could be prevented with early detection, improved delivery of care, education on diabetes self-management and good self-care practices.

- ❖ Studies in the United States and abroad have found that better blood sugar control reduces the risk for eye disease, kidney disease, and nerve disease by 40 percent in people with type 1 or type 2 diabetes.
- ❖ Blood pressure control reduces the risk for heart disease and stroke among people with diabetes by 33 percent-50 percent. It also reduces the risk for eye, kidney, and nerve diseases by about 33 percent.
- ❖ Detecting and treating early diabetic kidney disease by lowering blood pressure can reduce the decline in kidney function by 30 percent-70 percent.
- ❖ Improved control of blood cholesterol levels can reduce cardiovascular complications by 20 percent-50 percent.
- ❖ Detecting and treating diabetic eye disease with laser therapy can reduce the risk for loss of eyesight by about 50 percent-60 percent.
- ❖ Comprehensive foot care programs can reduce amputation rates by 45 percent-85 percent.



**Figure 2**  
**Preventive Health Practices of Adult South Dakotans with Diabetes, 2005**

Taken course to manage diabetes .....	64%
Check blood glucose 1+ times per day .....	67%
Doctor visit in past year .....	90%
A1c check in past year .....	93%
Foot exam in past year .....	71%
Eye exam in past year .....	74%
Influenza vaccination in past year .....	69%
Pneumococcal vaccination .....	55%
Dentist visit in past year .....	41%

Source: Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2005

Figure 2 shows the level of self-care and medical care that persons with diabetes received in South Dakota.

Persons with diabetes are at a greater risk of death due to influenza and pneumonia. People with diabetes get periodontal disease more often than people who do not have the disease. Gum infections can make it hard to control blood sugar, and once an infection starts, it can take longer to heal.

Tobacco use can exacerbate the vascular complication of diabetes. While South Dakota adults with diabetes are less likely than those without diabetes to be current smokers (18.2 percent vs. 20.5 percent), their incidence is still quite high.<sup>3</sup>

### **Morbidity**

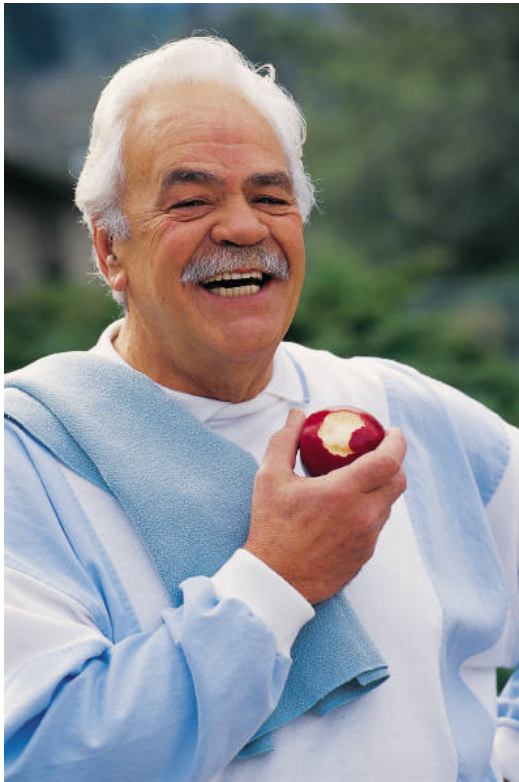
People with diabetes can experience a number of complications which can be classified as either acute or long-term. The acute complications of diabetes can occur at any time and can usually be corrected, while the long-term complications may take decades to develop and are often irreversible. People with diabetes are much more likely to be hospitalized for the complications of diabetes than for diabetes itself.

### **Mortality**

Diabetes ranked as the eighth leading cause of death by disease in South Dakota in 2005. South Dakota vital records data indicate that Native Americans were more likely to die from diabetes as the primary cause than whites in 2005 (9.1 percent vs. 2.9 percent).<sup>8</sup>

### **Cost**

The economic impact of diabetes is enormous. Diabetes can lead to a variety of disabling and life-threatening complications, including heart disease, stroke, blindness, kidney failure, nerve damage, and lower extremity amputation.



All of these conditions contribute to diabetes' staggering cost to the nation, which was estimated by the CDC to be nearly \$132 billion in both direct and indirect costs.

- ❖ Direct medical costs: \$92 billion.
- ❖ Indirect costs (related to disability, work loss, premature death): \$40 billion.
- ❖ Average annual health care costs for a person with diabetes: \$13,243.
- ❖ Average annual health care costs for a person without diabetes: \$2,560.<sup>7</sup>

## PLAN PROCESS

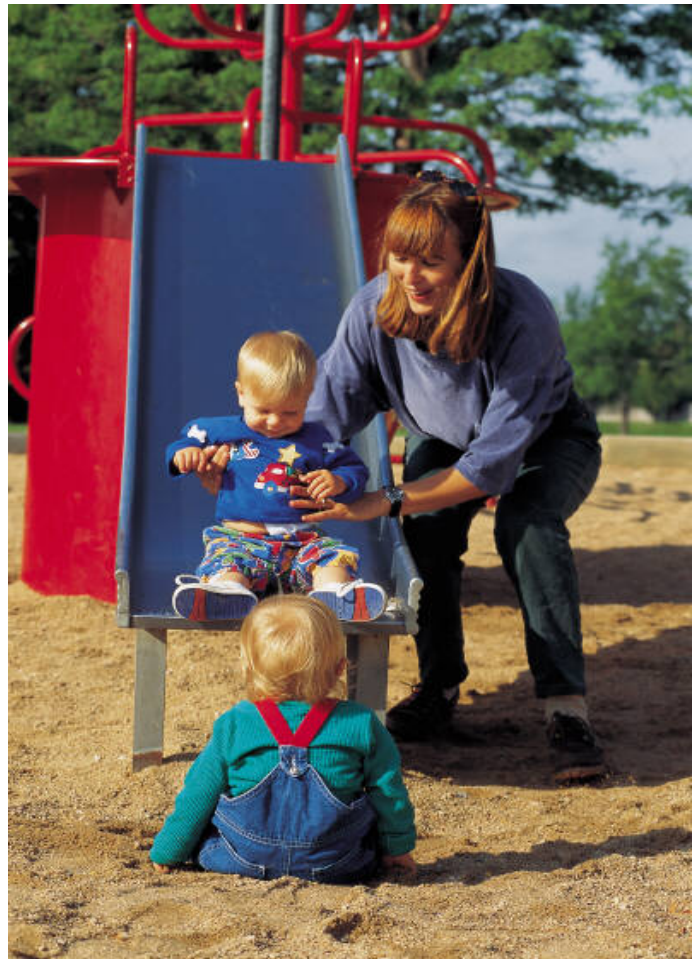
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In 2004 the Diabetes Prevention and Control Program of the South Dakota Department of Health contracted with University Partners in Health Promotion at South Dakota State University to conduct an assessment and evaluation of provision of the 10 Essential Public Health Services related to diabetes in the state. The results of that evaluation were reviewed by the South Dakota Diabetes Advisory Council. The evaluation determined the need to develop a South Dakota diabetes state plan and involve additional partners to impact diabetes prevention and control services in South Dakota.

*The South Dakota Diabetes State Plan 2007-2009* was developed by the South Dakota Diabetes Strategic Planning Coalition. The Coalition was a large group of diverse partners - health care professionals, advocacy groups, government agencies, tribal health, persons with diabetes and concerned family members, quality improvement and wellness programs and many others too numerous to detail. The Coalition set as its mission to "reduce the economic, social, physical, and psychological impact of diabetes in South Dakota by improving access to care and enhancing quality of services."

The Coalition functioned in four workgroups to develop action steps around the 10 Essential Public Health Services. These ten services are considered the foundation for public health policies and practices and are applicable to all chronic disease conditions. The 10 Essential Public Health Services are organized around the four parameters of public health – assessment, policy development, assurance, and systems management.

Prevention of diabetes is not addressed in this plan. South Dakota has developed the *South Dakota State Plan for Nutrition and Physical Activity To Prevent Obesity and Chronic Diseases 2006*<sup>9</sup>, its first comprehensive plan to increase healthy eating and physical activity as ways to reduce overweight and obesity and their subsequent risk for chronic diseases such as diabetes, cardiovascular disease, and hypertension.



## Outcome Objectives

In addition to the Essential Public Health Services, the objectives delineated in this plan are intended to improve the outcome objectives of the Diabetes Prevention and Control Program of the South Dakota Department of Health and other diabetes goals from Healthy People 2010. The following are the long-term benchmarks of the South Dakota Diabetes Prevention and Control Program:

- ❖ Increase the percent of adult South Dakotans with diabetes who have a dilated eye exam at least once in the previous year to 80.7 percent in 2009.
- ❖ Increase the percent of adult South Dakotans with diabetes who have had a foot exam performed by a health care professional at least once in the previous year to 78.5 percent in 2009.
- ❖ Increase the percent of adult South Dakotans with diabetes who receive a yearly influenza vaccination to 73.4 percent in 2009.
- ❖ Increase the percent of adult South Dakotans with diabetes who have ever received a pneumonia vaccination to 49.0 percent in 2009.
- ❖ Increase the percent of adult South Dakotans with diabetes who have had at least 2 glycosylated hemoglobin measurements during the previous year to 82.0 percent in 2009.
- ❖ Expand linkages to promote wellness and physical activity for persons with diabetes in South Dakota by 30 percent by 2009.
- ❖ Identify and reduce health disparities for high risk populations with respect to diabetes control and prevention in South Dakota.

## Next Steps

This plan provides South Dakota with a blueprint for the control of diabetes and the health complications associated with the disease. The Department of Health's Diabetes Prevention & Control Program will focus its resources on the objectives that are in line with its priorities. Partners who collaborated in the development of this plan will focus their resources on objectives related to their priorities. Additional partners are welcome in the implementation of the plan.

Evaluation efforts will be ongoing to determine the plan's impact. Data collected through a variety of methods will assist in evaluating impact.

The collaboration that created this plan needs to continue in order to meet the plan's objectives. Working together, the quality of life for individuals and families affected by diabetes will be improved and the burden that diabetes brings will be reduced.

Parameter of Public Health:  
**ASSESSMENT**

**Essential Service #1: Monitor Health Status to Identify Health Problems**

Objectives:

- 1.1 By January 2008 and annually thereafter, prepare and disseminate an epidemiology report outlining trends of available indicators.
- 1.2 By October 2008, identify diabetes mortality and morbidity indicators for high risk groups in South Dakota.
  - 1.2.1 By October 2008, identify additional data initiatives to address gaps and limitations in existing data sources used to describe diabetes mortality, morbidity, and complications for high risk groups in South Dakota.
  - 1.2.2 By January 2009 and annually thereafter, conduct analyses using the identified data sources to identify disparities in diabetes mortality, morbidity, and complications in the high-risk groups.
- 1.3 By March 2008, complete an assessment of clinics, hospitals, payers, research, and other facilities that have computerized diabetes information systems including what systems (Patient Electronic Care System, Diabetes Care Management System, Electronic Medical or Health Record systems and others) are being used.
- 1.4 By July 2008, complete an assessment of data available from information systems including what data is currently collected, what data can be shared (with and without expense) and what data cannot be shared.
  - 1.4.1 By October 2008, compile a list of all available data sources related to diabetes in South Dakota and share information with partners to avoid duplication of effort and assess progress in diabetes management and control.

**Essential Service #1 includes:**

- ✓ Assessment of statewide diabetes-related health status and its determinants, including the identification of health risks and the determination of diabetes health service needs.
- ✓ Attention to the vital statistics and diabetes-related health status of specific groups that are at higher risk than the general population.
- ✓ Identification of community assets and resources, which support the state diabetes health system in promoting health and improving quality of life.
- ✓ Utilization of technology and other methods to interpret and communicate diabetes-related health information to diverse audiences in different sectors.
- ✓ Collaboration in integrating and managing diabetes-related information systems.

- 1.5 By January 2009, identify additional data initiatives to address gaps and limitations in existing data sources used to describe diabetes mortality, morbidity, and complications in South Dakota.



## Essential Service #2: Diagnose and Investigate Health Problems and Health Hazards in the Community

### *Objectives:*

- 2.1 By October 2008, develop and promote needed resources for screening, case finding, referral and follow-up systems for facilities and organizations.
- 2.2 By October 2008, monitor data about access, availability and quality of diabetes health care to plan diabetes services for South Dakota populations.
- 2.3 By October 2009, expand the collection, quality, and scope of population-based surveillance data for adults, children, and disparately affected populations with, and at risk for, diabetes.

**Essential Service #2 includes:**

- ✓ Epidemiologic investigation of disease patterns of diabetes and other related health and social conditions.
- ✓ Opportunistic population-based screening, case finding, investigation, and the scientific analysis of diabetes-related health problems.



- 2.4 By October 2009, analyze the age, type of diabetes and ethnicity data to determine what target audiences may not be aware of resources.

Parameter of Public Health:  
**POLICY DEVELOPMENT**

**Essential Service #3: Inform, Educate, and Empower People about Health Issues**

Objectives:

- 3.1 By September 2007 and as needed thereafter, the South Dakota Diabetes Prevention and Control Program will add sections to its website to serve as a central point to promote available information and educational resources.
- 3.2 By October 2007 and yearly thereafter, determine target audiences for diabetes-related health information campaigns.
- 3.3 By September 2007 and yearly thereafter, determine a schedule for diabetes-related health information campaigns and methods of delivery.
- 3.4 By September 2007, develop at least one diabetes-focused public service announcement.
- 3.5 By December 2007, develop and implement a coordinated media plan using the public service announcement.
- 3.6 By October 2007 and yearly thereafter, increase the number of South Dakota Diabetes Information Link program recipients by 1,000 each year.
- 3.7 By October 2007, revise the South Dakota Diabetes Information Link program enrollment cards to distinguish enrollees by age, type of diabetes and ethnicity.
- 3.8 By October 2007, promote use of the professional and general public diabetes-awareness displays to agencies conducting diabetes and pre-diabetes awareness programs.
- 3.9 By October 2008, develop South Dakota Diabetes Information Link program welcome packets focused towards 0-11 year olds and 12-17 year olds.

**Essential Service #3 includes:**

- ✓ Health information, health education, and health promotion activities designed to reduce health risk and promote better health.
- ✓ Health communication plans and activities such as media advocacy and social marketing.
- ✓ Accessible health information and educational resources.
- ✓ Health education and promotion program partnerships with schools, faith communities, work sites, personal care providers, and others to implement and reinforce health promotion programs and messages.

## Essential Service #4: Mobilize Community Partnerships to Identify and Solve Health Problems

### *Objectives:*

- 4.1 By October 2008, develop a partnership with health systems monitoring diabetes care to establish an annual reporting process.
- 4.2 By November 2008, convene two "Partners' Conferences" to facilitate continued collaboration among partner organizations.
- 4.3 By October 2008, show a measurable increase in the number of collaborating partners and members involved in the plan implementation.
- 4.4 By October 2009, develop a partnership with South Dakota Public Broadcasting's "South Dakota Focus" to dedicate an episode to diabetes topics each year.

### Essential Service #4 includes:

- ✓ The organization and leadership to convene, facilitate, and collaborate with statewide partners (including those not typically considered to be health-related) to identify diabetes priorities and create effective solutions to solve state and local diabetes-related health problems.
- ✓ The building of a statewide partnership to collaborate in the performance of public health functions and essential services in an effort to utilize the full range of available human and material resources to improve the state's diabetes health status.
- ✓ Assistance to partners and communities to organize and undertake actions to improve the health of the state's communities.



## Essential Service #5: Develop Policies and Plans that Support Individual and Community Health Efforts

### *Objectives:*

- 5.1 By October 2007 and annually thereafter, utilize available data sources to determine areas of need and initiatives that may be developed.
- 5.2 By March 2008 and annually thereafter, review and update the mission statement of the Diabetes Prevention & Control Program.
- 5.3 By January 2009, develop a tool to determine diabetes costs along with anticipated impact of appropriate evidence-based interventions.

### Essential Service #5 includes:

- ✓ Systematic health planning that relies on appropriate data, develops and tracks measurable health objectives, and establishes strategies and actions to guide community health improvement at the state and local levels.
- ✓ The support of development of legislation, regulations, guidelines, and other policies to enable performance of the Essential Public Health Services, supporting individual, community, and state health efforts.
- ✓ The promotion of democratic process of dialogue and debate between groups affected by the proposed health plans and policies prior to adoption of such plans or policies.



Parameter of Public Health:  
**ASSURANCE**

**Essential Service #6: Enforce Laws and Regulations that Protect Health and Ensure Safety**

Objectives:

- 6.1 By March 2007 and annually thereafter, monitor for legislation related to services for individuals with diabetes.
- 6.2 By July 2008, advocate for payment of diabetes self-management education provided by recognized Indian Health Service programs.

**Essential Service #6 includes:**

- ✓ The review, evaluation, and revision of laws and regulations designed to protect health and safety to assure that they reflect current scientific knowledge and best practices for achieving compliance.
- ✓ Education of persons and entities obligated to obey or to enforce laws and regulations designed to protect health and safety in order to encourage compliance.
- ✓ Enforcement activities in areas of public health concern, including, but not limited to the coverage of diabetes self-management education and supplies, access to care, school policy, workplace discrimination, birth and death certificate documentation, and the protection of rights for Americans with disabilities.



## Essential Service #7: Link People to Needed Personal Health Services and Assure the Provision of Health Care When Otherwise Unavailable

### *Objectives:*

- 7.1 By October 2007, facilitate partnerships for the integration and sustainability of diabetes care in South Dakota.
- 7.2 By October 2007, identify barriers to diabetes care and develop strategies to eliminate or lessen these barriers.
- 7.3 By October 2008, develop and disseminate a tool for South Dakotans with diabetes to present at each health system they visit, profiling the education they have already received.
- 7.4 By October 2009, use evidence-based practice to support quality care to vulnerable groups.

### Essential Service #7 includes:

- ✓ Assessment of access to and availability of quality diabetes-related health care services for the state's population.
- ✓ Assurances that access is available to a coordinated system of quality care which includes outreach services to link populations to preventative and curative care, health care delivery services, case management, enabling social and mental health services, culturally and linguistically appropriate services, and health care quality review programs.
- ✓ Partnership with public, private, and voluntary sectors to provide populations with a coordinated system of health care.
- ✓ Development of a continuous improvement process to assure the equitable distribution of resources for those in greatest need.



## Essential Service #8: Assure a Competent Public and Personal Health Care Workforce

### Objectives:

- 8.1 By October 2007, post a diabetes continuing education program list on the South Dakota Department of Health web site.
- 8.2 By March 2008, identify existing diabetes curriculum for schools of medicine, nursing, pharmacy, and dietetics in South Dakota.
- 8.2.1 By July 2008, compare curriculum content to the American Diabetes Association Standards of Care and identify gaps.
- 8.2.2 By October 2008, develop curriculum guidelines specific to diabetes for health professional education programs in South Dakota.
- 8.3 By October 2007, develop a partnership with existing diabetes programs to mentor professionals pursuing diabetes certification.
- 8.4 By October 2007 and annually thereafter, provide an educational conference targeting healthcare professionals (specifically nurses, dietitians, pharmacists, nurse practitioners, physician assistants and other health care professionals) who provide education and treatment to those with diabetes.
- 8.5 By October 2007, identify partnerships for continuing education related to diabetes.

### Essential Service #8 includes:

- ✓ Education, training, development, and assessment of health professionals - including partners, volunteers and other lay community health workers - to meet statewide needs for public and personal diabetes health services.
- ✓ Efficient processes for credentialing technical and professional health personnel.
- ✓ Adoption of continuous quality improvement and life-long learning programs.
- ✓ Partnerships with professional workforce development programs to assure relevant learning experiences for all participants.
- ✓ Continuing education in management, cultural competence, and leadership development programs.



## Essential Service #9: Evaluate Effectiveness, Accessibility, and Quality of Personal and Population-Based Health Services

### *Objectives:*

- 9.1 By October 2007, assess the availability of specialty care for individuals with diabetes in South Dakota and identify geographically underserved areas.
- 9.2 By October 2007, establish a mechanism for an annual status report of the South Dakota Diabetes State Plan and review by the South Dakota Diabetes Advisory Council.
- 9.3 By October 2007, develop a plan to enhance access to quality diabetes care and education throughout the state.
- 9.4 By July 2008, develop a mechanism for continuous review of access to quality diabetes care and education.

### Essential Service #9 includes:

- ✓ Evaluation and critical review of health programs, based on analyses of health status and service utilization data, are conducted to determine program effectiveness and to provide information necessary for allocating resources and reshaping programs for improved efficiency, effectiveness, and quality.
- ✓ Assessment of and quality improvement in the state diabetes health system's performance and capacity.



Parameter of Public Health:  
**SYSTEMS MANAGEMENT**

**Essential Service #10: Research for New Insights and Innovative Solutions to Health Problems**

Objectives:

- 10.1 By October 2007, establish a central depository of information about diabetes-related research being undertaken in South Dakota.
- 10.2 By October 2007, maintain a list of collaborative partnerships for diabetes research across the state, to include researchers, communities, organizations, and funding sources.
- 10.3 By October 2008, monitor research about diabetic care differences by race, ethnic group, gender, age, income, disability and payment source.
- 10.4 By October 2009, encourage the development of South Dakota doctorate level programs that promote diabetes research.

**Essential Service #10 includes:**

- ✓ A full continuum of research ranging from field-based efforts to foster improvements in public health practice to formal scientific research.
- ✓ Linkage with research institutions and other institutions of higher learning.
- ✓ Internal capacity to mount timely epidemiologic and economic analyses and conduct needed diabetes-related health services research.



## APPENDIX A. REFERENCES

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## APPENDIX B. DEFINITION OF TERMS

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**A1c (hemoglobin A1c or HbA1c):** A clinical test used to gauge the level of blood glucose control. It provides an average of the blood glucose levels for the past 120 days. A1c levels can range from about 6 percent (normal) to as high as 25 percent (uncontrolled glucose levels). Regular A1c testing is essential for monitoring the effectiveness of diabetes treatment plans.

**At Risk of Overweight:** In Body Mass Index measurements, at risk of overweight is defined as gender and age specific BMI at or above the 85<sup>th</sup> percentile and below the 95<sup>th</sup> percentile for children aged 2 to 20 years.

**Behavioral Risk Factor Surveillance System (BRFSS):** BRFSS is a cross-sectional random-digit dial telephone survey of non-institutionalized adults aged 18 and older. This ongoing data collection effort examines the health behaviors of adults and provides national and state data on trends in diabetes and related topic areas. More information is available online at <http://www.state.sd.us/doh/Stats/>.

**Benchmark:** A point of reference or standard by which something can be measured, compared, or judged, as in “benchmarks of performance.”

**Blood Glucose:** The main sugar that the body makes from food we eat. Glucose is carried through the bloodstream to provide energy to all of the body’s living cells. The cells cannot use glucose without the help of insulin.

**Blood Pressure:** The force of the blood against the artery walls. Two levels of blood pressure are measured: the highest, or systolic, occurs when the heart pumps blood into the blood vessels, and the lowest, or diastolic occurs when the heart rests.

**Body Mass Index (BMI):** BMI is a tool for measuring weight status in both youth and adults. BMI is commonly the accepted index for the classification of overweight and obesity in adults and is recommended to identify children and adolescents who are underweight, overweight, or at risk of overweight when compared to the same age and gender.

**BMI Formula:** 
$$\frac{\text{Weight in Pounds}}{(\text{Height in inches}) \times (\text{Height in inches})} \times 703$$

Stated another way, BMI = body weight in pounds divided by height in inches squared multiplied by 703.

**Centers for Disease Control and Prevention, Division of Diabetes Translation:** The Division is part of the National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services (DHHS). The

mission of the Division of Diabetes Translation is to eliminate the preventable burden of diabetes through leadership, research, programs, and policies that translate science into practice.

**Childhood Overweight:** A description of children aged 2-20 years with a gender and age specific BMI value equal to or greater than the 95<sup>th</sup> percentile.

**Community:** Defined in this document as a social unit usually encompassing a geographic area (such a town, neighborhood or housing complex), shared characteristics (such as ethnicity, age, gender, occupation, culture or history), or common interest (such as an activity or health condition) typically convened for the purpose of benefiting members while addressing a need or providing a service.

**Complications:** Conditions that can result from diabetes that is not controlled. Complications can also be considered secondary health problems. The most common are lower extremity amputations, kidney failure, blindness, premature death, stroke, heart disease, congenital malformations, perinatal death, and long- and short-term disability.

**Diabetes:** The short name for the disease called diabetes mellitus. Diabetes results when the body cannot use blood glucose as energy because of having too little insulin or being unable to use insulin properly.

**Diabetes Advisory Council:** The advisory group for the South Dakota Diabetes Prevention and Control Program made up of health care providers, persons with diabetes, and others.

**Dilated Eye Exam:** An eye exam in which drops are put in the eyes prior to the exam; the drops enlarge the pupils so that the doctor can clearly see the retina, or back of the eye.

**Essential Public Health Services:** A list of ten activities that identify and describe the core processes used in public health to promote health and prevent disease. The framework was developed in 1994. All public health responsibilities (whether conducted by the local public health agency or another organization within the community) can be categorized into one of the services.

**Health Care Provider:** Physicians, physician assistants, nurse practitioners, certified diabetes educators, nurses, and other allied health professionals.

**Health Care System:** A system comprised of the organizations, institutions, and resources that are devoted to producing a health action, whether in personal health care or in public health services, whose primary purpose is to improve the health of the general population or a specified and recognized segment of the general population. In South Dakota, the primary health care systems are Avera Health, Community Health Centers, Indian Health Service, Rapid City Regional, Sioux Valley Health System, and the Veterans Health Administration.

**Healthy People 2010:** The prevention agenda for the nation. It is a statement of the national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats.

**Impaired Fasting Glucose (IFG):** A condition in which the fasting blood sugar level is elevated (100 to 125 milligrams per deciliter or mg/dL) but is not high enough to be classified as diabetes.

**Impaired Glucose Tolerance (IGT):** A condition in which the blood sugar level is elevated (140 to 199 mg/dL) after a 2-hour oral glucose tolerance test, but is not high enough to be classified as diabetes.

**Incidence:** How often a disease occurs; the number of new cases of a disease among a certain group of people over a specific period of time (e.g., one year).

**Mortality:** Related to death. Diabetes mortality is often referred to in describing the number of people that have died with diabetes as an immediate or contribution cause of their death.

**Obesity:** In Body Mass Index measurements, obesity is defined as a BMI equal to or greater than 30.0 in adults.

**Overweight:** In Body Mass Index measurements, overweight is defined as a BMI between 25.0 and 29.9 in adults. For children 2-20 years, overweight is defined as BMI-for-age equal to or greater than the 95<sup>th</sup> percentile.

**Prevalence:** The number of people in a given group or population who are reported to have a specific disease at any one point in time.

**Risk Factor:** Characteristic of individuals that increase the probability that they will experience disease or death compared to the rest of the population. Risk factors for developing diabetes include genetics, environmental exposures, and socio-cultural living conditions. Risk factors for complications of diabetes include the same factors as above and more importantly, uncontrolled blood glucose, blood lipid or blood pressure levels.

**Self-Management Education:** Instruction about nutrition, exercise, medications, blood glucose monitoring, and emotional adjustment to help people control their diabetes and make healthy lifestyle choices.

**South Dakota Diabetes Prevention and Control Program:** A unit of the South Dakota Department of Health located under the Office of Health Promotion. The program receives the majority of its funding from the CDC. The program is dedicated to improving the health of people at risk for, or with, diabetes.

**South Dakota School Height and Weight Report:** A summary of South Dakota student height and weight data collected by the South Dakota Department of Health in cooperation with the South Dakota Department of Education. More information is available online at <http://www.state.sd.us/doh/SchoolWeight/>.





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