



Oral, Eye and Foot Complications of Diabetes

Foot Environmental Scan

Prepared for:

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Table of Contents

	Page
Executive Summary	i
I. Background and Scope of Work	1
A. Diabetes and Its Complications	1
B. Foot Complications of Diabetes	3
C. Diabetes and Foot Complications in Minority Populations	3
D. Diabetes and Centers for Disease Control and Prevention.....	8
E. Tasks of the Overall Project	10
F. Environmental Scan – Foot Complications of Diabetes.....	11
II. Methods of Data Capturing.....	15
A. Literature Review Findings.....	15
B. Internet/Media Search.....	16
C. Informal Interviews.....	23
III. Findings	24
A. Legislation	24
B. National Objectives and Initiatives	28
C. Stakeholders.....	37
D. Screening Guidelines and Treatment Algorithms.....	40
E. Education Programs and Media Campaigns	43
F. Consumer Marketplace	50
G. Clinical and Psychosocial Trends	53
H. Identified Gaps.....	60
IV. Conclusion	61
V. References	63

Appendices

- Appendix A: Foot Complications Logic Model (*see Tab 5*)
- Appendix B: Literature Review Summary Charts (*see Tab 5*)
- Appendix C: List of Organizations Contacted (*see Tab 5*)
- Appendix D: Informal Interview Guide (*see Tab 5*)

Executive Summary

Diabetes places a significant health care burden on the United States, where an estimated seventeen million people have the disease and there are approximately 800,000 new cases each year (1,2). The financial burden of such a public health epidemic results in both direct and indirect costs from absenteeism, disability, and premature death totaling \$98 billion (1). More than 60 percent of nontraumatic lower-limb amputations in the United States occur among people with diabetes (1). From 1997 to 1999, about 82,000 nontraumatic lower-limb amputations were performed each year among people with diabetes (1). These facts carry frustrating overtones because much of the burden associated with complications of diabetes is preventable.

The Division of Diabetes Translation (DDT) of the Centers for Disease Control and Prevention (CDC) is dedicated to eliminating the preventable burden of diabetes in the United States. The division works to achieve this by combining support for public health-oriented diabetes control programs (DCPs) with efforts to translate diabetes research findings into widespread clinical and public health practice. DCPs in all 50 States and in nine other jurisdictions are funded by DDT as a cornerstone of this strategy, and they collectively compose the National Diabetes Control Program.

National objectives set by DDT several years ago emphasize prevention of complications through timely *foot exams*, *eye exams*, *oral care*, appropriate immunizations, and HgA1c tests. This focus on screening reinforces the interest of DDT and DCPs in primary prevention approaches but considerably broadens the target populations on which they must focus and the *partnerships that must be made to implement effective interventions*. Hence, it is essential that good formative research be done to isolate the most effective ways to motivate initiation and maintenance of healthy behaviors by those at risk for diabetes complications.

The key tasks of this project fall into two broad phases. The first phase involves conducting a literature review and environmental scan, which lead to the development of a formative evaluation plan. In the second phase, the planned formative research will be conducted, intervention concepts and materials will be designed by the creative contractor and pre tested by the evaluation contractor, and the resulting intervention will be evaluated.

For Phase 1, the central charge is to compile existing data; evaluate the quality of the research, interventions, and any gaps that exist; and develop a plan to conduct needed formative research on oral, eye, and foot complications of diabetes, including 1) educational messages and message concepts, 2) printed materials and/or other communications products, 3) dissemination channels, 4) processes and strategies engaged to develop messages, and 5) audiences specifically targeted and the rationale for targeting those audiences. The results of each evaluation will aid CDC and its partners in designing appropriate interventions for oral, eye, and foot complications of diabetes.

A literature review describing the relationship between diabetes and each complication was conducted as part of Phase 1 of this project. The purpose of the literature review was to summarize, document, and evaluate the quality of information related to knowledge, attitudes,

beliefs, and behaviors pertaining to oral, eye, and foot health and diabetes among people with diabetes, specialists, and general health care providers.

To supplement the literature reviews, an environmental scan on each complication was conducted. The Oral Environmental Scan was the first to be commissioned, and it was produced in April 2001. This report deals with the Foot Environmental Scan, which obtained current information on how diabetes and foot complications are portrayed in electronic media and how they are dealt with in political and social environments.

Internet resources, such as Web sites and listservs, were scanned for information on diabetes and foot complications. Potentially competitive or duplicative programs, as well as clinical and psychosocial trends that might enhance or threaten future program activities, were researched. Specifically, the environmental scan identified resources that address the foot complications of diabetes. This deliverable includes the environmental scan report, materials collected, and a synthesis of this information to identify key themes and issues on foot complications of diabetes.

Within this task, information was collected in a number of defined areas. Legislation, national objectives and initiatives, screening guidelines and treatment algorithms, education programs and media campaigns, the consumer marketplace, and clinical and psychosocial trends were investigated to assess activity that may have an impact on the prevalence of foot complications of diabetes. Several important findings have emerged as a result of this formative research. The focus is on determining where interventions and programs can make a difference or make the greatest difference. The most salient findings are listed as follows.

Stakeholders

In addition to the Centers for Disease Control and Prevention, a number of stakeholders, including Government agencies and professional organizations, is prominent in addressing issues related to diabetes and foot complications.

National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports research on many of the most serious diseases affecting public health. NIDDK's Division of Diabetes, Endocrinology, and Metabolic Diseases (DEM) provides research, funding, and support for basic and clinical research in the areas of type 1 and type 2 diabetes and other metabolic disorders. NIDDK has developed a number of health education programs, two of which are specific to diabetes.

American Podiatric Medical Association

The American Podiatric Medical Association (APMA) is the premier professional organization representing the Nation's Doctors of Podiatric Medicine. The APMA represents approximately 80 % of the podiatrists in the country. The primary mission of the APMA is to improve the quality of foot care in the United States. This mission includes attracting qualified young men and women to the field, and to increasing the awareness of the importance of foot health among the general public and other health professionals.

American Diabetes Association

The American Diabetes Association is the Nation's leading nonprofit health organization providing diabetes research, information, and advocacy. The mission of the organization is to prevent and cure diabetes and to improve the lives of all people affected by diabetes.

American Association of Diabetes Educators

The American Association of Diabetes Educators (AADE) is a multidisciplinary organization representing more than 10,000 health care professionals who provide diabetes education and care. The mission of the organization is to advance the role of the diabetes educator and improve the quality of diabetes education and care.

Veterans Health Administration

An organization of the Department of Veterans Affairs (VA), the Veterans Health Administration (VHA) sponsors and participates in a host of programs that increase the quality of health care for patients. One such program focuses on diabetes. Diabetes has particular importance for the Department of Veterans Affairs because the prevalence among VA patients is substantially higher than in the general population. Thus, VA is the largest integrated health care system providing care to people with diabetes. Nearly all veterans with diabetes are men. The largest group of veterans with diabetes is over 65 years of age.

Trends

The stakeholders listed in the previous section have been highlighted because they undertake activities aiming to address the burden of diabetes and its complications. As part of an analysis of the context of these activities, a number of clinical and psychosocial trends are apparent. In observing the messages conveyed about diabetes and its related foot complications in our environmental scan, the mechanisms and channels through which these messages are disseminated were also examined. A synthesized list of the trends identified follows.

Emphasis on prevention, self-management, and patient empowerment

A consistent theme can be identified throughout the campaigns, programs, and materials developed for people with diabetes. More and more, emphasis is placed on prevention of diabetes and its related complications, in particular as a result of the newly published substantial evidence that type 2 diabetes can be prevented or delayed. Although the treatment of diabetes has become increasingly sophisticated with many pharmacological agents available to lower blood glucose, a patient's success in preventing diabetes depends on his or her behaviors and abilities. Lifestyle modification including physical activity and moderate weight loss are the recommended strategies for diabetes prevention. Self-management of the disease can be reinforced among patients with diabetes through education. Learning more about diabetes can empower patients to better manage the disease and avoid complications.

Use of the partnership model

Diabetes education and care, the partnership model of promoting health is increasingly common. Numerous initiatives, campaigns, and programs make use of partnerships among Government and private organizations. In the diabetes community, partnerships serve to provide greater strength in working toward a common goal. Interagency partnerships allow for combined ideas,

knowledge, experience, resources, and access to target audiences. The collaborative efforts characteristic of partnerships increase the likelihood of achieving the goals of increased awareness, routine screening, and proper treatment of diabetes. More research is needed, however, in examining specifically what makes these partnerships work and in identifying characteristics and indicators that will help form better partnerships in the future.

Enhanced communication, stronger links between primary care providers and foot care providers

Diabetes affects many different aspects of a person's life. A total-care approach to diabetes ensures that the person with diabetes receives help from medical professionals trained to focus on the different areas, from head to toe. A health care team allows the person with diabetes to use the health care system to its fullest. However, the primary care provider is often the first point of contact for the person with diabetes. As a result, it is important that the primary care provider and other members of the health care team communicate with one another about the health status of the patient.

Multimedia approach to disseminating messages and information

Often, the success of a particular campaign or program will depend on its audience reach. Traditionally, television, radio, and print have been the media in the marketing mix through which campaigns disseminate their messages. Today, media campaigns and education programs focusing on diabetes are including the use of computers and the Internet as a medium through which to disseminate their messages. In particular, the use of multiple outlets to deliver information is a strategy that is consistent with research on what it takes to get a message through to people. New examples of how pharmaceutical companies and other organizations are using the Web to promote directly to physicians via e-modalities, including e-detailing and e-events (e.g., CME activity, etc.) are listed in this report.

Gaps Identified

Although our findings suggest that there is a wealth of information on foot complications of diabetes, gaps in knowledge of this subject do exist.

National initiatives and educational programs specifically targeting Hispanic/Latinos with foot complications of diabetes are limited.

Although there are national initiatives and educational programs focusing on foot complications, few are targeted toward specific minority populations. Additionally, of the national initiatives and educational programs that do target minority populations, even fewer are developed to specifically address culturally and linguistically diverse needs within the Hispanic/Latino populations.

Direct to consumer marketing of pharmaceutical products and supplies for treatment and management of foot complications of diabetes is limited.

Unlike the consumer marketplace for general diabetes care, which is flooded with pharmaceutical products, supplies, services and information to help patients manage their blood glucose levels, the consumer marketplace specific to foot complications of diabetes is not heavily saturated.

This environmental scan on foot complications of diabetes has identified key pieces of information related to legislation, national objectives and initiatives, screening guidelines and selected treatment algorithms, education programs and media campaigns, and the consumer marketplace, along with clinical and psychosocial trends. Activities that may have an impact on the prevalence of foot complications of diabetes are also described.

The information obtained from this environmental scan was used to construct a formative research plan. This plan, which is presented at the end of this report, includes recommendations for conducting formative research on audience selection, message concepts, types of communication products, and dissemination channels for Phase 2 of this task on foot complications of diabetes.

I. Background and Scope of Work

This section will provide a brief description of what diabetes and its foot complications are in the United States. It will also discuss foot complications of diabetes in minority populations. A description of CDC's efforts, in particular for this project on oral, foot, and eye complications of diabetes, follows. The objectives of the specific tasks for this project, particularly of this environmental scan, are at the end of this section.

A. Diabetes and Its Complications

Diabetes is one of the most costly and burdensome chronic diseases of our time and is a condition that is increasing in epidemic proportions in the United States and throughout the world. Diabetes places a significant burden on the United States, where an estimated seventeen million people have diabetes (1). More than three quarters of a million people are newly diagnosed with diabetes each year (2). A projected 5.9 million people, one third of those estimated to have diabetes, remain undiagnosed (1). Now the sixth leading cause of death in America (3), diabetes is also a major cause of morbidity, even disability, in an otherwise potentially healthy population. Diabetes is the leading cause of new cases of blindness in adults aged 20 to 74 years; it takes the lead in causing chronic, irreversible, end-stage kidney disease; and it is the primary cause of lower-extremity amputations not related to injury (1).

Diabetes was recognized as early as 3 000 B.C., but an exact etiology remains elusive, and no cure has yet been found.

Moreover, people with diabetes are at high risk for such cardiovascular disorders as coronary heart disease, stroke, and peripheral vascular disease. Two out of three people with diabetes die from cardiovascular disease. A new emphasis on treating diabetes comprehensively by managing not only blood glucose but also blood pressure and cholesterol can help lower the risk of heart disease and stroke for the person with diabetes.

The financial burden of such a public health epidemic has direct costs and indirect costs from absenteeism, disability, and premature death. These facts carry frustrating overtones because much of the burden associated with complications of diabetes is preventable.

Early detection of diabetes is important because initiating early treatment of the disease may postpone complications. Besides an increased prevalence of diabetes, there is also an increase in the number of complications attributed to diabetes, which can affect every organ of the body. Poor glycemic control can lead to heart disease, stroke, blindness, kidney disease, amputations, and dental disease (4).

Ancient Indians from the fourth century B.C. called diabetes "madhumeha." These people are said to have noticed ants gathering around the urine of diabetics, so perhaps the ants deserve credit for discovering the sweetness of diabetic urine.

- Preamble: *The History of Diabetes*, D.A. Pyke

For those who already have type 2 diabetes, a secondary prevention routine involving management of blood glucose levels through a combination of physical activity; proper nutrition; oral tablets and/or insulin; and regular dental, eye, and foot exams is critical for preventing diabetes-related complications. These complications include blindness, nerve damage, circulation problems, infections, and amputations, as well as complications less well known to the public, such as periodontal disease, tooth loss, dry mouth, and dental abscesses.

The word *diabetes* is Greek for *passing through*, because Greek doctors noticed that diabetics drank and urinated quite a bit. And the word *insulin* is Greek for *island*. The groups of islet cells in the pancreas that are responsible for making insulin and other hormones look like tiny islands under a microscope.

- From "Human Diseases and Conditions," Vol. 1.
Neil Izenberg, MD, editor in chief. Scribner's. 2000.

Two different controlled trials, one conducted in the United States and one in the United Kingdom, were aimed at identifying the factors related to developing diabetes complications. In the United States, the Diabetes Control and Complications Trial (DCCT), was conducted on type 1 diabetes patients in order to study how two treatment regimens affected the outcomes of diabetes complications. The results showed that by lowering blood sugar or by maintaining good glycemic control, the risk of developing eye, nerve, and kidney disease could be reduced (5). Conducted with diabetes type 2 patients, the United Kingdom Prospective Diabetes Study (UKPDS) sought to determine how to treat type 2 diabetes patients in order to prevent complications and maintain their health. Both the DCCT and the UKPDS found that poor glucose control is associated with the development of diabetes complications. The UKPDS also concluded that type 2 diabetes is a progressive disease and, as the duration of diabetes increases, more treatment becomes necessary (6).

Despite the findings of these two studies, as the prevalence of diabetes in the United States has increased, there has been a commensurate increase in the prevalence of diabetes-related complications. This increase has been attributed to changing demographics, poor health behavior, and improved surveillance. In particular, it is the changing demographics specifically the increase in minority populations that has led to an increase in reported prevalence for diabetes complications. In the United States, the increased incidence of diabetes complications for minority populations is disproportionate to increases for non minority populations (7).

More recently, the Diabetes Prevention Program (DPP), a randomized controlled trial provided substantial evidence on how a lifestyle intervention can prevent or delay the onset of diabetes for approximately 3 years. The DPP was the first major clinical trial in the United States to show that moderate changes in diet and exercise can delay and possibly prevent type 2 diabetes in a diverse population of overweight individuals with Impaired Glucose Tolerance (IGT). The DPP found that modest weight loss, 5 to 7 percent of body weight, and increased physical activity, such as brisk walking for 30 minutes per day, can cut a person's risk of developing type 2 diabetes by more than half. The lifestyle intervention worked equally well in men and women and in all the racial/ethnic groups represented in the study. It was most effective in people aged 60 and older. The implications of this study have presented a message of hope to health care professionals and people at risk: type 2 diabetes can be prevented through modest lifestyle changes and losing about 5 to 7 percent of body weight (8).

B. Foot Complications of Diabetes

Diabetes continues to be one of the most common underlying factors associated with lower extremity amputation (LEA) in post-industrialized and developing countries. Amputations are perhaps the most feared and well-recognized complications of diabetes by the general public.

Unchecked diabetes and poor glycemic control can lead to peripheral vascular disease or neuropathy (9). Peripheral vascular disease is caused by blockage of the arteries that carry blood to the legs and arms, resulting in damage to the extremities and, ultimately, in amputation (10). Risk factors for developing vascular disease are smoking and hypertension (11).

Facts:

- Approximately 120,000 non-traumatic amputations are done each year in the United States. Of these, 45-83% involve diabetes mellitus.
- The annual incidence rates of lower extremity amputations range from 5.3 to 8.1 per 1,000 individuals with diabetes.
- The direct short-term costs of LEAs ranges from \$20,000 to \$60,000.

Neuropathy is nerve damage that causes a loss of sensation in the feet or legs and can lead to foot deformities. On the presence of neuropathy and/or ischemia, the sequence of minor trauma leading to cutaneous ulceration and wound-healing failure is a frequent cause of necessitate lower extremity amputations in diabetic patients. Approximately 60% of all patients with diabetes have some form of neuropathy; consequently, more than half of the lower extremity amputations in the United States are conducted on people with diabetes (10). Once the amputation of one limb has occurred, the prognosis for the contra lateral limb is poor. In addition, patients who have experienced previous ulcers or amputation have, by definition, the necessary risk factors for future ulceration.

While early identification of the at-risk foot is essential for preventing amputations, symptoms of diabetic neuropathy vary from severe to undetectable. If there is a loss of sensation, foot injuries can go unnoticed, thus potentially resulting in amputation. Current recommendations for primary care suggest that the health care provider conduct a foot exam at every visit and at least four times per year. Self-management is important in preventing amputations (11). The diabetic patient who practices proper foot hygiene and knows how to protect feet from injury can reduce his or her risk for amputation. With appropriate primary prevention, approximately half of diabetes-related amputations could be prevented (9).

Prevention and Management Include:

- Screening for high-risk characteristics
- Footwear fitting and therapeutic footwear
- Education in self-examination
- Surveillance for early problems (debridement of callus and nails).

C. Diabetes and Foot Complications in Minority Populations

Health disparities among racial and ethnic groups in the rate of diabetes and its associated complications in the U.S. have been studied and documented. Certain racial and ethnic communities, including African Americans, Hispanics, American Indians, and certain Pacific Islander and Asian American populations as well as economically disadvantaged people and

older people, suffer disproportionately compared with white populations. For example, the relative number of persons with diabetes in African American, Hispanic, and Native American/American Indian communities is one to five times greater than in white communities (12). Deaths from diabetes are two times higher in the African American population than they are in the white population, and diabetes-associated renal failure is 2.5 times higher in the African American population than it is in the Hispanic population (13,14,15).

Table 1
Prevalence of Diabetes (Both Type 1 and Type 2) among Minority Populations

	African American	Hispanic/Latino	Native American	White
Percentage of diabetes for individuals 20 years old and older (4)	10.8%	Mexican Americans, 10.6%	9%	7%
Likelihood of developing diabetes compared with whites of the same age (21)	1.7 times	2-3 times	2.8 times	N/A

Disparate access to quality health care is a common explanation for ethnic disparities in diabetic complication rates in the U.S. population. The Healthy People 2010 initiative states the following about health disparities and diabetes:

Particularly within certain racial and ethnic groups, there are four potential individual reasons for the greater burden of diabetes:

- **Greater number of cases of diabetes.** If diabetes is more common, then more amputations, death, and other complications from diabetes would be expected.
- **Greater seriousness of diabetes.** If hyperglycemia or other serious comorbid conditions, such as high blood pressure or elevated blood lipids, are present in certain racial and ethnic groups, a greater diabetes-related disease burden will occur. Many other factors could be involved, including genetics and excess weight. Greater seriousness of diabetes can be determined by comparing, for example, death or amputation rates for specific racial and ethnic diabetic groups with those rates in the general diabetic population.
- **Inadequate access to proper diabetes prevention and control programs.** If proven diabetes services, such as self-management training programs or eye-retina examinations, are not a part of routine diabetes care, then effective programs to reduce the burden of diabetes will not be accessed and used. These essential diabetes services often are provided by specialists. Unfortunately, many diabetes at-risk groups reside in medically underserved areas or are without adequate insurance and thus do not receive these types of preventive services.

- **Improper quality of care.** If diabetes management services are available, but the quality of that service is inadequate, prevention programs would not be effective in reducing the burden of diabetes.
- **Identifying the reasons for disparities in diabetes health outcomes is important in tailoring programs to those specific areas where deficiencies exist.** Collection of racial and ethnic health services data for all health activities is critical to designate the reason for the greater disease burden.

In the following section, a closer examination of diabetes and minority populations will be presented. There are remarkable variations in the rates of amputation, among certain ethnic groups. The groups discussed are American Indians, African Americans and the Hispanic/Latinos in descending order of prevalence of diabetes.

American Indian/Native American Populations and Diabetes

The American Indian/Native American populations are the people whose origins, culture, and community associations derive from the original inhabitants of North America (16). More than 500 Native American tribal organizations exist in the United States, each with its own culture, history, and traditions (16). Any discussion on these American Indian/Native American populations shall be culturally sensitive, appropriate and respectful toward that history, their cultural values, teachings and traditions.

In terms of public health, diabetes has become one of the most serious health issues facing American Indian/Native American populations. It is the fourth leading cause of mortality for Native Americans (17), and Native Americans are 2.8 times more likely than are their white counterparts of the same age to develop type 2 diabetes. For the entire Native American population in the United States, the prevalence of type 2 diabetes is about 12.2 % for those over the age of 19; among such Native American tribes such as the Pima Indians, type 2 diabetes occurs in 50 % of the population between the ages of 30 and 64. Newly diagnosed cases have been increasing every year. From 1986 to 1993, there was a 29% increase in new cases, most of those being type 2 diabetes (16).

Researchers do not yet fully understand why Native Americans, especially the Pima Indians, are more likely to develop diabetes. Both genetic make up and behaviors have been considered risk factors for diabetes among the Native American population. Pure-blooded Native Americans are at an increased risk for developing type 2 diabetes. Obesity is a risk factor across all populations, but the prevalence of obesity in the Native American population is high. Among the Pima Indians with diabetes, approximately 95 % are obese. Not merely obesity, but also the distribution of body fat plays a role in increasing the risk of diabetes. The individuals who store fat in the central or upper body are at a higher risk for diabetes than those individuals who carry excess weight below the waist. Scientists theorize that the high prevalence of obesity in this population is attributable to the so-called “thrifty gene,” which at one time may have helped Native Americans to store fat during prosperous periods so that they were better equipped to survive in subsequent periods of famine (16). It has been proposed that overproduction of

insulin in early man was seen as an energy-conserving mechanism when food intake was irregular and obesity rare. As such it was an evolutionary asset since natural selection favored those individuals who were able to store energy in the form of fat tissue and thus withstand relative famine. (18)

But with changing diets (higher in fat and calories), fewer fluctuations in food supply, and decreased physical activity, the “thrifty gene” was no longer an asset. As a result, obesity and such associated health risks as diabetes have become highly prevalent among Native Americans (16).

Diabetes education programs that are tailored to specific lifestyles and behaviors in Native American communities have been shown to result in improvements in care. Despite those improvements there is a need for more culturally appropriate diabetes education efforts targeting Native American communities since the prevalence of diabetes and its complications continues to increase in these populations.

Foot Complications. From 1987 to 1990, American Indians with diabetes experienced end-stage renal disease (the final stage of kidney disease associated with kidney failure and dialysis) six times more frequently than did non-Hispanic whites (16). Especially high rates of diabetic nephropathy (kidney disease) were seen in Alaska Native, Cherokee, Chippewa, Navajo, Oklahoma, Pima, Sioux, and Zuni tribes. In 1989, end-stage renal disease was a leading cause of death among Pima Indians with diabetes.

Rates of lower extremity amputation are high in some American Indians but vary by tribe (16). Several studies indicate a higher amputation rate among men than among women.

Role of the Indian Health Service. To help address the complexity of the health issues affecting Native American communities, the Balanced Budget Act of 1997 made available \$150 million of new funding to the Indian Health Service (IHS) through Grants for Special Diabetes Programs for Indians. The purpose of this legislation was to provide “services for the prevention and treatment of diabetes” (19). These services were to be provided at Indian health facilities operated by IHS, Indian tribes or tribal organizations, and urban Indian organizations. The funds were to be distributed as grants at a rate of \$30 million a year, over a 5-year period.

Additional funding to expand diabetes-related activities in American Indian/Alaska Native communities came from two separate appropriations acts. The 1998 Appropriations Act for the Department of the Interior included \$3 million for the IHS National Diabetes Program. Because the appropriation language required “grants,” the IHS funding was added to the Grants for Special Diabetes Programs for Indians. The 1998 Appropriations Act for the Department of Health and Human Services included \$2 million for the Centers for Disease Control and Prevention to establish a national diabetes prevention research center. In accordance with congressional intent in enacting the legislation, the Diabetes Prevention Center was to be established in Gallup, New Mexico. The IHS was instructed to conduct an evaluation of the grant program and provide an interim (year 2000) and final (year 2002) report to the Congress.

The Indian Health Service provides an infrastructure with specific entry points to the American Indian/Alaska Native population. To properly address the complexity of the burden of diabetes

and diabetes foot disease in the Native American population, any work addressing this population should be coordinated through this infrastructure. Given the Indian Health Service's charge to develop and maintain this population-specific program and in order to avoid duplication of efforts, this environmental scan will instead focus on information related to African American and Hispanic/Latino communities.

African American Populations and Diabetes

Among African Americans, diabetes is the seventh leading cause of death. African Americans are 1.7 times more likely than their white counterparts to be diagnosed with diabetes (20). Twenty-five percent of African Americans between the ages of 65 and 74 have diabetes. Compared with white Americans, African Americans also have disproportionately higher rates of eye, foot, and kidney complications and are more likely to develop disabilities (21). In addition, death rates due to diabetes are approximately 27 % higher for African Americans than for whites. The prevalence of diabetes among African Americans is increasing dramatically. Between 1988 and 1994, the prevalence of diagnosed cases of diabetes in this population rose by 18.2 %. While this increase is attributed, in part, to heredity, obesity, and lack of physical activity, scientists theorize that, just as is the case for Native American populations, a "thrifty gene" may be contributing to the increased prevalence of the disease among African Americans (21). Another risk factor for diabetes, obesity, is more prevalent among African Americans than their white counterparts. Distribution of body fat above the waist is a stronger risk factor than body fat carried below the waist. A potential contributor to obesity is lack of physical activity. According to data from the Third National Health and Nutrition Examination Survey (NHANES III), 50 % of African American males and 67 % of African American females reported no physical activity in their daily lives (21).

Foot Complications. In terms of foot complications of diabetes, the situation does not get any better. African Americans with diabetes are 1.5 to 2.5 times more likely to have a lower extremity amputation than are nondiabetics, and African Americans are more likely than are whites or Hispanic Americans to undergo a lower extremity amputation (14).

Based on the U.S. hospital discharge survey, there were about 13,000 amputations among African American diabetic individuals in 1994, which involved 155,000 days in the hospital.¹² African Americans with diabetes are much more likely to undergo a lower-extremity amputation than white or Hispanic Americans with diabetes. The hospitalization rate of amputations for African Americans was 9.3 per 1,000 patients in 1994, compared with 5.8 per 1,000 white diabetic patients. However, the average length of hospital stay was lower for African Americans (12.1 days) than for white Americans (16.5 days) (21).

Hispanic/Latino Populations and Diabetes¹

Since 1990, the Hispanic population has increased by 57.9 percent, from 22.4 million in 1990 to 35.3 million in 2000, compared with an increase of 13.2 percent for the total U.S. population (22). This increase has made the Hispanic population the fastest growing minority group. As a

¹ "Hispanic/Latino" is a general term that includes all sub groups of this ethnicity.

result, certain health issues already disproportionately affecting this group will be even more pronounced. Diabetes and its complications are one of those public health concerns.

In the United States, diabetes is the seventh leading cause of death among the Hispanic/Latino population as with the African American population. In 1998, approximately 4 % of Hispanics in the United States had diabetes. Of the 30 million Hispanics in the United States, 1.2 million have been diagnosed with diabetes, and an estimated 675,000 Hispanics with diabetes remain undiagnosed (23). The Mexican American subgroup, which makes up 64 % of the Hispanic American population, is about two to three times as likely to develop diabetes as whites; other Hispanic/Latino Americans are twice as likely to develop diabetes as are Whites (24). Despite the fact that most studies have focused on Mexican Americans, Puerto Ricans have the highest prevalence (26 %) of diabetes among the Hispanic/Latino populations between the ages of 45 and 74 (23).

Among the risk factors for diabetes for Hispanic/Latino populations are genetic factors (family history rather than the “thrifty gene”), obesity, lack of physical activity, and gestational diabetes. Mexican Americans with a family history of diabetes are twice as likely to develop diabetes in their lifetime as those with no family history. Hispanics are more likely to be overweight than whites, and Hispanics report lower levels of physical activity than their white counterparts. For Hispanics, as for other populations, distribution of body fat above the waist is a greater risk factor for diabetes than weight carried below the waist (24). More research must be conducted in order to compare Hispanic/Latino subgroups in the United States and to explore the role of possible risk factors for the development of diabetes mellitus.

The prevalence of diabetes, diabetes complications, and the associated burden is not distributed equally across the U.S. population. A greater burden of diabetes and its associated complications exists among minority populations such as Native Americans, African Americans, and Hispanic/Latinos.

Foot Complications. In the San Luis Valley Diabetes Study, there was no significant difference in the prevalence of diabetic neuropathy between Hispanics and non-Hispanic whites. However, in the 1989 National Health Interview Survey, symptoms of sensory neuropathy were reported more frequently by Mexican Americans than by whites or African Americans (24).

In the San Antonio Heart Study, Mexican Americans with type 2 diabetes had a higher rate of peripheral vascular disease than non-Hispanic whites; however, this increased incidence was not statistically significant (24).

D. Diabetes and Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention’s Division of Diabetes Translation is dedicated to eliminating the preventable burden of diabetes in the United States. The division works to achieve this by combining support for public-health-oriented diabetes control programs (DCPs) with efforts to translate diabetes research findings into widespread clinical and public health practice. DCPs in all 50 States and in nine other jurisdictions are funded by DDT as a

cornerstone of this strategy, and they collectively compose the National Diabetes Control Program.

DDT also provides funding for State-based diabetes control programs in all 50 states, the District of Columbia, and eight U.S.-affiliated jurisdictions. Core capacity-building activities emphasize developing State health department expertise to plan, design, and coordinate diabetes control activities. Sixteen DCPs receive expanded funding to establish comprehensive programs, so they can implement statewide, multilevel public health approaches to reduce the burden of diabetes. The primary goal of the State-based DCPs is to improve access to affordable, high-quality diabetes care and services, with priority on reaching high-risk and disproportionately affected populations.

National objectives set by DDT several years ago emphasize prevention of complications through timely foot exams, eye exams, oral care, appropriate immunizations, and HgA1c tests. This focus on screening reinforces the interest of DDT and DCPs in primary prevention approaches but considerably broadens the target populations on which they must focus and the partnerships that must be made to implement effective interventions. Hence it is essential that good formative research be done to isolate the most effective ways to motivate initiation and maintenance of healthy behaviors by those at risk for diabetes complications.

CDC's National Objectives for Diabetes

By 2004, demonstrate success in achieving an increase in the percentage of people with diabetes who receive

- The recommended foot exams (presumed annual)
- The recommended eye exams (presumed annual)
- The recommended vaccines (indicating annual flu and Pneumovax at least once)
- Recommended HgA1c tests (presumed annual measurement but may be done twice yearly)
- Success in reducing health disparities for high-risk populations with respect to diabetes control and prevention
- Success in linking to programs for promotion of wellness and physical activity, weight and blood pressure control, and smoking cessation for people with diabetes.

These recommendations from CDC are to be applied by each DCP in accordance with their individual needs and resources

Because minority populations experience higher rates of diabetes and diabetes complications, CDC and the National Institutes of Health have launched a joint initiative, the National Diabetes Education Program (NDEP). The purpose of the NDEP partnership is “to improve the treatment and outcomes for people with diabetes, to promote early diagnosis, and ultimately to prevent the onset of diabetes.” This is to be accomplished by means of media campaigns that target people disproportionately affected by diabetes: the elderly, African Americans, Native Americans, Hispanic Americans, and Asian Americans/Pacific Islanders. To achieve the goal of reducing morbidity and mortality associated with diabetes and its complications, NDEP has identified several objectives, such as to increase public awareness of diabetes risk factors and of ways to prevent diabetes and its complications, to promote self-management behaviors among diabetes patients, to improve health care providers’ knowledge of diabetes and create a system for an

integrated approach to care, and to encourage policies that improve and promote access to health care (8).

Moreover, pharmacy, podiatry, optometry, and dentistry are areas of health care with special importance for people with diabetes. The NDEP Pharmacy, Podiatry, Optometry and Dental (PPOD) Work Group was formed in the spring of 2000 and has moved rapidly to develop a new NDEP initiative targeting providers in these areas. A plan is now in place to utilize PPOD delivery channels to disseminate information intended to increase the awareness of people with diabetes and their families about the importance of glucose control and prevention of complications. PPOD is also working to increase access to and awareness of high-quality diabetes care for the prevention and control of complications through collaboration between PPOD and other health care providers.

PPOD providers, other primary care providers, and health service delivery systems will work collaboratively to implement the plan.

E. Tasks of the Overall Project

The key tasks of this project fall into two broad phases. The first phase involves conducting a literature review and environmental scan, which lead to the development of a formative evaluation plan. In the second phase, the planned formative research will be conducted, intervention concepts and materials will be designed by the creative contractor and pre tested by the evaluation contractor, and the resulting intervention will be evaluated.

For Phase 1, the central charge is to compile existing data, evaluate the quality of the research, interventions, and any gaps that exist; and develop a plan to conduct needed formative research on oral, eye, and foot complications of diabetes, including 1) educational messages and message concepts, 2) printed materials and/or other communications products, 3) dissemination channels, 4) processes and strategies engaged to develop messages, and 5) audiences specifically targeted and the rationale for targeting those audiences. The results of each evaluation will aid CDC and its partners in designing appropriate interventions for oral, eye, and foot complications of diabetes.

A literature review describing the relationship between diabetes and each complication was conducted as part of Phase 1 of this project (deliverable date was April 2001). The purpose of the literature reviews was to summarize, document, and evaluate the quality of information related to knowledge, attitudes, beliefs, and behaviors pertaining to oral, eye, and foot health and diabetes among people with diabetes, specialists, and general health care providers.

To supplement the literature reviews, an environmental scan on each complication was conducted. The Oral Environmental Scan was the first to be commissioned, and it was produced in April 2001. This report deals with the Foot Environmental Scan, which obtained current information on how diabetes and foot complications are portrayed in electronic media and how they are dealt with in political and social environments. A separate deliverable offers the findings of the Eye Environmental Scan.

The environmental scans have drawn on the findings of the literature review to obtain current information on how diabetes and oral, eye, and foot complications are portrayed in the electronic media, as well as political and social environments.

Internet resources, such as Web sites and listservs, were scanned for information on diabetes and foot complications. Potentially competitive or duplicative programs as well as clinical and psychosocial trends that might enhance or threaten future program activities were researched. Specifically, the environmental scan identified resources that address the foot complications of diabetes. This deliverable includes the environmental scan report, materials collected, and a synthesis of this information to identify key themes and issues.

Within this task, information was collected in a number of defined areas. Legislation, national objectives and initiatives, screening guidelines and treatment algorithms, education programs and media campaigns, the consumer marketplace, and clinical and psychosocial trends were investigated to assess activity that may have an impact on the prevalence of foot complications of diabetes. Several important findings have emerged as a result of this formative research. The focus is on determining where interventions and programs can make a difference or make the greatest difference.

Based on the literature review and environmental scan, recommendations on formative research on foot complications were developed. Conducting research to determine how to reach the most appropriate audiences with messages designed to promote foot care is central to this process. The suggested recommendations on a formative research plan on foot complications of diabetes are presented as a separate document in this deliverable.

The second phase of the project will involve the implementation of the formative research plan on foot complications. The formative research will be designed to provide greater understanding of the knowledge, attitudes, beliefs, behaviors, and motivations of the target audiences with regard to foot complications of diabetes.

F. Environmental Scan of Foot Complications of Diabetes

A theoretical framework in the form of a logic model was used to assist in delineating the parameters of the research, formulating the informal interview questions, and interpreting findings. The logic model, which graphically depicts the relationship of inputs and activities of a program to its intended effects, was based on the purpose of the project as specified in the request for task order proposal. Because the inputs and activities varied depending on the complication, three separate logic models for foot, oral, and eye complications were created. The two audiences defined in the model were patients with diabetes and health care providers (either primary care physicians or diabetes specialists).

The following are inputs that facilitate diabetes care and management: screening for diabetes complications, training health care providers to use appropriate methods of screening and detection, creating systems for the provision of care, and providing enablers that create a system

in which patients can take action to manage their disease. Without these inputs, the system for diabetes care and prevention would be fragmented and potentially ineffective. Some examples of activities enabled by these inputs are self-management of diabetes, behaviors that help to prevent diabetes complications, and collaboration between primary care providers and health care specialists. Identifying and eliminating barriers to such diabetes-related activities represents an important step toward changing knowledge, attitudes, and beliefs about self-management of diabetes and its complications; increasing social and environmental support; enhancing the knowledge of physicians; and improving health care practices. Ultimately, mitigating or eliminating those barriers will help to reduce the incidence and prevalence of poor health outcomes caused by diabetes and its associated complications, as measured by a decrease in diabetes complications and an increase in appropriate diabetes care.

The Foot Logic Model is presented below. A copy of the Foot Logic Model can also be found in Appendix A.

FOOT Framework² (Overall Focus: Primary Care for 4 Audiences especially African Americans, Latinos, Native Americans and Asian Americans)

Audiences	Inputs	Activity	Barriers	Effects	Ultimate Outcomes
People with diabetes who are at risk for developing complications	Environmental Inputs/Factors (e.g. Media, Political & Popular Culture, etc.) Health Care Settings (e.g. Urban, Rural, Health Center, Mobile Clinic)	Self management of diabetes (e.g. daily self FOOT exams) Action to facilitate increased physical activity, proper nutrition, etc. Active educational efforts to change or increase KAB about diabetes complications	Lack of audience knowledge and understanding about risk factors for diabetes and FOOT complications	Increased social and environmental support for diabetes FOOT complications Greater understanding of Diabetes and FOOT complications	Reduced FOOT complications from Diabetes (Reduced ORAL and FOOT complications from Diabetes)
	Prevention & Early Detection Planning Partnership development between internal medicine, and the FOOT care profession	Increased awareness of warning signs for FOOT complications Community Involvement (Advertising/Communication of FOE Complications)	Audience Risk Behaviors (e.g. poor diet, smoking, inactivity, etc.)	Changed KAB and self-efficacy regarding self-management of diabetes and its complications Access to Quality Care	Better Health Outcomes for FEET Decrease in incidence of neuropathy and lower extremity amputations
Health Care Providers - Primary Care Physicians - Diabetes Specialists	<i>Cultural beliefs and attitudes about diabetes and its complications</i>	Programs/Interventions to help facilitate primary care prevention and management of FOOT complications.	Cost to patient for health insurance and FOOT care.	Care giver consensus on complications and agreement to target at-risk populations	Better Quality of Life for patients and caregivers
	Enablers (e.g. Actions taken to help people with Diabetes manage their disease) Support Systems for Patients	Changed Provider (e.g. primary care and FOOT health practitioners) Practice Patterns Collaboration between primary care and FOOT health practitioners	Lack of Provider time to focus on all aspects of patient health care during a health care visit	Change in physician referral pattern to FOOT specialists and provision of information to patients about FOOT complications	
	Screening for FOOT Complications System Approach (versus Caravan Style Approach) to Diabetes prevention and prevention of complications	Clinical science promoting link between diabetes and FOOT complications	Lack of Provider Knowledge about complications and lack of cultural competency for provision of health care services		

² The process, that is the inputs, activities, and barriers to outcomes, a person may encounter in dealing with diabetes and its complications.

As stated earlier, this logic model provided the framework to delineate the literature review in foot complications of diabetes. To complement the findings of the literature review, an environmental scan on foot complications was conducted. The purpose of the environmental scan is to identify elements in the larger environment that influence, for good or ill, what the program is trying to accomplish. Some of the important information for the environmental scan did emerge from the literature review. Yet it was necessary to go beyond the scientific literature to capture what is happening in the media, political, and social environments and to determine how this information differs for various audience segments. Moreover, there is a time lag between the published literature and current trends in the environment. There is a need to further the understandings into the state of prevention of foot complications due to diabetes, as well as the knowledge, attitudes, and behaviors, along with benefits, barriers, and motivators for following these health care regimens.

We recognize that CDC is not the only agency creating efforts in these areas. Thus, another important element of the environmental scan was to identify other efforts to reduce foot complications due to diabetes. By identifying these agencies and documenting their efforts, CDC can determine what elements are lacking and target their intervention resources to create supplemental, non duplicative interventions. CDC will also be able to determine partners with resources and efforts that can be combined to achieve synergies.

Therefore, the environmental scan consisted of two major components:

- Informal interviews with CDC's staff, foot care health programs, and key national organizations using a discussion guide with themes that emerged from the literature review and the framework of a logic model on foot complications of diabetes.
- Media analysis (print and Internet sources). The Internet, with its Web sites and listservs, provides a vehicle within which to identify new trends and issues while confirming that already-identified issues were relevant.

Our synthesis of the environmental scan regarding foot complications of diabetes for Hispanic/Latino and African American populations includes the identification of and recommendations for addressing any emerging clinical and psychosocial trends that may enhance or threaten potential programs. This formative research is conducted during the current planning stages of program development. It will form the basis for behavioral goals, interventions, and later evaluation.

The focus of this report is to provide CDC with information that will guide the formulation of a research plan to determine where interventions and programs can make a difference or make the greatest difference.

II. Methods of Data Capturing

The following section details the methods used in data capturing for this task. First, a *summary of the literature review findings* is provided. Along with the Foot Logic Model, those literature review findings on foot complications of diabetes served to frame the Foot Environmental Scan. The *methods* used in the Foot Environmental Scan to request, delineate, and obtain data from various sources are described. *Perceived strengths and limitations* of search and analysis are also presented, along with a discussion on *credibility issues about health information on the Internet* as pertinent to this endeavor. Finally, a brief description on the complementary *informal interviews* is presented. These informal conversations with key individuals were used at several points in conducting the Foot Environmental Scan for several purposes. These informal interviews provided confirmation of interpretation, specificity in findings, or new leads in the research.

A. Literature Review Findings

The literature review (25,26) conducted on diabetes and its complications revealed several issues pertinent to this environmental scan on foot complications of diabetes. A summary of the literature review findings by audiences and populations can be found in Appendix B.

Relevant results regarding *general diabetes* information are listed as follows:

- Risk factors for developing both diabetes and diabetes-related complications have been identified in the scientific literature. It is important to educate both general and minority populations about how to reduce these risk factors, how to identify signs of complications and how to manage diabetes and diabetes-related complications. This is most effectively done in the local community, with hands-on demonstrations delivered in a simple, easy-to-follow manner.
- To effectively target minority populations for diabetes education, it is important to *utilize community members and resources*, as research suggests. In addition, education classes should be conducted at a time and in a place that is convenient for the patient.
- Targeting the *primary diabetes health care provider for diabetes education* is an essential entry point for disseminating information to the patient. By changing the knowledge, attitudes and behaviors of physicians in their diabetes care practices, we will be able to influence the knowledge, attitudes, and behaviors of patients with diabetes indirectly. To increase participation, these education classes can be brief (even as short as one hour in length).
- By making changes to the *systems that deliver care* (single change or multidisciplinary change), the provider's diabetes care practices are directly affected and can be positively improved. For example, if a *critical pathways* approach to diabetes foot care is integrated into the system of providing care, physicians are more likely to conduct foot screenings and

make appropriate referrals based on the status of their patient's foot. This could lead to better foot health outcomes for the patient.

Relevant findings specific to *foot complications* of diabetes are listed below:

- Changes at the system level such as the use of a coordinated system of care, which includes a variety of health care professionals, can reduce the risk of lower-extremity amputations for diabetics. Using a critical pathways system to care can lead to earlier diagnosis and treatment of foot complications.
- A barrier to foot exams during primary care visits is the lack of time physicians have to follow a diabetes flow sheet or algorithm. Additionally, many clinics are focused on the patient's main complaint during a visit, which creates a lost opportunity for preventive care.
- More education from providers to patients can lessen a patient's risk for neuropathy. Patients who have not had any diabetes education are more likely to have lower-extremity amputations than those patients that have had diabetes education.
- Lack of obvious foot or leg problems are one of the major barriers patients encounter to seeking appropriate foot care.
- Among African-Americans, foot care education can decrease the risk of amputations.
- Ledda et al. (27) evaluated the outcomes of an Afro-centric self-management program targeted at African Americans. The simplicity of instruction and the provision of a **hand-held mirror** for foot inspection were well received. Several barriers to self-management were identified and these included both intrinsic and extrinsic factors. Lack of motivation, forgetfulness, vision problems, joint and knee problems, and family responsibilities proved to be barriers. Despite the culturally-focused intervention, not all participants liked the Afro-centric focus. Some participants did not identify their culture with that of Africa and suggested the interventions be focused on age instead.
- Reiber et al. (28) concluded that lack of family and environmental support systems increased a patient's risk for developing foot complications. Several other studies support this conclusion.

B. Internet/Media Search

The environmental scan on foot complications relied heavily on findings of a media analysis of both print and Internet sources. The Internet, with its World Wide Web sites and listservs, provides means of identifying new trends and issues and of confirming that already-identified issues are relevant.

A diverse mix of resources from the Internet was obtained through examination of references and organizations listed on the Web sites and of references listed on reports and articles mentioned.

This further probing was intended as triangulation of methods, which was complemented by continuous cross-validation with the original literature review on foot complications of diabetes. Moreover, periodic discussions among the research team provided a forum for setting parameters for the search, deciding which leads to follow and which emergent information needed to be confirmed through an informal interview with the relevant source.

Included and referenced in the environmental scan is information from Web sites with coverage of diabetes and its complications and other relevant health care issues. Materials from these sites were collected between November 2001 and April 2002.

Because the Internet contains no central indexing system, finding the information researchers need often presents a challenge. Specialized search engines and software programs are powerful tools that helped narrow the field. For this project, the search categories used were “diabetes;” “feet;” “neuropathy;” and “podiatric.”

The software programs used in the search were

- Copernic 2000 Basic, a metaresearch tool that provides access to 80 search engines (e.g., AltaVista, Excite, HotBot, Infoseek, Lycos, WebCrawler, and Yahoo) grouped into seven categories (e.g., the Web, newsgroups, and hardware/software).
- Google (www.google.com), a search engine accessing more than 2 billion Web pages to match the search terms entered.
- CDC Prevention Database.

Other online search engines used were

- MEDLINE at www.ncbi.nlm.nih.gov/pubmed from the Library of Medicine, a collection of more than 11 million bibliographic citations to the world’s medical journals, aimed at health care professionals.

After review, selected items were categorized, documented, and stored as a separate entry in an Access database created for that purpose. Within each entry, this database captures a brief description of the selected material and identifies its intent, target audience, and authoring agency. Information in this database is queryable and can be extracted in various types of reports, for which two sample reports have been pre set and are available from the main switchboard for easier access. The Foot Environmental Scan Database is enclosed in this deliverable on a CD-ROM. Snapshots of the database Switchboard and of the Data Entry Form follow below.



Foot Complications of Diabetes Environmental Scan Database

Welcome!

This database contains information specific to foot complications of diabetes. It is intended to serve as a resource of selected materials representing current information on how diabetes and complications of the foot are portrayed in electronic media. Internet resources, such as Web sites and listservs, were scanned to gather this information.

Within each entry, this database captures a brief description of the selected material and identifies its intent, target audience, and authoring agency.

Due to the evolving nature of the Internet as a medium, it is important to note that this database is not all inclusive. When new information becomes available, entries can be added, or updated to this database. Therefore, information in this database is queryable, and can be extracted in various types of reports. A few sample reports are listed on the right.

For more information on foot complications of diabetes, please contact the Division of Diabetes Translation, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention at 1-877-232-3422, (toll free).

- Environmental Scan Database - Entry Add/Update Form
- Internet Resources and Descriptions Report
- General List of Organizations Report
- Data Collection Methods
- Exit

Foot Complications of Diabetes - Environmental Scan

ID:

Organization name:

Postal address:

Phone number:

Fax number:

Website address:

Organization type:

International

Mission:

Website Quality:



Perceived strengths and limitations of search and analysis

In examining materials for inclusion in the database for this environmental scan, flexible general approaches were used instead of strict inclusion/exclusion criteria guidelines. The rationale for this approach was that more leeway was needed during the exploratory phase of this formative research. In contrast, it is recommended that for the development of a comprehensive resource database, set goals and inclusion criteria should be established according to the target audience and established objectives. Moreover, procedures for data elements and data entry standards should be explicitly stated as well. Specifically, a sample criterion may be the *literacy level* as reading level of the audience for which the diabetes education material was developed (Low = General Public; Moderate = Community Health Provider; High = Medical Provider).

Moreover, the enclosed database on foot complications of diabetes includes a statement on credibility of the information or a disclaimer as criterion/field in each entry. A more detailed discussion on issues of credibility of health information online follows below.

Credibility of information on the internet

As the Internet develops, a logical and expected consequence is the diversification of the services and information available online. As this environmental scan progressed, the issue of evaluation of the credibility of the health information available online emerged. Specifically, although the variety of Internet search engines and software tools can lead to massive amounts of information, those tools are incapable of evaluating the links they identify. For example, a search on the words of a major disease like diabetes and its complications is as likely to lead to a page advertising supplies or a health food store's article on the purported benefits of a chemical as it is to CDC.

By far the most consumer-friendly part of the Internet is the World Wide Web. It is also the newest part of the Internet, having become accessible only in the past decade with the wider availability of browsers such as Netscape Navigator and Internet Explorer. The growth of the Internet coincides with increased consumer involvement in decisions about health care. A key component of increasing consumer choice and participation is access to good-quality information. Good-quality information on treatment choices should be accurate and based on the best and most up-to-date scientific evidence.

Providing consumers with information about treatment choices can reduce anxiety and promote more effective relationships with health professionals. Consumers who participate in decisions about their treatment may have improved health outcomes, and an understanding of treatment choices has been shown to have a positive effect on health status independent of participation in the decision making process. Many legitimate providers of reliable health and medical information, such as Government agencies, are taking advantage of the Web's popularity by offering brochures and in-depth information on specific topics at their Web sites. Material may be geared to consumers as well as industry and medical professionals. The Internet has expanded the range of information available to consumers.

As such, there is a clear need for reliable appraisal tools and mechanisms to evaluate online health information on treatment choices; those tools and mechanisms must be accessible to diverse groups of users and applicable to a wide range of information. Although numerous guidelines and checklists for evaluating and producing Internet resources are available, few are health specific, and even fewer have been subjected to rigorous scientific testing.

The HON Code

<http://www.hon.ch>



This icon appears on several Web sites examined for this environmental scan. This is the HON code from the Health On the Net Foundation based in Switzerland.

As cited, the HON code proposes benchmarks designed to make sure readers always know the source and purpose of the information they are reading. Although it does not rate the medical accuracy, validity, or appropriateness of the information itself, the HON code seal on sites aims to that Webmasters and information providers can themselves apply the HON code to set basic standards for the presentation of health care advice and information. Self-regulation represents a temporary solution at a time when there is still no common legal framework for the provision of health care information on the Internet.

Kaiser Permanente - Health Information Check Up

http://www.kaiserpermanente.org/hicheckup/consumer/consumer_frameset.html

Kaiser Permanente has a Web-based program, “Health Information Check Up,” that educates users of its Web site on how to evaluate the quality of health information that they find on health-information-based Web sites.

The Health Information Check Up is a “physical exam” of online health information created by Kaiser Permanente, the largest nonprofit health care organization in the United States. The Check Up project is designed for people who want to use the Internet to learn more about their health and how to take better care of themselves.

For the Health Information Check Up, Kaiser Permanente reviewed many of the guidelines and checklists that have already been created to help people find good-quality health information on the Internet. The following is a list of criteria summarizing what Kaiser Permanente believes are the most important elements of good online health content.

Accurate?

- The information seems to be based on sound, accepted medicine or science.
- The sources for each topic are noted on the site.

Believable/Trustworthy?

- Source of the information is clearly stated.
- Sources are from published reports and/or health care professionals with credentials.
- Groups and/or individuals who support the site (financially or otherwise) are clearly identified.
- Site provides links to other sources of health information.
- Information on the site appears balanced.

Easy to understand?

- The information on the site is easy to understand.
- The site explains any medical words or terms that are unclear.
- Articles on this site are well-written.

Easy to use?

- This site opens easily on my computer.
- It is easy to navigate without getting lost.
- It is easy to find the information I want on this site.
- The site provides a table of contents or site map to find information/sections.

Complete?

- The site provides balanced information on all the topics it covers.

Helpful (for making health decisions)?

- The information given on this site helps me understand my treatment options.
- The information given on this site helps me make decisions about my health.
- The information given on this site doesn't make me afraid.
- The site gives me suggestions for "next steps."
- I can use the information from this site in my daily life.

Interesting?

- The information on this site is interesting to me.
- This site is pleasing to look at.

Up-to-Date?

- The site provides dates that tell me when information for each topic was created and last updated.
- The dates for sources used on the site are easy to find.
- All sources used on this site are dated and none are more than two years old.

Credibility and Disclaimer Statements

Many Web sites subscribe to the HON code; however, those Web sites that do not have the HON code sometimes include a statement of credibility or a disclaimer. The following are examples of such statements found on the Web sites from which information was gathered for this environmental scan.

American Medical Association

<http://www.ama-assn.org/ama/pub/category/1905.html>

Principles Governing AMA Web Sites

The following guidelines apply to all American Medical Association (AMA) Web sites, including any Web sites with which the AMA's name is associated in any way other than a simple link to any of the AMA Web sites. These guidelines are the AMA's policy for its Web sites but also are intended to provide guidance for creators of Web sites that provide medical and health information for professionals and consumers. These guidelines are established with the understanding that the World Wide Web is a constantly evolving technology, and the guidelines must be reviewed and revised frequently to ensure that they reflect the current state of technology and practice on the Web.

A standing committee composed of AMA staff members from the Scientific Publications and Multimedia, Publishing and Business Development, Ethical Standards, and Internet and Database Services areas will review the guidelines regularly and revise as necessary. The committee will seek review and comment from an advisory panel of individuals outside the AMA with expertise in Web-based content, advertising, privacy and confidentiality, and e-commerce.

National Diabetes Education Program

<http://www.ndep.nih.gov/disclaim.htm>

Disclaimer of Endorsement

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government, and shall not be used for advertising or product endorsement purposes.

Disclaimer of Liability

With respect to documents available from this server, neither the United States Government nor any of their employees, makes any warranty, express or implied, including the warranties of merchantability and fitness for a particular purpose, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

New York Online Access to Health

(<http://www.noah-health.org/english/illness/diabetes/diabetes.html>)

Disclaimer

NOAH is an information guide only. This information has been culled from a variety of consumer health resources. NOAH offers this information to you with the understanding that it not be interpreted as medical or professional advice. All medical information needs to be carefully reviewed with your health care provider.

Certain Web sites gain additional credibility by continually being referenced by other Web sites. For example, the American Diabetes Association (ADA) is often cited by Web sites providing diabetes-related information. The ADA claims that it is “the nation’s leading nonprofit health organization providing diabetes research, information, and advocacy.” ADA further states that it is “the most trusted source of information on diabetes for people with diabetes, their families and caregivers, health care professionals, and the public.” ADA has expressed a commitment to its clients that the information presented on the Web site is as comprehensive and up-to-date as possible. Similarly, the American Podiatric Medical Association’s (APMA) is often referenced among websites providing diabetes foot-related information. In the Decision Memorandum produced by the Center for Medicaid and Medicare Services, Coverage and Analysis Group, there is a reference to APMA’s guidelines for diagnosis of peripheral neuropathy. This reference by a Federal Governmental organization lends credibility to APMA.

In capturing information for the Foot Environmental Scan, each Web site that was included in the database deliverable was evaluated for a credibility statement. Each Web site was classified as having either 1) an HON code, 2) a credibility statement, or 3) no statement. The majority of the Web sites for Federal Government, national lay organizations, university, and professional organizations reviewed had a credibility statement. More often than not, Web sites had some form of credibility statement compared to an HON code. It is important to note that many of these major organizations are providing some type of information on the quality of the content of their Web sites and that they are cognizant that quality of information is an important issue to address.

C. Informal Interviews

Concurrent with the Internet/media search, informal interviews were conducted. These conversations with foot care professionals, CDC staff, and representatives from key national organizations were intended to cross-check what was found in the literature review and to further identify trends and environmental factors. A list of key agencies and organizations to be contacted was approved by CDC Technical Monitor. The list of organizations contacted follows; a copy of this list can also be found in Appendix C.

Informal Interviews: Organizations Contacted

American Academy of Family Physicians

11400 Tomahawk Creek Parkway
Leawood, KS 66211-2672
Phone (913) 906-6000

American Association of Diabetes Educators

444 N. Michigan Avenue
Suite 1240
Chicago, IL 60611
Phone (312) 644-2233

American Podiatric Medical Association

9312 Old Georgetown Road
Bethesda, MD 20814
Phone (301) 571-9200
Fax (301) 530-2752

California Diabetes Control Program

Department of Health Services
601 N. Seventh Street, MS 725
P.O. Box 942732
Sacramento, California 94234-7320
Phone (916) 327-3053
Fax (916) 324-7764

Georgia Diabetes Control Program

2 Peachtree Street, 16th Floor
Atlanta, Georgia 30303
Phone (404) 657-6635
Fax (404) 657-6631

New Mexico Diabetes Control Program

New Mexico Department of Health
Harold Runnels Building
1190 St. Francis Dr., P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Phone (505) 827-2953
Fax (505) 827-0021

North Carolina Diabetes Control Program

Department of Health & Human Services
Division of Public Health
Diabetes Prevention and Control Unit
Mail Service Center 1915
Raleigh, North Carolina 27699-1915
Phone (919) 715-3131
Fax (919) 733-0488

Texas Diabetes Control Program

Texas Department of Health
1100 West 49th Street
Austin, Texas 78756
Phone (512) 458-7490
Fax (512) 458-7404

Texas Diabetes Council

Texas Department of Health
1100 West 49th Street
Austin, Texas 78756-3199
Phone (512) 458-7490

Derived from the logic model and the literature review, themes related to diabetes and foot complications were used to formulate an informal discussion guide. (A copy of the informal interview guide can be found in Appendix D.) Interviewees were asked a number of questions on their programs, partners, campaigns, and resources specific to diabetes-related foot complications. Questions addressed target audiences, audience reach, and trends within each of these areas. Knowledge, attitudes, behaviors, and beliefs with regard to foot complications of diabetes were captured. Interviewees were also asked to forward any additional contacts, materials, or questions that may be valuable to the project.

A follow up conversation was conducted with some interviewees. This was meant to further probe or clarify an issue arising from the initial interview. Interviewees were sent an informal note of thanks via electronic mail, thanking them for their time and participation in the conversation and recognizing the importance of their contribution to the environmental scan.

Information obtained during the discussions was synthesized and incorporated in the narrative of the environmental scan. Findings from these informal interviews did serve to reconfirm and enhance knowledge of programs, activities, and trends related to foot complications of diabetes. In some cases, these discussions served to point toward new leads regarding the purpose of this research.

The following section discusses the major findings of the environmental scan of foot complications of diabetes.

III. Findings

The findings of this report are organized into eight interrelated areas that correspond to the information captured in this environmental scan: legislation, national objectives and initiatives, stakeholders, screening guidelines and treatment algorithms, education programs and media campaigns, consumer marketplace; clinical and psychosocial trends; and gaps identified. The following outlines the findings in each of these areas.

A. Legislation

There have been many recent and important changes in the system of care for diabetes treatment and education. The Federal Government has instituted practices and legislation aimed at improving the systems that provide health care and self-management education to people with diabetes. Change in legislation can have a positive impact on diabetes service delivery. Through the various legislative changes over the past several years, patients with diabetes have greater access to preventive services, including health education.

Specific to foot complications of diabetes

Recent legislation has been passed by the Centers for Medicaid and Medicare Services (CMS) which provides coverage, under Medicare, for foot care exams for patients with peripheral neuropathy or loss of protective sensation (LOPS) who are at high risk for serious, but preventable, complications. By providing coverage for foot exams, and making appropriate care

more accessible, the hope is that health outcomes will improve for the diabetic patients at risk for complications, such as fewer lower extremity amputations (LEAs).

Coverage for Routine Foot Exams. The following describes this legislation related to foot complications of diabetes, taken from the HCFA Decision Memorandum, October 17, 2001 (29).

This decision memorandum announces the agency's intention to issue a National Coverage Decision covering foot care, that would otherwise be considered routine in the absence of localized illness of the feet, for Medicare beneficiaries with peripheral neuropathy with Loss of Protective Sensation (LOPS) as provided or under 42 C.F.R. §411.15 (l)(1)(i).

The diagnosis of peripheral neuropathy with LOPS due to diabetes mellitus should be established and documented prior to coverage of foot care. Other causes of peripheral neuropathy should be considered and investigated by the primary care physician prior to initiating scheduled foot care for persons with LOPS. LOPS shall be diagnosed through sensory testing with the 5.07 monofilament. Five sites should be tested on the plantar surface of each foot, using the guidelines in the National Institute of Diabetes and Digestive and Kidney Diseases publication "Feet Can Last a Lifetime." The areas must be tested randomly since the loss of protective sensation may be patchy in distribution, and the patient may get clues if the test is done rhythmically. Heavily callused areas should be avoided.

As suggested by the American Podiatric Medicine Association, an absence of sensation at two or more sites out of 5 tested on either foot when tested with the 5.07 Semmes-Weinstein monofilament must be present and documented to diagnose peripheral neuropathy with loss of protective sensation.

An examination of the feet every six months shall be covered for individuals with diabetic peripheral neuropathy and LOPS, as long as the beneficiary has not seen a foot care specialist for some other reason in the interim.

In addition to announcing the new coverage, the Coverage and Analysis Group encourages the health care community to continue research evaluating the impact of regular foot exams on the outcomes of patients with diabetes. Through this new expansion of coverage, CMS also aims to create science-based and evidence-based proof for the effectiveness, or lack of effectiveness of this new legislation (29):

Due to the indirect nature of the evidence and modest quality of studies, CMS will be analyzing the impact of this newly covered service on outcomes of patients with diabetic peripheral neuropathy and LOPS. Also, we plan to repeat a review of the literature within two years and encourage the professional community to conduct high quality studies to evaluate the effectiveness of scheduled foot care for patients with this disorder. A clear demonstration of benefit from foot care may allow CMS to consider extending this coverage to a broader subpopulation of patients with diabetes and earlier signs of sensory neuropathy.

By promoting research and creating a scientific base for interventions, legitimacy for providing preventive services is established. With this legitimacy, health insurance organizations may be more willing to expand their coverage for preventive foot care services.

Other Diabetes Legislation. Successful and ongoing self-management is the key to leading a healthy life for the person with diabetes. Self-management can be defined as client strategies and behaviors that contribute to blood glucose normalization, improved health, and prevention or reduction of complications. It is broader than adherence to a specific regimen of components and incorporates deliberate problem-solving and decision-making processes. Legislation covering diabetes self-management training and medical nutrition therapy services is instrumental in ensuring a satisfying quality of life for the person with diabetes.

Coverage of Diabetes Self-Management Training. The following describes Medicare legislation covering diabetes self-management training, taken from the HCFA Web site (30).

The Balanced Budget Act of 1997 provided for Medicare coverage for diabetes self-management training for beneficiaries in a variety of settings. Under the law, training can be conducted by a certified provider who, in addition to doing the self-management training, also provides other individual items or services for which Medicare pays. This expands the types of providers who can bill for the service, which was previously billable only by hospital outpatient departments. Under the final rule, all providers and suppliers who currently bill Medicare for other services, including medical equipment suppliers and kidney dialysis facilities, are qualified to bill for self-management training if they meet all the other requirements. Registered nurses also may be used, instead of certified diabetic educators, as part of a multidisciplinary education team for the first three years from the effective date of the final rule.

In response to more than 1,900 public comments on the proposed rule, HCFA has increased the flexibility of the training program to meet the needs of Medicare beneficiaries with diabetes, who will initially receive one hour of individual training or assessment and nine hours of group training. They will also be able to get two hours of individual or group follow-up training annually.

Medicare Part B covers one course of initial training that meets the new requirements for Medicare beneficiaries with newly diagnosed diabetes, or a diabetes-related medical condition in the 12 months before the physician's order for the training. Programs covered under the final rule must meet HCFA's quality standards, the National Standards for Diabetes Self-Management Education Programs, which are currently used by the American Diabetes Association's diabetes education recognition program, or the standards of a national organization representing persons with diabetes which match or exceed HCFA's standards. Organizations can apply to become national accreditation organizations to accredit diabetes self-management training services. They must submit an application and meet the requirements for national accreditation organizations published in the Federal Register on Dec. 29, 2000. HCFA will accept applications from organizations 30 days after the publication of the final rule to implement this provision more quickly.

HCFA will evaluate the requests from the national accreditation organizations. During the first 18 months after the final rule's publication, HCFA will accept the American Diabetes Association's recognition certificate that a training program meets national standards for such programs. As organizations are approved by HCFA to accredit diabetes education programs, HCFA will also accept the accreditation from those organizations during the first 18 months after the final rule is effective.

Coverage of Medical Nutrition Therapy Service. The following describes Medicare legislation covering medical nutrition therapy for persons with diabetes, taken from the HCFA Legislative Summary, March 2001 (31).

Previously, medical nutrition therapy services were not covered as a preventive benefit or as a distinct treatment modality under Medicare. Such services were covered as a component of outpatient diabetes self-management training, and may have been provided by a hospital, skilled nursing facility, dialysis facility, hospice, or home health agency as part of a bundle of services such entities provide to their patients. Medically necessary nutrition counseling may have also occurred as part of a physician office exam or incident to a physician's services. Enteral and parenteral nutrition was covered to a limited degree under the prosthetic device benefit.

Effective January 1, 2002, Medicare coverage of medical nutrition therapy services for beneficiaries who have diabetes or a renal disease is authorized. The benefit is limited to beneficiaries who: (1) have not received diabetes outpatient self-management training within a designated time period (to be determined by the Secretary), (2) are not receiving maintenance dialysis paid for by Medicare, and (3) meet other eligibility criteria established by the Secretary, in consultation with professional groups. Medical nutrition therapy services are defined as nutritional diagnostic, therapy and counseling services for the purpose of disease management, which are furnished by a registered dietician or nutrition professional, pursuant to a physician's referral. Payment for such services equals 80 percent of the lesser of the actual charge or 85 percent of the payment that would be made under the physician fee schedule. Assignment is required for all claims. Sanctions may be applied for billing violations. The Secretary must submit a report to Congress by July 1, 2003, with recommendations for expansion of the benefit to other beneficiary populations.

SUMMARY STATEMENT

These legislative changes address the identified barrier of access to care among patients. Coverage of these services ensures education and prevention for control and self-management of diabetes and foot related complications.

B. National Objectives and Initiatives

Many Federal programs issue national objectives or develop initiatives aimed at improving the systems of care, practices of health care providers, and/or awareness of patients with or at risk of diabetes and its complications. Information has been compiled from the Web sites of each of these programs or initiatives, corresponding Web addresses have been listed.

National Objectives and Initiatives:

Healthy People 2010
Task Force on Community Preventive Services,
Guide to Community Preventive Services
Diabetes Quality Improvement Project
Taking On Diabetes
National Committee for Quality Assurance

Healthy People 2010

<http://www.health.gov/healthypeople/>



Healthy People 2010 is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce those threats. Healthy People 2010 presents a comprehensive, nationwide health promotion and disease prevention agenda. The initiative has partners from all sectors.

Like the preceding Healthy People 2000 initiative which was driven by an ambitious, yet achievable, 10-year strategy for improving the Nation's health by the end of the 20th century Healthy People 2010 is committed to a single, overarching purpose: promoting health and preventing illness, disability, and premature death.

Within this overarching purpose, Healthy People 2010 is designed to achieve two broad goals: increasing quality and years of healthy life and eliminating health disparities. These two goals are supported by specific objectives in 28 focus areas. Each objective was developed with a target to be achieved by the year 2010.

Specifically relevant to this project, chapter 5 of Healthy People 2010 focuses on diabetes. The diabetes-specific goal of Healthy People 2010 is "through prevention programs, to reduce the disease and economic burden of diabetes, and improve the quality of life for all persons who have or are at risk for diabetes." There are seventeen objectives by which to measure success in diabetes. In particular, objectives 5-9, 5-10, and 5-14 address foot-related complications of diabetes.

Objective 5-9 is to "reduce the frequency of foot ulcers in persons with diabetes". As this objective is considered developmental, baseline measures and targets have not yet been specified.

Objective 5-10 is to "reduce the rate of lower extremity amputations in persons with diabetes". As a baseline measure for this objective, 4.1 lower extremity amputations per 1,000 persons with diabetes occurred in 1997 (age adjusted to the year 2000 standard population). This objective

aims for a 55 % improvement by decreasing the number of lower extremity amputations to 1.8 per 1,000 persons with diabetes per year.

Objective 5-14 is to “increase the proportion of adults with diabetes who have at least an annual foot examination”. As a baseline measure for this objective, 55 % of adults aged 18 years and older with diabetes had at least an annual foot examination (mean value of data from 39 States in 1998; age adjusted to the year 2000 standard population). This objective aims to increase that proportion to 75 %.

A number of resources are available to assist in implementation of Healthy People 2010, and two content specific resources are listed as follows:

Healthy People 2010 Toolkit

This Toolkit provides guidance, technical tools, and resources to help States, territories, and tribes develop and promote successful State-specific Healthy People plans.

Healthy Vision 2010 Toolkit (coming in 2002)

This Toolkit will provide easy and practical ways to incorporate vision into health programs and activities. It includes tools such as camera-ready art for booklets; drop-in articles and other promotional materials; vision resources; and data collection and assessment tools.

In summary, Healthy People 2010 provides health objectives in a format that enables diverse groups to combine their efforts and work as a team. Thus, it is designed to serve as a roadmap for improving the health of all and can be used by many different people, States, communities, professional organizations, and groups to improve health.

Task Force on Community Preventive Services, Guide to Community Preventive Services

<http://www.thecommunityguide.org/GUIDE/Diabetes/Diabetes%20page.html>

The Task Force on Community Preventive Services is an independent, non-federal Task Force and consists of 15 members, including a chair, appointed by the Director of CDC. The Task Force's membership is multi-disciplinary, and includes perspectives representative of state and local health departments, managed care, academia, behavioral and social sciences, communications sciences, mental health, epidemiology, quantitative policy analysis, decision and cost-effectiveness analysis, information systems, primary care, and management and policy.

The Task Force has developed *The Guide to Community Preventive Services*. The *Community Guide* is a federally sponsored initiative and is part of a family of federal initiatives including Healthy People 2010 and the Guide to Clinical Preventive Services.

The *Community Guide* tries to answer questions dealing with community or population-based interventions. The Guide addresses a variety of health topics important to communities, public health agencies and health care systems. It summarizes what is known about the effectiveness and cost-effectiveness of population-based interventions, designed to promote health, prevent disease, injury, disability and premature death, as well as exposure to environmental hazards.

Systematic reviews are conducted for interventions in each health topic and organized as a "Chapter". Within the *Community Guide*, systematic reviews evaluate the evidence of effectiveness, which is then translated into a recommendation or a finding of insufficient evidence. For those interventions where there is insufficient evidence of effectiveness, the *Community Guide* provides guidance for further prevention research. However, it is important to note that a determination that evidence is insufficient should not be confused with evidence of ineffectiveness.

The *Community Guide's* primary audience is people involved in the planning, funding, and implementing of population-based services and policies to improve health at the community and state level. The *Guide* provides public health decision-makers with recommendations regarding population-based interventions, appropriate for use by communities and health care systems. In addition to a number of other topics, the *Community Guide* also addresses the effectiveness and cost effectiveness of population-based diabetes-related interventions in health care systems and in community settings through systematic reviews of the published evidence on effectiveness. These interventions are examined in the context of sociocultural and physical environments, as well as of the individual with diabetes. The outcomes examined are behavior change (e.g., diet, physical activity, and self-monitoring of blood glucose), and short- (e.g. blood pressure, lipids, and glycemic control), and long- term health and economic outcomes, and quality of life.

In the *Community Guide*, the Task provides a number of diabetes-specific recommendations of interventions related to health care systems, self-management education, education of family, and public policy.

Diabetes Quality Improvement Project

<http://www.dqip.org/>

To assess more completely the level of diabetes care delivered in the U.S., there is a need for standardized uniform performance measures that can assess quality of care accurately and reliably. These measures will enhance uptake of research into practice and may ultimately improve diabetes care and clinical outcomes.

The Diabetes Quality Improvement Project (DQIP) has developed and implemented a comprehensive set of national measures for evaluation and quality improvement. Although initial planning meetings for DQIP started in 1995, DQIP officially began in 1997, when it was announced by President Clinton. The funding was obtained and the Operations Group was established under the sponsorship of a coalition including the American Diabetes Association, the Health Care Financing Administration (now the Centers for Medicare & Medicaid Services), and the National Committee for Quality Assurance (NCQA). Today, thirty organizations participate in DQIP via participation in the Operations Group, the Technical Panel, and the Leadership Council.

The goal of DQIP is to create consensus around a single set of diabetes measures for performance reporting. The results of this performance reporting can ultimately improve the quality of care delivered to diabetes patients. Use of DQIP is intended to help health plans meet

accreditation requirements of national organizations such as CMS and NCQA. In addition, physicians can use DQIP to generate baseline data as a first step in improving the quality of care in their practices. The collection and reporting of DQIP data allows for a valid comparison of care within and across health care settings.

The DQIP 1.2 Specifications measure the percentage of Medicaid, commercial, and Medicare members with diabetes (type 1 and type 2), ages 18 to 75, who were continuously enrolled during the reporting year, who had each of the following:

1. Hemoglobin A1c tested (once during reporting year)
2. Poor hemoglobin A1c controlled (most recent HbA1C > 9.5 percent)
3. Eye exam performed (once during reporting year, or year prior for low-risk patients)
4. Lipid profile (once during reporting year or year prior)
5. Lipid control (most recent LDL value < 130 mg/DL)
6. Monitoring for diabetic nephropathy
7. Blood pressure controlled (most recent values below 140 systolic and 90 diastolic)
8. Foot exam performed (once during reporting year)

In addition to the listed specifications, a set of tools to measure quality of care has been developed through DQIP. The DQIP Abstraction Tool Kit is designed for use by managed-care plans and physician practices to measure the routine care they deliver to their diabetic patients. Using this tool kit, providers can collect and analyze data to measure and ultimately improve the quality of diabetes care they deliver. The tool kit contains the following:

- DQIP Data Abstraction software
- Ten diabetes training medical records and answer key
- DQIP orientation/training video
- DQIP User's Guide (including measures and specifications, instructions for installation and use of software, paper copy of abstraction tool and instructions, and toll-free telephone number for technical assistance).

As part of DQIP, CMS contracted with the Texas Medical Foundation (TMF), a DQIP Medicare quality improvement organization, to produce the Compendium of Diabetes Best Practices. The goal of the Compendium is to assist health care providers in improving screening, monitoring, and treatment of diabetic patients so that they have improved outcomes. The compendium is a useful aid for clinicians, administrators, quality improvement staff, patient educators, and others involved in the care of diabetics. Studies and projects included in the compendium describe prevention and treatment programs in outpatient and inpatient settings with funding coming from fee-for-service insurance, capitated managed care organizations, and Government sources.

The DQIP is the first widely adopted comprehensive performance measurement set, not just for diabetes but for any single disease. One of the factors that has contributed to the success of the DQIP is the partnership of key public and private groups ranging from consumers to purchasers of health care. The various constituencies and particular perspectives of these groups contribute in both content and in politics to the success of the endeavor.

Taking on Diabetes

<http://www.takingondiabetes.org>



Another joint initiative is *Taking on Diabetes*, of the American Association of Health Plans (AAHP) and the American Diabetes Association, with financial support provided through unrestricted grants from GlaxoSmithKline, Schering Plough, and Pharmacia-Upjohn. *Taking on Diabetes* aims to improve systems of care in delivering the highest quality health care to people with diabetes. The initiative represents a long-term commitment to improve the lives of people with diabetes by reducing the negative health consequences associated with the disease. At both the national and local levels, *Taking on Diabetes* works to promote screening, early intervention, and treatment for the populations they serve. Approximately 200 health plans providing coverage for more than 75 million Americans and more than four million people with diabetes have committed to participate in the effort partnering with local ADA offices throughout the Nation.

The goals of the Taking on Diabetes initiative are as follows:

- Health plans pledge to reduce the incidence of irreversible vision loss through early detection and intervention for people with diabetes.
- Health plans pledge to reduce the development of End Stage Renal Disease (ESRD) for their members with diabetes.
- Health plans pledge to reduce the loss or partial loss of lower extremities from the loss of blood circulation and foot ulcers for persons with diabetes.
- Health plans pledge to reduce the risk of cardiovascular disease associated with diabetes.

As previously identified in the literature review, access is a common barrier to diabetes care for minority populations. Preventing and minimizing diabetes and its complications requires a long-term commitment of plans, beginning with initial improvements in screening and testing. The results of providing effective screening and testing now could be seen in the long-term quality-of-life gains achieved for people with diabetes and cost savings to the plans. *Taking on Diabetes* aims to help health plans meet quality improvement objectives by focusing on four areas of improvement in diabetes care:

1. The identification and dissemination of best practices
2. The promotion of community partnerships
3. The development of work site education and wellness initiatives
4. The evaluation of treatment efforts.

Each component will be spearheaded by a work group designed to provide insight and guidance to *Taking on Diabetes* staff.

Through Taking on Diabetes, AAHP aims to establish a center for collecting and disseminating best practices currently implemented in health plans. Health plans will be able to access and apply these best practices as they pursue the goals of the diabetes initiative. In addition, AAHP will develop resources based on existing community partnership models to help health plans form partnerships that can advance shared objectives within their community. These resources will address cooperation across health plans, inclusion of employers, and participation of health

care consumers. AAHP will also set up an external evaluator to assess the impact of the initiative and gauge its progress over its duration. In addition, the AAHP will work with purchasers to develop educational materials that can be provided to employees.

Because integrated health delivery systems, such as HMOs and PPOs, are able to identify high-risk populations and track patients with specific chronic conditions, *Taking on Diabetes* offers participants the opportunity to have a measurable impact on the quality of diabetes care they provide. Complications from diabetes are avoidable through screening and health promotion activities, health plans have long been recognized for their emphasis on wellness, health promotion, and disease prevention. Through this national effort to share best practices, develop community partnerships, and develop work site educational materials, AAHP and ADA aim to address diabetes treatment and education in the United States.

Taking on Diabetes produces a number of publications intended to improve diabetes management through systems of care and health care providers. A selection follows:

Diabetes at the Worksite: A Directory of Current Employer Programs

The directory provides information about the programs employers have implemented. This information provides health plans with insight about the kinds of additional resources and programs they can offer to help purchasers meet the needs of their employees, dependents, and retirees.

Diabetes Management Solutions

Diabetes Management Solutions (DMS) explains current preventive services and treatments available for a variety of conditions: glycemic control, diabetic cardiovascular disease, diabetic eye disease, diabetic foot complications, diabetic kidney disease, and diabetes and pregnancy. Each of these condition-specific sections offers examples of actions that managed care organizations may take to improve the care of patients with diabetes, as well as a comprehensive listing of patient and professional publications available from ADA.

Compendium of Best Practices

The Compendium of Best Practices is a comprehensive document intended to offer guidance on successful practices in diabetes care and management. It includes peer-reviewed abstracts of published studies demonstrating improvement in diabetes health care, peer review organization (PRO) national projects on diabetes, and community and work site projects. (See Tab 8, *Samples of Materials Collected*, for cover pages of the Compendium.)

Diabetes Intervention Toolkit

The toolkit contains outreach tools targeting patients, providers, and the community, as well as organizational flowsheets and charts designed to assist providers and health plans in the provision of high-quality diabetes care. (See Tab 8, *Samples of Materials Collected*, for cover pages of the Toolkit.)

Taking on Diabetes: What Employers Can Do

This report contains detailed descriptions of programs and initiatives developed and implemented at four large work sites across the United States. The descriptions include a variety of information including program goals, essential program elements, provider and staff involvement, evaluation and outcomes, and potential for replicability. Each program offers contact information that readers can use to conduct additional follow up. (See Tab 8, *Samples of Materials Collected*, for cover pages of this publication.)

Report on WorkSite Programs

This publication summarizes the key findings from the Employers' Managed Health Care Association's (MHCA) assessment of four companies that have implemented diabetes management programs for their employees.

National Committee for Quality Assurance

<http://www.ncqa.org/>



The National Committee for Quality Assurance is a private, 501(c)(3) not-for-profit organization dedicated to improving health care quality. The organization is frequently referred to as a watchdog for the managed-care industry. NCQA is active in quality oversight and improvement initiatives at all levels of the health care system, from evaluating entire systems of care to recognizing individual providers that demonstrate excellence. NCQA is best known for its work in assessing and reporting on the quality of the Nation's managed care plans through their accreditation and performance measurement programs. These programs are complementary strategies for producing information that consumers and employers can use to make more informed decisions about their health care. These activities overlap; to earn NCQA accreditation, a health plan must report on its performance in selected areas, including member satisfaction, quality of care, access, and service.

NCQA began accrediting managed-care organizations (MCOs) in 1991 in response to the need for standardized, objective information about the quality of these organizations. This MCO accreditation program is voluntary and rigorous and has been well received by the managed-care industry. Almost half the HMOs in the Nation, covering three quarters of all HMO enrollees, are currently in an HMO that has been reviewed by NCQA. Many large employers will not do business with a health plan that has not earned NCQA's seal of approval. Twenty-three States recognize NCQA accreditation as meeting certain regulatory requirements for health plans, obviating the need for a separate State review.

For an organization to become accredited by NCQA, it must undergo a rigorous survey and meet certain standards designed to evaluate the health plan's clinical and administrative systems. In particular, NCQA evaluates health plans in the areas of patient safety, confidentiality, consumer protection, access, service, and continuous improvement.

To prevent the devastating complications of diabetes, NCQA encourages the provision of comprehensive, high-quality health care to people with diabetes. To support this goal, NCQA has established the Diabetes Provider Recognition Program, which is cosponsored by the American

Diabetes Association and is supported in part by unrestricted educational grants from GlaxoSmithKline and Pfizer Inc.

The Diabetes Provider Recognition Program assesses physicians on their performance on 11 key measures of care for adult patients and eight key measures of care for pediatric patients. The program is voluntary for individual physicians, medical groups, health plans, or health systems that provide care to people with diabetes. Physicians, in all settings, can achieve recognition by submitting data that demonstrates they are providing good-quality diabetes care.

An individual physician (M.D. or D.O.) who provides direct, continuing care for at least 35 diabetes patients in a 12-month period may apply for recognition. In addition, a group of two or more physicians who by formal arrangement share responsibility for a common panel of patients from which a sample can be drawn are eligible to apply as a group. Or a group of two or more physicians having comprehensive programs or protocols directly related to the management and treatment of diabetes, that are maintained across all the physicians are also eligible to apply as a group. A group, health plan, or health system that operates more than one site may apply as long as data for patients from each site are submitted in the group's application and other program requirements are followed. A physician within a group practice may also apply for recognition as an individual provider. Physicians applying for recognition include individuals and groups of primary care providers, as well as diabetes specialists from throughout the United States.

The Diabetes Provider Recognition Program assesses key measures that were carefully defined and tested for their relationship to improve care for people with diabetes. Program measures are part of NCQA's Health Plan Employer Data and Information Set (HEDIS[®]) and are consistent with the Diabetes Quality Improvement Project measures but go beyond DQIP by applying performance criteria to each measure.

The Diabetes Provider Recognition Program has different measures for pediatric and adult patients. The following are the measures for adult patients:

Measure	Frequency or Response	Data Source [^]	Required % of Patients Achieving Measure	Weighting Data Based on Data Submitted:	
				MR+PS	MR
1. HbA1c#	1 time/yr	MR	93%	----	----
Proportion w/HbA1c < 8%	(most recent test)		55%	5.0 points	5.0 points
Proportion w/HbA1c > 9.5%	(most recent test)		≤ 21%	10.0 points	10.0 points
2. Eye exam# *	1 time/yr*	MR	61%	10.0 points	10.0 points
3. Foot exam#	1 time/yr	MR	80%	10.0 points	10.0 points
4. Blood pressure frequency#	1 time/yr	MR	97%	10.0 points	10.0 points
Proportion < 140/90 mm Hg	(most recent test)		65%	5.0 points	5.0 points
5. Nephropathy assessment# *	1 time/yr	MR	73%	10.0 points	10.0 points
6. Lipid profile# *	1 time/yr	MR	85%	5.0 points	5.0 points
Proportion w/LDL < 130 mg/dl			63%	5.0 points	5.0 points
7. Tobacco status & counseling#	Yes	PS	76%	10.0 points	
8. Self-management education	Annual	PS	90%	10.0 points	----
9. Medical nutrition therapy	Annual	PS	90%	10.0 points	----
10. Self-monitoring of blood glucose	Yes	PS			
...non-insulin treated patients			50%	1.0 point	----
...insulin treated patients			97%	4.0 points	----
11. Patient satisfaction	excellent, very good, or good (on a scale of excellent to poor)	PS			
...diabetes care overall			58%	1.0 point	----
...diabetes questions answered			56%	1.0 point	----
...access during emergencies			46%	1.0 point	----
...explanation of lab results			50%	1.0 point	----
...courtesy/personal manner of provider			77%	1.0 point	----
			Total	110 points	70 points
Score Needed to Achieve Recognition				82 points	52 points

Notes:

Diabetes Quality Improvement Project measure, for compliance with Centers for Medicare & Medicaid Services and NCQA HEDIS[®] reporting requirements.

[^] MR = medical record or administrative data system; PS = patient survey

* Measure may be performed in the past two years, based on patient-specific criteria.

SUMMARY STATEMENT

The various national objectives and initiatives relevant to diabetes and its related foot complications serve to ensure quality health care for patients. By initiating improvement in systems of care, access to services is promoted for people with diabetes or at risk for the disease.

C. Stakeholders

A number of stakeholders address specific issues related to diabetes and foot complications. These include Government agencies and professional organizations. The following information provides a brief look at the prominent stakeholders in this arena. Descriptions of each have been compiled from their corresponding Web sites, and the Web addresses have been listed.

Organizations Listed:

National Institute of Diabetes and Digestive and Kidney Diseases,
National Institutes of Health
American Podiatric Medical Association
American Diabetes Association
American Association of Diabetes Educators

National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports research on many of the most serious diseases affecting public health. The Institute supports much of the clinical research on the diseases of internal medicine and related subspecialty fields as well as many basic science disciplines.

NIDDK's Division of Diabetes, Endocrinology, and Metabolic Diseases (DEM) provides research funding and support for basic and clinical research in the areas of type 1 and type 2 diabetes and other metabolic disorders, including cystic fibrosis; endocrinology and endocrine disorders; obesity, neuroendocrinology, and energy balance; and development, metabolism, and basic biology of liver, fat, and endocrine tissues. DEM also provides funding for the training and career development of individuals committed to academic and clinical research careers in these areas.

NIDDK has developed a number of health education programs, two of which are specific to diabetes. The National Diabetes Education Program (NDEP), of which CDC is a partner, consists of public and private partners working together to improve treatment, promote early diagnosis, and prevent the onset of diabetes. NDEP has developed publications for health care providers and patients, information for the media, public service campaign materials, and plans for community outreach programs. In addition, NIDDK has created the National Diabetes Information Clearinghouse (NDIC), a service designed to increase knowledge and understanding about diabetes among health care professionals, people with diabetes and their families, and the general public. NDIC provides responses to public inquiries about diabetes, as well as publications for health care providers and patients.

NIDDK produces a wealth of diabetes materials specific to diabetes topics, research, easy-to-read publications, Spanish-language publications, and statistics. Following is a list of materials produced by NIDDK. (See Tab 8, *Samples of Materials Collected*, for copies of the cover pages of several of these publications.)

American Diabetes Association

<http://www.diabetes.org/>



The American Diabetes Association is the Nation's leading nonprofit health organization providing diabetes research, information, and advocacy. Founded in 1940, the American Diabetes Association conducts programs in all 50 States and the District of Columbia, reaching more than 800 communities.

The mission of the organization is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. To fulfill this mission, the ADA funds research; publishes scientific findings; provides information and other services to people with diabetes, their families, health care professionals, and the public; and advocates for scientific research and for the rights of people with diabetes.

The American Diabetes Association's patient activities include the following:

- Diabetes education classes
- Year-round youth programs
- Counseling and support groups
- Advocacy services
- Information and referral services.

Professional activities of the association include the following:

- Annual scientific sessions
- Annual postgraduate course
- Other medical and scientific programs
- Medical care guidelines and recommendations
- Diabetes patient education program accreditation
- Provider Recognition Program.

The American Diabetes Association is an authoritative source of information for people with diabetes and health care professionals who care for them. For people with diabetes, the association publishes the following:

- *Diabetes Forecast*, a monthly magazine to help people with diabetes live fuller, healthier lives
- A comprehensive library of cookbooks and meal-planning guides and food-exchange lists
- Books, brochures, and pamphlets on every aspect of living with diabetes.

Publications for health care professionals include the following:

- *Diabetes*, the prestigious journal of basic diabetes research
- *Diabetes Care*, the journal for clinicians treating people with diabetes
- *Diabetes Spectrum*, practical interpretations of diabetes research for those involved in diabetes education and counseling
- *Clinical Diabetes*, current medical information about diabetes and its treatment for the primary care provider
- *Diabetes Reviews*, review articles on major topics in diabetes research.

American Association of Diabetes Educators

<http://www.aadenet.org>



The American Association of Diabetes Educators is a multidisciplinary organization representing more than 10,000 health care professionals who provide diabetes education and care. The mission of the organization is to advance the role of the diabetes educator and improve the quality of diabetes education and care.

The goals of AADE include the following:

- *Recognition:* AADE will advance recognition of diabetes education as central to high-quality diabetes care.
- *Education:* AADE will promote professional development.
- *Advocacy:* AADE will increase demand for diabetes education within the evolving health care system.
- *Organizational Excellence:* AADE will develop the organization that effectively and efficiently meets member needs.

AADE recognizes diabetes educators as health professionals, nurses, dietitians, pharmacists, exercise specialists, doctors, and social workers, and others who specialize in the treatment of people with diabetes.

A diabetes educator teaches the person with diabetes to self-manage. Self-management means taking charge of diabetes by watching nutrition, sugar, and medication and talking to the health care team. Self-management paves the way for better health and independence in lifestyle choices.

A diabetes educator helps the person with diabetes learn to live a healthier, more productive life with diabetes. A diabetes educator also promotes independence, helping the patient learn to monitor diabetes, to achieve good blood sugar control, and recognize the need to call a doctor to report changing conditions.

A diabetes educator treats diabetes with the following:

- *Education:* Education is at the heart of good diabetes self-management. Diabetes educators teach the patient about nutrition, exercise, medication, monitoring, and adjusting emotionally to diabetes.
- *Nutrition:* Diabetes educators help the patient to make healthy food choices and control their weight.
- *Exercise:* Regular exercise is important for overall fitness and blood sugar control. With a doctor’s approval, a diabetes educator who specializes in exercise can work to develop an exercise plan that is right for the patient.
- *Medication Management:* Diabetes educators can teach the patient about their medication, including insulin injections and pills.
- *Blood Sugar Monitoring:* Self-monitoring blood sugar is important for successful self-management of diabetes. A diabetes educator can help learn what supplies to buy and how to use them.
- *Counseling:* A diabetes educator can provide support by encouraging the patient to talk about concerns or fears about diabetes.

SUMMARY STATEMENT

There are a number of prominent organizations addressing diabetes and its related foot complications. Through their efforts, these organizations are actively working to increase awareness and improve practices of both patients and health care providers.

D. Screening Guidelines and Treatment Algorithms

Several organizations produce screening guidelines and treatment algorithms intended to standardize and improve the system of care provided to the patient with diabetes. These include professional organizations, Government agencies, and private organizations.

Screening guidelines set the standard for frequency of comprehensive foot examinations recognized by systems of care, health care providers, and patients. All guidelines reviewed for this environmental scan recommend regular foot exams for patients with diabetes.

Treatment flowsheets and algorithms provide the system of care and the health care provider with information on how to diagnose, treat, and care for a patient. For this environmental scan, flowsheets and algorithms from a number of organizations were reviewed. These organizations include the Veteran Health Administration; Texas Diabetes Council; University of Michigan Health System; Peer Review Systems, Inc.; Michigan Peer Review Organization; HealthInsight Nevada; HealthInsight Utah; Arizona Managed Medicare Quality Enhancement Program; West Virginia Medical Institute, Inc.; Oklahoma Foundation for Medical Quality, Inc.; and Iowa Foundation for Medical Care. All algorithms reviewed include regular foot exams as part of the care routine for people with diabetes.

Organizations Listed:

American Diabetes Association
Veteran Health Administration
Texas Diabetes Council
University of Michigan Health System

American Diabetes Association



The American Diabetes Association (ADA) publishes clinical guidelines and position statements about standards for care and treatment for diabetes and diabetes related complications.

In 2001, the ADA published a position statement, *Preventive Foot Care in People with Diabetes* which states (32):

Foot ulcers and amputations are a major cause of morbidity, disability, as well as emotional and physical costs for people with diabetes. Early recognition and management of independent risk factors for ulcers and amputations can prevent or delay the onset of adverse outcomes. This position statement provides recommendations for people who currently have no foot ulcers, and outlines the best means to identify and manage risk factors before a foot ulcer occurs or an amputation becomes imminent. These recommendations are based on the technical review of care for the non-ulcerated foot in diabetes. An American Diabetes Association consensus statement covers the management of diabetic foot wounds.

All individuals with diabetes should receive an annual foot examination to identify high-risk foot conditions. This examination should include assessment of protective sensation, foot structure and biomechanics, vascular status, and skin integrity. People with one or more high-risk foot conditions should be evaluated more frequently for the development of additional risk factors. People with neuropathy should have a visual inspection of their feet at every visit with a health care professional.

Evaluation of neurological status in the low-risk foot should include a quantitative somatosensory threshold test, using the Semmes-Weinstein 5.07 (10-g) monofilament. Initial screening for peripheral vascular disease should include a history for claudication and an assessment of the pedal pulses. The skin should be assessed for integrity, especially between the toes and under the metatarsal heads. The presence of erythema, warmth, or callus formation may indicate areas of tissue damage with impending breakdown. Bony deformities, limitation in joint mobility, and problems with gait and balance should be assessed.

Veterans Health Administration



An organization of the Department of Veterans Affairs, the Veterans Health Administration sponsors and participates in a host of programs that increase the quality of health care for patients. One such program of the VHA focuses on diabetes.

Diabetes has particular importance for the Department of Veterans Affairs because its prevalence among VA patients, one in six, or 16 percent, is substantially higher than in the general population. Based on an annual VA patient population of more than 3.1 million, the number of VA patients with diabetes at any time is about 500,000. *Thus, VA is the largest integrated health*

care system to provide care to people with diabetes. Nearly all veterans with diabetes are men; 2.4 percent are women. The largest group of veterans with diabetes is over 65 years of age (33).

First published in March 1997 and revised February 2000, the VA Diabetes Guidelines for Veterans with Diabetes were developed in collaboration with the National Diabetes Education Program and other Federal agencies. They are the first national guidelines to support recommendations for treatment of diabetes with evidence and to stratify preventive approaches in terms of risk.

VA has made diabetes care a priority ever since it began treating chronic diseases on an outpatient basis several years ago. Its emphasis is multi focused: 1) patient education; 2) health care provider education and guidelines; 3) epidemiologic assessment; 4) quality of care; and 5) basic science, clinician and health services research. In the Veterans Health Administration's *Management of Diabetes Mellitus: Primary Care Core Algorithm*, healthcare providers are encouraged to perform visual inspection and evaluate peripheral sensation of the foot at each routine primary care visit (34,35). In 1999, 96 % of veterans enrolled in VA health care had a foot inspection (33).

(See Tab 7, Diabetes Care Patient Flowsheet Examples, for a copy of the VHA's Core Algorithm.)

Texas Diabetes Council

The Texas Diabetes Council was established by the Texas Legislature in 1983. Its members are appointed by the governor and confirmed by the State Senate. Council offices are located in the Bureau of Chronic Disease and Tobacco Prevention, Texas Department of Health.

The mission of the Texas Diabetes Council is to address issues affecting health promotion and to advise the Texas Legislature on legislation that is needed to develop and maintain a statewide system of quality education services for all people with diabetes. Since its inception, the council has worked with private and public health care organizations to promote diabetes prevention and awareness throughout the State.

The Texas Diabetes Council has produced Minimum Standards for Diabetes Care in Texas. Minimum standards of care are aimed at prompting the clinician and include a flowsheet or algorithm to be included in every chart. The *Diabetes Mellitus Minimum Practice Recommendations Flow Sheet* recommends regular foot exams for patients with diabetes.

The Texas Diabetes Council was selected as an example of a State wide health promotion initiative with ties to private and public care organizations. It has lead by serving as a model for other initiatives in the compilation and publication of a diabetes toolkit and minimum practice recommendations.

(See Tab 7, *Diabetes Care Patient Flowsheet Examples*, for a copy of the Minimum Practice Recommendations Flow Sheet.)

University of Michigan Health System

The University of Michigan Health System comprises the U-M Medical School and its Faculty Group Practice, three U-M Hospitals, community health centers, 120 outpatient clinics, the M-CARE HMO, and the Michigan Health Corp.

The University of Michigan Health System has produced *Guidelines for Clinical Care in the Management of Diabetes Mellitus*. These guidelines include an regular foot exam for people with diabetes. This health system was selected for inclusion as an example of a public/private system of care.

(See Tab 7, *Diabetes Care Patient Flowsheet Examples*, for a copy of the Guidelines for Clinical Care.)

SUMMARY STATEMENT

Professional organizations, Government agencies, and private organizations have set a standard of practice and provided consensus in publishing screening guidelines and treatment algorithms for their constituents. By incorporating comprehensive foot examinations within their standards of practice, prevention and proper management of foot complications is emphasized.

E. Education Programs and Media Campaigns

Education programs and media campaigns reviewed for this environmental scan target patients with diabetes, persons at risk, and health care providers. Through education, awareness, and screening activities, these programs and campaigns enforce the prevention and proper management of diabetes and foot complications.

The following information has been compiled from the Web sites of selected programs and campaigns, corresponding Web addresses have been noted. Most of the programs listed here correspond to a previously described agency. For a more exhaustive list of materials reviewed in this environmental scan, searching capabilities have been added in the enclosed database.

Programs and Campaigns Listed:

Feet Can Last A Lifetime
Diabetic Foot Exam Project
American Diabetes Association, What to Know, Head to Toe
American Diabetes Association, African American Program
Lower Extremity Amputation Prevention (LEAP) Program
Diabetes Is A Family Affair

Feet Can Last a Lifetime

<http://ndep.nih.gov/materials/pubs/feet/feet.htm>

The initial *Feet Can Last A Lifetime* campaign was launched in 1995 by the NIDDK as a nationwide initiative. The original campaign had a partnership component where coalition partners endorsed the messages delivered by the campaign. Partners included the American Diabetes Association, the Centers for Disease Control and Prevention, and the Veterans Administration Hospital. All the organizations already had messages that were in line with the goals of the campaign and they all had an opportunity to contribute their messages and materials to the campaign. Part of the success of the partnership is attributed to the “mutually beneficial nature of the relationship” (36).

The *Feet Can Last A Lifetime* campaign now exists mainly as a resource kit which health care providers or local community organizations can use and adapt to improve the provision of foot care and education of patient self-management. The goal of the campaign is to provide people with diabetes, their families, and health care providers the tools necessary to prevent and treat the foot complications associated with diabetes. The kit is promoted through the National Diabetes Education Program (NDEP), a partnership among the National Institutes of Health, the Centers for Disease Control and Prevention, and over 200 organizations.

The NDEP partners who contributed to the development of the *Feet Can Last A Lifetime* kit are: American Association of Diabetes Educators; American Diabetes Association; American Orthopaedic Foot & Ankle Society; American Podiatric Medical Association; Centers for Disease Control and Prevention; Health Care Financing Administration; Health Resources and Services Administration; Indian Health Service; Juvenile Diabetes Foundation International; New Mexico Medical Review Association; National Institute of Diabetes and Digestive and Kidney Diseases; National Institutes of Health; Pedorthic Footwear Association; and the Veterans Health Administration.

This campaign has developed *Feet Can Last a Lifetime: A Health Care Provider's Guide to Preventing Diabetes Foot Problems*. This kit is designed for primary care and other health care providers who counsel people with diabetes about preventive health care practices, particularly foot care. The health care provider was targeted for the intervention for two reasons: 1) so that the provider could reproduce and disseminate diabetes education materials given to them in the kit; and 2) to educate providers on proper foot screening techniques and treatment.

Feet Can Last a Lifetime is designed to help health care providers implement four basic steps for preventive foot care in a primary care practice.

1. Early identification of high risk feet.
2. Early diagnosis of foot problems.
3. Early intervention to prevent further deterioration that may lead to amputation.
5. Patient education for proper footwear and care of the feet.

The kit includes the tools health care providers need to identify and diagnose diabetes foot problems, to develop a management plan, and to educate their patients. The kit includes the following items:

- A foot screening form and instructions
- Prescription forms to facilitate Medicare coverage of therapeutic footwear
- A review of current research
- A list of additional resources
- Reproducible patient education materials
- Disposable sensory testing monofilament
- Reference materials

The *Feet Can Last A Lifetime* campaign also produces materials for people with diabetes. These include:

- *Take Care of Your Feet for a Lifetime*
This illustrated booklet helps persons with diabetes care for their feet and provides tips to help avoid serious foot problems.
- *Cuide sus pies durante toda su vida*
Spanish-language version of Take Care of Your Feet for a Lifetime.
- *Foot Care Tips*
Provides useful tips and reminders.
- *To Do List*
Provides useful tips and reminders.

(See Tab 8, *Samples of Materials Collected*, for copies of Feet Can Last A Lifetime publications.)

Diabetic Foot Exam Project

www.diabetes.org/councils/fall2000/pres_hce.html

The Diabetes Foot Examination Project is a pilot project developed by the American Podiatric Medical Association (APMA), the Health Care Finance Administration (HCFA), and the American Diabetes Association. The project aims to improve the systems of care which provide services to patients with diabetes. The following is a description of the program described by Dr. Lee Sanders.

The first phase of this pilot project will introduce systems aides into primary care offices and educate office staff in order to facilitate good foot care. For this phase of the project, APMA and HCFA developed an office tool kit and an academic detailing program to be used by Peer Review Organizations and APMA members. Primary care providers will be asked to check the feet of all patients with diabetes and to perform a simple monofilament exam. High-risk individuals will then be referred to a foot care specialist for more comprehensive evaluation and care.

The Michigan Chapter of APMA, the Michigan Podiatric Medical Association (MPMA) along with Michigan's Peer Review Organization (MPRO) has implemented this national program in the state, emphasizing the academic detailing component. MPRO and MPMA have formed a partnership to implement this project. MPRO recruits primary care physicians to participate in the educational programs and MPMA recruits podiatrists to conduct the academic detailing sessions. Academic detailing is a concept that uses face-to-face interactions to present educational information from one party to another.

MPRO and MPMA have created two different toolkits for the program. One toolkit is given to the primary care provider and contains examination forms, diabetic foot risk assessment tools, a monofilament, chart stickers to alert for foot exams and educational brochures from AMPMA and the ADA. The second toolkit is the "Ambassador" kit which is given to the podiatrist conducting the academic detailing. This kit supplies the podiatrist with information to present at the primary care physician's office and other education tools.

To date, 90 podiatrists have volunteered and been trained to conduct academic detailing sessions. During these sessions, the podiatrist discusses the importance of conducting foot exams and demonstrates how to correctly conduct a foot exam. There have been 35 sessions completed with primary care physicians and podiatrists are now starting to conduct individual sessions at primary care provider offices around Michigan. Preliminary results indicate that more foot exams are being documented by primary care physicians.

What to Know, Head to Toe

<http://www.diabetes.org/main/community/outreach/month/whattoknow.jsp>



What to Know, Head to Toe is a campaign launched by the American Diabetes Association to educate patients on the complications associated with diabetes. This campaign is launched in association with American Diabetes Month, celebrated in November. The goal of the campaign is to "increase awareness that annual dilated eye exams, routine foot exams, and good blood glucose and blood pressure control can prevent serious complications of diabetes."

Through *What to Know...* the following messages are integrated into American Diabetes Month activities: (1) good blood glucose control does make a difference, (2) keeping blood pressure in check reduces the risk for heart failure, and (3) annual dilated eye exams and routine foot exams decrease blindness and amputation.

Materials produced for the campaign includes a brochure which provides tips to persons with diabetes for keeping their eyes, heart, and feet healthy. (See Tab 8, *Samples of Materials Collected*, for a copy of this brochure.)

American Diabetes Association, African American Program

http://www.diabetes.org/main/community/outreach/african_americans/theaap.jsp



The American Diabetes Association has developed a community-based program to address the challenge of diabetes in the African American community. Through partnerships with national

organizations, local churches and the commitment of its volunteers, the American Diabetes Association is spreading the word to African Americans about the seriousness of diabetes through its African American Program.

The goals of the African American Program are the following:

- To raise awareness in the African American community about the seriousness of diabetes and its complications
- To raise awareness in the African American community about risk factors associated with diabetes
- To raise awareness about the importance of healthful eating and regular exercise
- To raise awareness that those with the disease can control their diabetes.

The “diabetes is serious” message is delivered using a variety of venues and mediums. Dan Wilkinson, defensive tackle for the Washington Redskins, serves as spokesperson for the African American Program in its effort to promote the “diabetes is serious” message and further encourage people at risk for diabetes to adopt healthy eating habits and engage in regular physical activity.

The African American Program materials, including posters and print, radio, and television public service announcements, serve to attract the attention of mass audiences about the severity of diabetes in the African American community. Church pastors across the country are spreading the gospel of prevention through Diabetes Sunday services.

Churches, in partnership with the American Diabetes Association’s African American Program, provide an excellent setting for grassroots diabetes awareness programs. Churches have always played a critical role in the African American community. They provide strong community leadership, they have a genuine concern about the health of their members, and they can serve as a link between church members and the general community. At a Diabetes Sunday, the pastor or a designated appointee shares information with the congregation about the seriousness of diabetes during the church service. Out of respect for the religious service, the presentation is very brief (approximately 5 to 7 minutes). All congregation members receive information about risk factors, the importance of getting checked for diabetes; and for those with the disease, the importance of good blood sugar control. Gospel greats, the Clark Sisters, serve as Honorary Spokespersons for Diabetes Sunday, and through their involvement with the African American Program, encourage congregations nationwide to host Diabetes Sunday services and to advise African Americans to get checked for diabetes.

As African Americans learn more about diabetes, they can use the American Diabetes Association’s Risk Test, a simple quiz that assesses one’s risk for diabetes and helps them determine whether further testing from a health care professional is recommended.

Lower Extremity Amputation Prevention (LEAP) Program

<http://bphc.hrsa.gov/leap>

The Lower Extremity Amputation Prevention (LEAP) program was developed in 1992 by the Gillis W. Long Hansen's Disease Center and is currently administered by the BPHC. The LEAP mission is to reduce the incidence of lower extremity amputations by educating primary care providers and patients about the use of the LEAP filament to screen for loss of protective sensation in the feet, a common complication of diabetes.

The foundation of this prevention program is a foot screen that identifies those patients who have lost protective sensation. While it is well known that patients with diabetes frequently have vascular insufficiency in their extremities, the initial plantar ulcer usually results from an injury to a foot that has lost sensation. In the absence of protective sensation, even normal walking can result in such injuries. The LEAP Diabetic Foot Screen uses a 5.07 monofilament, which delivers 10 grams of force, to identify patients with a foot AT RISK of developing problems.

Teaching the patient self-management skills is another important component of the LEAP Program. Once taught simple self-management techniques, the patient assumes personal responsibility and becomes a full partner with the health care team in preventing foot problems. Daily self-inspection is also an integral part of the self-management program. Every individual who has lost protective sensation must regularly and properly examine his/her feet on a daily basis. Studies have shown that daily self-inspection is the single most effective way to protect feet in the absence of the pain warning system.

During Fiscal Year 2001, LEAP continued to increase awareness about the importance of foot screening with clinicians who treat patients with diabetes as well as among patients with diabetes. LEAP has its own web page within the BPHC umbrella and is continuing to add materials that are culturally sensitive. A Spanish translation of the LEAP brochure is available on the website and other languages will soon be available.

The success of the LEAP program, as evidenced by the widespread patient and provider interest and use, has enhanced national awareness of Federal diabetes activities. LEAP has played an active role of the BPHC Diabetes Collaborative as well as continuing to work with the Health Care Financing Administration, the National Institute of Diabetes and Digestive and Kidney Diseases, and the Centers for Disease Control and Prevention.

LEAP has created a BPHC National Diabetes Partners Program (NDPP) with several national diabetes-related organizations. The goal of the NDPP is to reach out to the unserved and the underserved populations across the country, in order to develop or design methods which will increase the level of awareness of the serious complications resulting from diabetes and the existence of health centers and the services they can provide. The Partners are available to serve as a national resource for resolving diabetes challenges identified by the BPHC Diabetes Collaborative Health Centers. Partners are those organizations which have a stake hold in diabetes. The CDC was a member of the NDPP; however, at this time, the NDPP activities have been put on hold due to staffing and funding shortages.

One of the main pieces to the LEAP program is the monofilament which is used to test loss of protective sensation. In 1998, a study was published in *Diabetes Care*, which documented that patients with diabetes could effectively test themselves for loss of protective sensation. Individuals can obtain a free LEAP filament by calling 1-888-ASK-HRSA (1-888-275-4772). LEAP has worked with the American Pharmaceutical Association to create filament information packets to distribute to patients and providers. In addition, LEAP has worked in collaboration with Kaiser Permanente of the Mid-Atlantic States to develop a 5-minute provider video which is also available by calling 1-888-ASK-HRSA (1-888-275-4772).

(See Tab 8, *Samples of Materials Collected*, for LEAP print materials.)

Diabetes Is A Family Affair

<http://www.apma.org/diabetes01pub.htm>

In November 2001, the American Podiatric Medical Association (APMA) teamed up with NFL sports broadcaster, James Brown, to launch its *Diabetes is a Family Affair* campaign. This campaign is targeted toward the African American population, and conveys the message that “families need to play a bigger role in their family member’s diabetes.” Many diabetics are in denial about their diabetes and when in denial, they do not properly manage their diabetes, which puts a person at an increased risk for complications such as amputations. Through this campaign, APMA is urging all people with diabetes to take good care of their feet and utilize the information contained in the Web site to educate themselves about proper foot care.

Information produced in conjunction with the campaign is available on the website. Materials include:

- *Diabetic Foot Do’s and Don’ts*
- *Interactive quiz about diabetes and the feet*
- *Diabetic Foot FAQs*
- *A PowerPoint presentation on diabetes and the feet. The presentation explains how diabetes affects the feet and what to do for proper foot care.*

Additional media activities aimed at African Americans with diabetes are available through the website and include:

- *A 60-second video public service announcement (PSA) featuring James Brown on the importance of good foot care for people with diabetes.*
- *An educational video directed at physicians on the importance of neurological screening for diabetic patients.*
- *A news release that launches the “Diabetes is a Family Affair” Campaign*
- *A 60-second radio PSA by Dr. Joyce Brothers about the connection between diabetes and feet.*
- *A video demonstration on how to conduct the monofilament foot exam.*

(See Tab 8, *Samples of Materials Collected*, for print materials from this campaign.)

SUMMARY STATEMENT

Education programs and media campaigns listed in this report target patients with diabetes, persons at risk, and health care providers. Through education, awareness, and screening activities, these programs and campaigns enforce the prevention and proper management of diabetes and foot complications. Programs and campaigns focusing on specific minority populations address the disparities in diabetes and related foot complications in general and African American populations.

F. Consumer Marketplace

Recent trends related to diabetes in the consumer marketplace have shown a plethora of services, products, promotions, and pharmacological agents, as well as a wealth of information and materials available electronically via the World Wide Web/Internet. These resources are often intended to increase the awareness of, and provide education to, consumers.

Along with NIH and CDC, pharmaceutical companies provide much of the information available to consumers via the Internet. The information is intended to serve both as an educational resource for patients with diabetes to learn more about their disease and as a promotional tool for marketing diabetes-related products. Some of these pharmaceutical companies include GlaxoSmithKline; Eli Lilly and Company; Bristol-Myers Squibb Company; Pfizer Inc.; Novartis Pharmaceuticals Company; Aventis Pharmaceuticals; BD Consumer HealthCare; Abbott Laboratories, Inc.; Bayer Corporation; Merck US Human Health; Roche Diagnostics; and Takeda Pharmaceuticals America, Inc.

Other sources of diabetes information on the Internet include private, not-for-profit organizations, optical retailers, manufacturers of food products, and publishers of magazines.

The following information has been compiled from the Web sites of the corresponding agency, Web addresses have been listed for each.

Treatment & therapies

The following lists products indicated for treatment or therapy in the care of diabetic foot disease.

Dermagraft®
Anodyne® Therapy System

Dermagraft®

http://www.advancedtissue.com/Products/03_02_main.html

Through its joint ventures with Smith & Nephew, Advanced Tissue Sciences is commercializing Dermagraft®, a human-based tissue product for the treatment of diabetic foot ulcers.

Dermagraft® is a human, living dermal replacement developed for the treatment of conditions where the skin has been injured or destroyed (skin ulcers). Dermagraft® provides a living,

metabolically active human dermal tissue capable of interacting with the wound bed to promote healing.

The lead indication for Dermagraft® is for the treatment of foot ulcers in diabetic patients. Currently, Dermagraft® is being sold in the United States, Canada, the United Kingdom and several other countries for this indication. In the U.S., this treatment for healing diabetic foot ulcers has received a special Medicare code for outpatient payment.

Anodyne® Therapy System

www.medassistgp.com

Medassist Group is a leading manufacturer of orthotic products (splints and braces) and the Anodyne® Therapy System for treatment of Diabetic Peripheral Neuropathy and pain. Anodyne® Therapy restores protective sensation to the foot by increasing blood flow. Since most foot wounds are caused by loss of sensation, this therapy helps reduce the amount of wounds caused by neuropathy. Anodyne® Therapy “delivers monochromatic infrared photo energy” to increase circulation. This therapy has been cleared by the FDA.

Footwear

According to the *Feet Can Last a Lifetime* tool kit, professionally fitted shoes and prescription footwear are an important part of the overall treatment of the insensate foot because they aid in preventing limb loss. Footwear should relieve areas of excessive pressure, reduce shock and shear, and accommodate, stabilize, and support deformities. The type of footwear provided will depend on the patient’s foot structure, activity level, gait, and footwear preference.

Podiatrists can make referrals to a pedorthist, an individual who fits therapeutic footwear. The following are examples of websites providing therapeutic footwear.

Bio-Ped Foot Care Centers Active Foot & Ankle Care Center Pedorthic Footwear Association
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Bio-Ped Foot Care Centers

<http://www.bioped.com/diabetes.html>

The basic mission of Bio-Ped is to improve the walking function for people of all ages with foot or lower limb disorders through the design, manufacture or distribution of high quality, premium foot support systems, footwear or related devices at fair prices and profits.

Active Foot & Ankle Care Center

<http://www.drrun.com/html/products.html>

This website states “Active Foot & Ankle Care Center knows how to comfort your feet so you can enjoy all the activities life has to offer. We are proud to carry the very latest in upscale foot health products that include orthotics, supports, insoles, specialty footwear, and pads providing relief with the latest "gel" technology. Our diverse foot care line offers you immediate comfort

from almost every foot condition including heel pain, arch pain, ball-of-foot pain, bunions, hammer toes, diabetes, arthritis, and more. These unique foot health products are available to you immediately, and at an affordable price to meet your needs.”

Pedorthic Footwear Association

www.pedorthics.org

This website provides links to different therapeutic footwear vendors across the nation. With new technology and ways of medically treating diabetics with foot complications, there is a potential to reduce the numbers of amputations that are conducted each year. However, relying solely on technology to reduce the incidence of lower extremity amputations is not enough. To effectively reduce the incidence of lower extremity amputations, the health care system must rely on preventive health measures such as education and changing provider practice patterns and patient self-management techniques.

Other services

The following lists other organizations, well-recognized in the consumer marketplace, providing services for care of diabetes and foot complications of the disease.

Dr. Scholl's CVS/pharmacy

Dr. Scholl's

<http://www.drscholls.com/diabetes.html>

This website provides information regarding diabetic foot disease in conjunction with the American Diabetes Association. Dr. Scholl's produces a line of diabetic footwear products including powders, insoles, and creams, which are also available for purchase through the website.

CVS/pharmacy

<http://www.cvs.com/CVSAApp/cvs/gateway/promotion?pid=5238>

In February 2001, CVS/pharmacy, America's largest retail pharmacy, launched a loyalty program in its over 4,100 stores. Customers participating in the ExtraCare loyalty program receive mailers featuring special coupon offers and health information. They also receive exclusive cardholder savings on select merchandise, and earn "Extra Bucks" for purchases they make during designated shopping periods. Customers can complete an enrollment form at any CVS/pharmacy location, and then receive a wallet-sized ExtraCare Card free of charge. To receive ExtraCare's savings and promotions, customers must present their card when they make a purchase at CVS.

ExtraCare mailings are targeted to customers with various interests, including diabetes care. The Taking Extra Care of Your Diabetes program is conducted in partnership with the American Diabetes Association. Members of the program receive money-saving offers on diabetes products; earn Extra Bucks; earn a free gift every year; learn useful information about how to

live a healthier life with diabetes; receive a free quarterly magazine, Taking ExtraCare of Your Diabetes; and receive special discounts and offers from the American Diabetes Association.

Reward categories for the program include products for:

- Blood glucose monitoring
- Blood pressure/heart health
- Cough, cold, and flu
- Eye care
- Foot care
- Dental care
- Skin care
- Vitamins and nutrition

A copy of the Taking Extra Care of Your Diabetes Rewards Program announcement can be found in Tab 8, *Samples of Materials Collected*.

SUMMARY STATEMENT

The consumer marketplace approaches all aspects of diabetes care by emphasizing self-management, including blood glucose control, and comprehensive care. Although few resources specifically address foot care, the information that is available is key in reinforcing the messages of prevention and control of diabetes overall.

G. Clinical and Psychosocial Trends

A number of clinical and psychosocial trends have emerged in relation to diabetes and diabetic foot disease. These trends become apparent in observing the messages that are

Trends:

- Bundling chronic diseases by linking risk factors across diseases
- Emphasis on prevention, self-management, patient empowerment
- Use of the partnership model
- Enhancing communication between foot care provider and primary/diabetes care provider
- Multimedia approach to disseminating messages and information
- Diabetes in women.

conveyed and the mechanisms that disseminate these messages.

Bundling chronic diseases by linking risk factors across diseases

Diabetes is associated with long-term complications that affect almost every part of the body. As discussed earlier, the disease often leads to blindness, heart and blood vessel disease, strokes, kidney failure, amputations, and nerve damage. Many of the risk factors associated with these diabetes-related complications can be linked across chronic diseases.

People with diabetes are at high risk for such cardiovascular disorders as coronary heart disease, stroke, and peripheral vascular disease. Two out of three people with diabetes die from cardiovascular disease. A new emphasis on treating diabetes comprehensively by managing not only blood glucose but also blood pressure and cholesterol can help lower the risk of heart disease and stroke for the person with diabetes. A number of campaigns address diabetes risk factors and preventative lifestyles in context with these other chronic diseases.

The National Diabetes Education Program's new campaign, *Be Smart About Your Heart: Control the ABCs of Diabetes*, is designed to make people with diabetes aware of their high risk for heart disease and stroke and the steps they can take to lower that risk dramatically. The campaign emphasizes managing blood glucose (best measured by the A1C test), blood pressure, and cholesterol. A patient-focused brochure explains the ABCs of diabetes and helps the person with diabetes keep track of their ABCs by stating (37)

- **If you have diabetes, you are at high risk for heart attack and stroke.** Heart disease is more likely to strike you and at an earlier age than someone without diabetes.
- **But you can fight back.** Be smart about your heart. Take control of the ABCs of diabetes and live a long and healthy life.
- **A is for A1C.** The A1C (A-one-C) test short for hemoglobin A1C measures your average blood glucose (sugar) over the last 3 months. Suggested target: below 7.
B is for blood pressure. High blood pressure makes your heart work too hard. Suggested target: below 130/80.
C is for cholesterol. Bad cholesterol, or LDL, builds up and clogs your arteries. Suggested LDL target: below 100.

The brochure also emphasizes certain lifestyle changes to lower risk for heart attack and stroke and other diabetes problems. These include physical activity, proper nutrition, weight management, smoking cessation, and compliance with medication regimens.

Similarly, the American Diabetes Association's *Make the Link!* initiative is aimed at increasing awareness of the link between diabetes and heart disease and informing people with diabetes of ways to lower their risk for heart attack and stroke. Through *Make the Link!*, the American Diabetes Association emphasizes that "management of diabetes is more than just control of blood glucose. It is important that people with diabetes also manage blood pressure and cholesterol and talk to their health provider to learn about other ways to reduce their chance for heart attacks and stroke" (38).

In addition to the two main campaigns described above, *the Heart of Diabetes: Understanding Insulin Resistance* is a national education and awareness campaign targeting people with type 2 diabetes, insulin resistance, and related cardiovascular risks (39). This multi faceted program was developed by the American Heart Association to help control cardiovascular disease in type 2 diabetes patients.

Emphasis on prevention, self-management, and patient empowerment

A consistent theme can be identified throughout the campaigns, programs, and materials developed for people with diabetes. Emphasis is repeatedly placed on prevention of diabetes and its related complications. The Diabetes Control and Complications Trial, showed that by lowering blood sugar or by maintaining good glycemic control, the risk of developing eye, nerve, and kidney disease could be reduced. Additionally, the results of the Diabetes Prevention Program show that lifestyle changes in diet and exercise and losing a little weight can prevent or delay the disease. These results serve to reinforce the notion that prevention is possible and risk can be reduced.

A patient's success in preventing diabetes is often dependent on his or her behaviors and abilities. As a result, self-management of the disease is reinforced among patients with diabetes through education. Diabetes Self-Management Education (DSME) is the cornerstone of care for all individuals with diabetes who want to achieve successful health-related outcomes. Self-management implies "taking charge" of diabetes by watching nutrition, sugar, and medication and talking to the health care team.

Central to the concept of self-management is the concept of patient empowerment. Patient-focused campaigns, programs, and materials frequently use the language of "controlling" or "taking control" of diabetes and its complications. *NDEP's Control the ABCs of Diabetes* (40) and *Control Your Diabetes. For Life.* (41) are examples of education campaigns targeting people with diabetes. Publications from the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health, including *the Power to Control Diabetes Is in Your Hands* (42) and *Keep Your Diabetes Under Control* (43), are examples of patient education materials encouraging self-management for the person with diabetes. Related to diabetic foot disease, the booklet *Prevent Diabetes Problems: Keep Your Feet Healthy* (44) encourages patients to take on a healthy lifestyle and manage blood sugar levels to avoid foot complications of the disease.

In working with the health care provider as a partner or collaborator, patients are afforded the best possible results given the resources available to them. However, education is necessary for patients to take on this role. Learning more about diabetes can empower patients to better manage the disease and avoid the complications associated with it.

Use of the partnership model

The introduction of the Healthy People 2010 publication (45), the U.S. Department of Health and Human Services' report states,

"Partnerships are effective tools for improving health in communities."

Within the arena of diabetes education and care, the partnership model of promoting health is very common. Numerous initiatives, campaigns, and programs make use of partnerships among Government and private organizations. Each of these partnerships was developed to serve a particular agenda.

As stated by the National Diabetes Education Project (46),

Becoming a NDEP partner offers organizations many benefits that support their own efforts to battle diabetes in their own communities. Such benefits include access to effective diabetes education and awareness campaign products that are culturally and linguistically appropriate, access to the expertise and resources of a diverse nationwide NDEP partnership network, a professional forum to exchange ideas and diabetes education materials and program activities, and access to guidelines and technical assistance for the development and implementation of successful diabetes intervention activities and partnerships.

In the words of Taking on Diabetes (47),

The American Association of Health Plans (AAHP) and the American Diabetes Association (ADA) are working together to deliver the highest quality of health care for people with diabetes. The joint initiative, Taking on Diabetes, represents a long-term commitment to improve the lives of people with diabetes by dramatically reducing the negative health consequences associated with the disease. The joint initiative, at both the national and local levels, will combine the knowledge and experience of the ADA with the special strengths of managed care plans to promote screening, early intervention, and state-of-the-art treatment for the populations they serve.

Within the diabetes community, partnerships serve to provide greater strength in working toward a common goal. Diabetes partnerships allow for combined ideas, knowledge, experience, resources, and access to target audiences. The collaborative efforts characteristic of partnerships increase the likelihood of achieving the goals of increased awareness, routine screening, and proper treatment of diabetes.

Enhancing communication between foot care provider and primary/diabetes care provider

Diabetes affects many different aspects of a person's life. A total-care approach to diabetes ensures that the person with diabetes receives help from medical professionals trained to focus on these different areas, from head to toe. A health care team allows the person with diabetes to use the health-care system to its fullest. On a patient education page of their Web site, the American Diabetes Association states (48),

“Today, the trend in diabetes care is to take a team approach. Building a health-care team is one of the best things you can do to care for yourself.”

Members of the diabetes care team recognized by the American Diabetes Association include the primary care provider, nurse educator, registered dietician, eye doctor, podiatrist, dentist, and social worker, among others. However, the primary care provider is often the first point of contact for the person with diabetes. As a result, it is important that the primary care provider and other members of the health care team communicate with one another on the health status of the patient.

The use of tools, such as a care algorithm or the 5.07 Semmes-Weinstein nylon monofilament, ensures that the person with diabetes receives comprehensive health care. The care algorithm prompts the health care provider to take certain actions, including conducting a foot exam, depending upon the situation. The monofilament is used to test sensory loss in a patient with diabetes, is easy to use, and provides a quick assessment of sensory loss. Several programs such as the *Lower Extremity Amputation Prevention (LEAP) Program*, *Feet Can Last A Lifetime*, and the *National Diabetes Education Program* all promote the use of the Semmes-Weinstein nylon monofilament for conducting a foot exam.

In addition to the use of the care algorithm and filament, the approach of academic detailing allows for clear communication among care providers for the person with diabetes. Academic detailing refers to the process where one health care professional educates other health care professionals on medical care and treatment for specific health condition. *The Diabetic Foot Exam Project* developed by the American Podiatric medical Association (APMA), the Health care Financing Administration (HCFA), and the American Diabetes Association employs academic detailing in its pilot project. Podiatrists volunteer to educate primary care physicians on foot complications of diabetes. Some of the benefits to using academic detailing include: those individuals who are providing information have established credibility within the medical community; the information is provided by a peer; both parties can communicate on a technical level; and the educator understands the barriers and enablers to providing care in the varying health systems.

Through the use of these tools upon each routine visit, and the process of academic detailing, the primary care provider remains abreast of the total health status of the person with diabetes, can refer to a specialist if necessary, and remains in frequent contact with other care providers.

Multimedia approach to disseminating messages and information

Often, the success of a particular campaign or program will depend on its audience reach. Traditionally, television, radio, and print have been the media in the marketing mix through which campaigns disseminate their messages. Today, media campaigns and education programs focusing on diabetes are including the use of computers and the Internet as a medium through which to disseminate their messages.

In particular, the use of multiple outlets to deliver information is a strategy that is consistent with research on what it takes to get a message through to people. First, different people respond to different ways of getting messages e.g., some need to see it, some need to hear it, some need examples, and some need to talk about it. Second, people typically need to receive a message several times and even in several ways before they really process it. Finally, it takes time and repetition to rise above the clutter of information that bombards people every day.

E-modalities have taken an active role in targeting health professionals. There are new examples on how pharmaceutical companies and other organizations are currently utilizing the Web to promote directly to physicians including e-detailing and e-events (e.g., CME activities such as tutoring modules).

According to a recent study released by the Kaiser Family Foundation (49),

More and more people interested in getting out a message, be it for a commercial or public service purpose, seem to be acknowledging that they can no longer rely solely on the print and broadcast efforts that were sufficient only a few years ago.

For many sponsors of public service messages, that increasingly means going online. Leading market research firms believe that before this decade ends, Americans will get the majority of their information from the Internet and other interactive technologies. While only 21 percent, or about 40 million U.S. adults, were connected to the Internet in 1995, today more than 167 million regularly log on at home or at work. And that number is expected to rise even higher in the years ahead.

Media campaigns and education programs focusing on diabetes already seem to be making good use of the Internet. Although they may not take the approach of a true online public service announcement, many campaigns and programs have made their television and radio announcements available on their Web sites. This allows partner organizations easy access to the materials and resources they may need to further promote the campaign. The *Lower Extremity Amputation Prevention (LEAP) Program* and the *Diabetes Is A Family Affair* campaign are examples of such action.

The *Lower Extremity Amputation Prevention (LEAP) Program* has made an audio soundtrack and informational videos accessible through their website. These resources are intended to educate people about how to prevent lower extremity amputation. They encourage persons at risk to get an annual foot screening and do daily self inspections with the LEAP monofilament.

The *Diabetes Is A Family Affair* campaign has also made several multimedia resources available through their website. These include a PowerPoint presentation on diabetes and the feet, explaining how diabetes affects the feet and what to do for proper foot care, audio and video public service announcements, and an educational video directed at physicians on the importance of neurological screening for diabetic patients.

Although this plethora of materials is available on the Internet, issues such as the reading levels in the vulnerable populations and the reach and impact that these materials have on their targeted audiences are very important challenges for further investigation.

Diabetes in women

In a recent press release announcing the release of their report on diabetes in women, the Centers for Disease Control and Prevention state (50),

According to the American Diabetes Association, approximately 8.1 million women, or 8.2 % of all women, in the United States have diabetes. Of these, about one third do not yet know they have the disease.

Diabetes is a serious health condition that affects women in all life stages. It is also unique to women because it can impact on the health of both a mother and her unborn children. With the increasing life span of women and the rapid growth of minority

populations in the United States, the number of women at high risk for diabetes and its complications will continue to increase, placing added demands on the health care delivery system.

- Of the 15.7 million people with diabetes in the United States, more than half (8.1 million) are women. Minority racial and ethnic groups are the hardest hit by the disease. The prevalence of diabetes is at least 2 to 4 times higher among black, Hispanic, American Indian, and Asian Pacific Islander women than among white women.
- About 90 to 95 % of women with diabetes have type 2 diabetes.
- Social, economic, and political barriers sometimes block high-quality care and easy access to health care for women with diabetes.
- Social and economic issues will leave many older women with diabetes living alone and poor. Poverty is also a major concern for women of childbearing age who have diabetes.
- Women with diabetes have a lower life expectancy than women without diabetes.
- The risk of heart disease, the most common complication of diabetes, is more serious among women than men. Among people with diabetes who have had a heart attack, women have lower survival rates and a poorer quality of life than men.
- Women are at greater risk from blindness due to diabetes than men.
- All parts of society, public and private, are more effective when they work together long-term to address the public health issues of reducing the burden of diabetes among women.

As a result, CDC, the American Diabetes Association, the American Public Health Association, and the Association of State and Territorial Health Officials have joined to cosponsor the *Initiative on Diabetes and Women's Health*, which has three phases: a report, the *National Public Health Action Plan for Women and Diabetes*, and a national conference.

The recently published report, *Diabetes and Women's Health Across the Life Stages: A Public Health Perspective*, is the first major publication to address the unique and serious impact diabetes has on women throughout life and to address the public health implications of these issues.

In addition, the Joslin Diabetes Center has produced a free booklet entitled *Women & Diabetes*. Developed with the staff at Joslin Diabetes Center, this publication focuses on the special issues that women who have this disease face. Included are articles on diabetes and pregnancy, gestational diabetes, nutrition, exercise, foot problems, heart disease, and vision issues. The booklet also describes the resources offered by Joslin to help women with diabetes lead a normal life.

SUMMARY STATEMENT

Clinical and psychosocial trends related to diabetes and foot complications are suggested through our findings. These trends become apparent in observing the messages that are currently conveyed and the mechanisms and mediums through which these messages are disseminated. More importantly, these trends can be used to guide future campaigns or program development activities.

H. Identified Gaps

Our findings suggest that there is a wealth of information on foot complications of diabetes. From legislation changes, to algorithms of care, to clinical guidelines, to educational materials addressing foot care and prevention of LEAs in relation to diabetes. However, gaps in coverage of this subject have been identified.

Gaps:

- National initiatives and educational programs specifically targeting Hispanic/Latino populations with insufficient foot care are limited.
- Direct to consumer marketing of pharmaceutical products and supplies for treatment and management of foot care is still limited.
- Access to the Internet is limited: the Digital Divide.

National initiatives and educational programs specifically targeting Hispanic/Latino populations are limited

Among the national initiatives and educational programs focusing on foot complications of diabetes, few are specifically targeted toward specific minority populations. Additionally, of the national initiatives and educational programs that do target minority populations, even fewer are developed to specifically address foot care within the Hispanic/Latino population.

Direct-to-consumer marketing of pharmaceutical products and supplies for treatment and management of foot complications is limited

Unlike the consumer marketplace for general diabetes care, which is flooded with pharmaceutical products, supplies, services and information to help patients manage their blood glucose levels, the consumer marketplace specific to foot care is not heavily saturated.

Access to the Internet is limited: the Digital Divide

Although many e-modalities for diabetes education and self-management were found through this environmental scan, access to these resources and services limits their reach and impact on targeted vulnerable populations. There is much work to be done to address health disparities and balance the scale of health information inequity. Although computer ownership and Internet use have increased among minorities in the last decade, the so-called “Digital Divide” is still a reality affecting minorities in the United States. This divide describes an individual’s and community’s lack of access to computers and online resources.

Access has many definitions and occurs in many settings:

- Physical access—access to the basic hardware, software, and Internet connectivity; it can occur in different settings such as home, work, libraries, etc.
- Cultural access—as in many technology domains worldwide, English tends to be the language of choice. For Hispanic/Latinos, and Asian Americans and Pacific Islanders, language congruency and cultural content for non-English speakers in the Internet extends particularly to cultural practices and health matters.
- Literacy level access—The Web, despite its early promise of becoming a global community, is still heavily English-based and has generally lacked a true mix of cultural viewpoints. Regardless of one’s language, Internet use requires a certain degree of competence. It is wholly unlike radio and television—being audio and visual media—and more like newspapers and books. However, with time and training it opens doors to opportunity and empowerment.

SUMMARY STATEMENT

Although our findings suggest that there is wealth of information available on foot complications of diabetes, gaps in knowledge do exist. Identifying these gaps can serve as an impetus for future research and much-needed program development; particularly for the Hispanic/Latino population with regard to foot care and self management and E-modalities for diabetes education for patients and providers.

IV. Conclusion

This environmental scan report has addressed findings in regard to a major public health problem that its reaching epidemic proportions: diabetes and its foot complications. The Foot Environmental Scan has identified key pieces of information related to legislation, national objectives and initiatives, screening guidelines and treatment algorithms, education programs and media campaigns, the consumer marketplace, and clinical and psychosocial trends. Activities that may have an impact on the prevalence of foot complications of diabetes were also described.

Several important findings have emerged as a result of this formative research. The findings presented here demonstrate the need for a range of approaches tailored to the needs of specific groups, communities, and patient populations, and they show that such approaches are meeting with success. Some programs exemplify how to work in partnerships between Government, providers, and communities, and they hold great potential to be replicated elsewhere.

- **In addition to CDC, a number of stakeholders including Government agencies and professional organizations, are prominent in addressing issues related to diabetes and foot complications.**
- **Currently, there are several campaigns in place using the partnership model; these campaigns are conducted in collaboration with one or more stakeholders.**

- **The education programs and media campaigns reviewed make use of a variety of mediums and channels, frequently taking a multimedia approach to message dissemination at various targeted audiences. The campaign methodology has consisted of a set of incorporated strategies for reaching each target audience, such as creating a theme, inviting interested organizations to participate, developing audience-specific communication materials, implementing a multimedia campaign and conducting community-level educational activities/interventions.**
- **An important component to include in development of diabetes health messages is the emphasis on prevention of the disease and its complications, given the recent results from the DPP trial. In relation to access to health care, the DPP prevention message is an essential part of the comprehensive care. This has become more so as Medicare helps individuals manage their diabetes along with two new Medicare benefits: the diabetes self-management benefit, and the medical nutrition therapy benefit.**
- **Enhancing communication and structured linkages between primary care providers and foot care providers is essential in promoting comprehensive health care for the person with diabetes.**
- **The NDEP/PPOD group may serve as a vehicle to create synergies in disseminating a targeted message to the diabetes care team.**

The information obtained from this environmental scan was used to construct a formative research plan. This plan, which is enclosed as a separate document, includes our recommendations for audience selection, message concepts, and types of communication products. Recommended dissemination channels are also identified within the plan.

"It is critical that everyone who has [diabetes] remain in regular contact with his or her health care professional for monitoring and treatment. Scientific studies clearly show that even if diabetes is present, complications such as blindness, amputations, kidney failure and heart attacks do not have to occur if intensive diabetes management can be achieved."

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FOOT Framework¹ (Overall Focus: Primary Care for 4 Audiences especially African Americans, Latinos, Native Americans and Asian Americans)

Audiences	Inputs	Activity	Barriers	Effects	Ultimate Outcomes
People with diabetes who are at risk for developing complications	Environmental Inputs/Factors (e.g. Media, Political & Popular Culture, etc.) Health Care Settings (e.g. Urban, Rural, Health Center, Mobile Clinic)	Self management of diabetes (e.g. daily self FEET exams) Action to facilitate increased physical activity, proper nutrition, etc. Active educational efforts to change or increase KAB about diabetes complications	Lack of audience knowledge and understanding about risk factors for diabetes and FOOT complications	Increased social and environmental support for diabetes FOOT complications Greater understanding of Diabetes and FOOT complications	Reduced FOOT complications from Diabetes (Reduced ORAL and EYE complications from Diabetes)
	Prevention & Early Detection Planning Partnership development between internal medicine, and the FOOT care profession	Increased awareness of warning signs for FOOT complications Community Involvement (Advertising/Communication of FOE Complications)	Audience Risk Behaviors (e.g. poor diet, smoking, inactivity, etc.)	Changed KAB and self-efficacy regarding self-management of diabetes and its complications Access to Quality Care	Better Health Outcomes for FEET Decrease in incidence of neuropathy and lower extremity amputations
Health Care Providers - Primary Care Physicians - Diabetes Specialists	Cultural beliefs and attitudes about diabetes and its complications	Programs/Interventions to help facilitate primary care prevention and management of FOOT complications.	Cost to patient for health insurance and FOOT care.	Care giver consensus on complications and agreement to target at-risk populations	Better Quality of Life for patients and caregivers
	Enablers (e.g. Actions taken to help people with Diabetes manage their disease) Support Systems for Patients	Changed Provider (e.g. primary care and FOOT health practitioners) Practice Patterns Collaboration between primary care and FOOT health practitioners	Lack of Provider time to focus on all aspects of patient health care during a health care visit	Change in physician referral pattern to FOOT specialists and provision of information to patients about FOOT complications	
	Screening for FOOT Complications System Approach (versus Caravan Style Approach) to Diabetes prevention and prevention of complications	Clinical science promoting link between diabetes and FOOT complications	Lack of Provider Knowledge about complications and lack of cultural competency for provision of health care services		

1 The process, that is the inputs, activities, and barriers to outcomes, a person may encounter in dealing with diabetes and its complications.

Summary Table for Findings of Population by Diabetes Complication

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Population				
General Population	<p><u>Risk Factors for developing diabetes:</u></p> <ul style="list-style-type: none"> • Genetic factors (family history, thrifty gene). • Obesity: adiposity and regional fat distribution. • Diet. • Lack of physical activity. • Social and environmental factors. 	<p><u>Risk Factors for developing foot complications:</u></p> <ul style="list-style-type: none"> • Poor glycemic control • Smoking • Hypertension • Duration of diabetes <p><u>Recommendations for care:</u></p> <ul style="list-style-type: none"> • Primary care provider conducts foot exams at every visit (minimum 4 times per year). • Patients play an active role in care through self-management and proper foot hygiene. 	<p><u>Risk Factors for developing oral complications:</u></p> <ul style="list-style-type: none"> • Poor glycemic control • Poor oral hygiene • Smoking • Age • Duration of diabetes <p><u>Recommendations for care:</u></p> <ul style="list-style-type: none"> • Bi-annual check-ups by an oral health provider. • Self-management – brushing and flossing of teeth, glycemic control. • There is a synergistic relationship between diabetes and oral health (poor oral health leads to eating foods inappropriate for glycemic control and interns leads to oral complications). 	<p><u>Risk Factors for developing eye complications:</u></p> <ul style="list-style-type: none"> • Duration of diabetes • Poor glycemic control <p><u>Recommendations for care:</u></p> <ul style="list-style-type: none"> • Annual dilated eye exams
Minority General Population	<ul style="list-style-type: none"> • Minorities have a higher risk for developing complications compared to non-minority populations. • Low economic status renders minorities more vulnerable to discontinuities and fragmentation of health care. • Patient education was effective in improving diabetes health outcomes and improving self-efficacy. • <i>Enablers:</i> Programs that use peer education and local media are 	<ul style="list-style-type: none"> • A very small number of patients are receiving care in inner-city hospitals report receiving foot exams. • Disparities of incidence of foot complications exist between whites and non-whites. 	<ul style="list-style-type: none"> • There is a lack of information on minority populations with diabetes and periodontal disease. <p>Those more susceptible to developing periodontal disease:</p> <ul style="list-style-type: none"> • those with a long duration of diabetes. • those with other diabetes related complications. • teenagers and pregnant women. • those who have poor oral hygiene behavior. 	<ul style="list-style-type: none"> • Minority populations are not receiving proper preventive eye exams. • Minority populations are more likely to receive tertiary care rather than primary care. <p><i>Enablers to receiving eye exams and appropriate eye referrals:</i></p> <ul style="list-style-type: none"> • Doctor recommendation for eye care. • Spiritual motivators (faith in God and hope).

					Findings by Complication Type					
					General	Foot	Oral	Eye		
Findings by Population										
					<p>effective in changing knowledge, attitudes, and beliefs of minority populations.</p>		<ul style="list-style-type: none"> those who have poor glycemic control. 	<ul style="list-style-type: none"> Education on need for annual exam and on the importance of adhering to treatment. <p><i>Barriers to receiving eye exams and appropriate eye referrals:</i></p> <ul style="list-style-type: none"> lack of insurance cost of eye exams lack of child care not having had an eye exam in the past fear of consequence of eye exam (surgery) over comfort of a dilated eye exam. 		
Native American					<ul style="list-style-type: none"> Diabetes is the 4th leading cause of death in this population. Among Pima Indians, 50% of the population has type II diabetes. Due to changing diets and fewer fluctuations in food supply and decreased physical activity, diabetes is highly prevalent among Native Americans. Diabetes education on self-efficacy and diabetes self-management plays a role in changing knowledge, attitudes, beliefs and behavior. 	<ul style="list-style-type: none"> Among Native Americans, foot exams by themselves does not reduce the risk of amputations. Education and proper preventive care is also needed. Among Native Americans, rates of lower extremity amputation are three to four times greater than the general population. 	<ul style="list-style-type: none"> Pima Indians (Native American) population has high prevalence of diabetes which has been linked with periodontal disease. 	<ul style="list-style-type: none"> Native Americans are disproportionately affected by diabetic retinopathy compared to whites. 18% of Pima Indians have some form of retinopathy. 		

Findings by Population	Findings by Complication Type			
	General	Foot	Oral	Eye
African American	<ul style="list-style-type: none"> Diabetes is the 7th leading cause of death in this population. African Americans reported the fewest hours of diabetes education compared to Mexican Americans and non-Hispanic whites. 	<ul style="list-style-type: none"> Among African-Americans, foot care education can decrease the risk of amputations. <i>Barriers</i> to doing foot care self-management that have been reported among African-Americans include: lack of motivation, forgetfulness vision problems, joint and knee problems, and family responsibilities. <p><i>Enabler:</i></p> <ul style="list-style-type: none"> The simplicity of instruction and the provision of a hand-held mirror for foot inspection were well received in an African American population. 	<ul style="list-style-type: none"> Little information is known in the reviewed literature on the prevalence and incidence of oral complications due to diabetes. 	<ul style="list-style-type: none"> The prevalence of diabetic retinopathy is higher in African Americans compared to whites. The occurrence of retinopathy is associated with hypertension, and the African America population has higher rates of hypertension than whites.
Hispanic/Latino	<ul style="list-style-type: none"> Diabetes is the 7th leading cause of death in this population. Disparities exist in treatment and management among the Hispanic/Latino populations compared to non-Hispanic whites. Delivering diabetes care to Latinos needs to be through the primary care providers and conducted in a team approach. <p><i>Enabler:</i></p> <ul style="list-style-type: none"> Peer educators from the local Hispanic/Latino community used to deliver diabetes education is an effective way to motivate behavior change. 	<ul style="list-style-type: none"> Mexican Americans reported greater prevalence of neuropathy than whites or African Americans. 	<ul style="list-style-type: none"> Hispanic/Latinos (Mexican Americans) are less likely to visit a dentist than whites. 	<ul style="list-style-type: none"> 32-40% of Mexican Americans with diabetes have retinopathy.

Summary Table for Findings of Audiences by Diabetes Complication

					Findings by Complication Type						
					General	Foot	Oral	Eye			
Findings by Audience											
System/Organization					<p><u>Approaches:</u></p> <ul style="list-style-type: none"> • <i>Multidisciplinary team</i> – a system of services in which all members of the health care team are devoted to maintaining the overall health of the patient with diabetes. • <i>Population-based approach:</i> <ul style="list-style-type: none"> - diabetes registry system - diabetes care teams - evidence-based guidelines. • <i>Single component change:</i> <ul style="list-style-type: none"> - feed back system - algorithm for care. 	<p><u>Approaches:</u></p> <ul style="list-style-type: none"> • A coordinated system of care that includes a variety of health care professionals can reduce the risk of lower-extremity amputations for diabetics. <p><i>Barrier:</i></p> <ul style="list-style-type: none"> • Lack of time for patient to remove footwear for exam and to complete diabetes flow sheet. • Clinics focused on addressing patient’s main complaint during a visit, missing additional opportunities for preventive care. <p><i>Enablers:</i></p> <ul style="list-style-type: none"> • Critical pathways approach to care can lead to earlier diagnosis and treatment (and hence, better outcomes) of foot complications. • The use of a risk categorization system predicts better outcomes for high-risk patients because once identified, such patients can be closely monitored and given necessary treatment. 			<p><u>Approaches:</u></p> <ul style="list-style-type: none"> • Use of <i>multidisciplinary</i> care teams improves the number of appropriate screenings conducted for diabetes patients. • Use of an <i>algorithm</i> for care increases the rate of appropriate referrals for eye care and screenings. 		

Findings by Complication Type					
		General	Foot	Oral	Eye
Findings by Audience					
Health Care Provider		<ul style="list-style-type: none"> Health care provider is an essential point-of-contact for diabetes care. Low adherence to recommendations from diabetes screening guidelines for oral and foot exams. Higher rates of recommendations for care for type I than for type II diabetes patients. <p><i>Barriers:</i></p> <ul style="list-style-type: none"> Patient refusal to adjust medication according to recommendations. Patient refusal or inability to self-monitor blood glucose. Patient refusal or inability to keep appointments, preventing opportunity to give recommendation. High staff turnover rates in clinics. Short appointment times limit the issues that can be addressed. 	<ul style="list-style-type: none"> Physicians must be able to identify risk factors and classify patient's risk for amputation. Providers must be able to advise patients on appropriate techniques for self-maintenance and glycemic control. Physicians have difficulty identifying those patients at risk for neuropathy. More education from providers to patients can lessen a patient's risk for neuropathy. <i>Enabler:</i> Clinical practices were positively influenced after physicians received foot-care practice guidelines and education on risk factors, appropriate referrals, and foot exams. 		<ul style="list-style-type: none"> For valid screening results, an individual trained in conducting and interpreting eye exams is needed. The primary care physician's role is to serve as a gatekeeper for care and to make referrals as appropriate to eye care specialists. Primary care physicians can improve their knowledge of appropriate exam techniques and referral patterns through short education classes. <p><i>Patterns of care among health care providers:</i></p> <ul style="list-style-type: none"> Referrals to eye care providers tend to be made when a patient presents with acute symptoms. Type II diabetics are less likely to be screened than type I because type II is perceived as less severe. Density of Ophthalmologists in a geographic area has an impact on referral patterns. Optometrists can provide dilated eye exams. <p><i>Barriers to providing dilated eye exams:</i></p> <ul style="list-style-type: none"> Lack of recent knowledge on medical techniques related to the eye and treatment for eye complications. Fear of making a mistake when conducting dilated eye exams. Lack of confidence in correctly diagnosing a patient.

Findings by Complication Type				
	General	Foot	Oral	Eye
Findings by Audience				
<p>Patient with Diabetes</p>	<ul style="list-style-type: none"> • Lowest compliance to diabetes care recommendations among patients was for foot exams. • <i>Enabler:</i> Patients are more likely to receive recommended care if the provider has a reminder system for scheduling follow-up appointments. 	<p><i>Intrinsic factors affecting patients:</i></p> <ul style="list-style-type: none"> • Duration of diabetes, age, weight, neuropathy, decreased visual acuity, limited joint mobility and structural deformity. • Patients are often unsure of how they can prevent neuropathy themselves. <p><i>Extrinsic factors affecting patients:</i></p> <ul style="list-style-type: none"> • Smoking, trauma to foot, social support systems, patient education. <p><i>Fact:</i></p> <ul style="list-style-type: none"> • Patients who have not had any diabetes education are more than three times more likely to have a lower-extremity amputation than those patients that have taken had diabetes education. <p><i>Barriers to seeking regular foot exams:</i></p> <ul style="list-style-type: none"> • Lack of obvious foot or leg problems. • Poor vision, obesity, and impaired mobility. • Transportation has not been shown to be a barrier. <p><i>Enablers:</i></p> <ul style="list-style-type: none"> • Strong social support systems for patients. • High quality diabetes education. • Having diabetes education classes that are convenient (in terms of time and location) for patients to attend. • A one-hour class on foot care has been shown to reduce a patient's risk for amputations and ulcers. 	<p><i>Barriers to good oral health behaviors:</i></p> <ul style="list-style-type: none"> • Income level • Cost of oral care • Lack of perceived need • Lack of insurance coverage <p><i>Enablers to good oral health behaviors:</i></p> <ul style="list-style-type: none"> • Family function • Primary care physician as entry point into comprehensive dental health care system. 	<p><i>Factors to receiving eye exams:</i></p> <ul style="list-style-type: none"> • Retinopathy is asymptomatic • In terms of eye exams, socioeconomic factors are more pronounced among the younger onset diabetics. <p><i>Barrier to receiving eye exams:</i></p> <ul style="list-style-type: none"> • Lack of knowledge of the need and purpose of dilated exams. • Low educational attainment, low income and low insurance status. <p><i>Enablers to receiving eye exams:</i></p> <ul style="list-style-type: none"> • Having had a diabetes education class. • Having a high density of ophthalmologists in patient's geographic area.

Findings by Complication Type				
Findings by Audience				
General	Foot	Oral	Eye	
<p>International</p> <ul style="list-style-type: none"> • Lowest compliance for care among diabetes patients was for foot exams, as found in a US study. • A gap exists between provision of care reported by the provider and receipt of care reported by the patient. • Education programs targeted at diabetics improved patient self-management behaviors. • <i>Barriers to care:</i> lack of diabetes case management and limited appointment time to address multiple health issues. • <i>Enabler to care:</i> use of community pharmacists to provide diabetes education and monitoring. 	<ul style="list-style-type: none"> • Confirming studies conducted in the US, a multidisciplinary team approach to diabetes foot care improves complication outcomes. 	<p>Factors associated with oral disease and diabetes:</p> <ul style="list-style-type: none"> • Duration of diabetes (more of a factor than age of patient). • Lack of knowledge of oral health problems associated with diabetes (may be due to lack of provider knowledge). • The self-efficacy model, theory of attribution and locus of control were used to describe how an individual's knowledge, attitude, beliefs or behavior influenced his or her oral health outcome. 	<ul style="list-style-type: none"> • Discrepancies exists between the screening rates reported by physician and the recorded number of screenings actually performed. <p><i>Enabler to increase screening:</i></p> <ul style="list-style-type: none"> • Use of mail-outs and local media was effective in recruiting diabetic patients to a mobile clinic. 	

**Informal Interviews:
Organizations Contacted**

American Academy of Family Physicians
11400 Tomahawk Creek Parkway
Leawood, KS 66211-2672
Phone (913) 906-6000

**American Association of Diabetes
Educators**
444 N. Michigan Avenue
Suite 1240
Chicago, IL 60611
Phone (312) 644-2233

American Podiatric Medical Association
9312 Old Georgetown Road
Bethesda, MD 20814
Phone (301) 571-9200
Fax (301) 530-2752

California Diabetes Control Program
Department of Health Services
601 N. Seventh Street, MS 725
P.O. Box 942732
Sacramento, California 94234-7320
Phone (916) 327-3053
Fax (916) 324-7764

Georgia Diabetes Control Program
2 Peachtree Street, 16th Floor
Atlanta, Georgia 30303
Phone (404) 657-6635
Fax (404) 657-6631

New Mexico Diabetes Control Program
New Mexico Department of Health
Harold Runnels Building
1190 St. Francis Dr., P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Phone (505) 827-2953
Fax (505) 827-0021

**North Carolina Diabetes Control
Program**
Department of Health & Human Services
Division of Public Health
Diabetes Prevention and Control Unit
Mail Service Center 1915
Raleigh, North Carolina 27699-1915
Phone (919) 715-3131
Fax (919) 733-0488

Texas Diabetes Control Program
Texas Department of Health
1100 West 49th Street
Austin, Texas 78756
Phone (512) 458-7490
Fax (512) 458-7404

Texas Diabetes Council
Texas Department of Health
1100 West 49th Street
Austin, Texas 78756-3199
Phone (512) 458-7490

Informal Interview Guide: Foot Complications of Diabetes

Introduction

I am calling from ORC Macro, a public health research corporation, and we are working with the Centers for Disease Control and Prevention's, Division of Diabetes Translation (DDT) to create a communication-based intervention for diabetes complications. The goal of this project is to design an effective public health approach to preventing foot complications resulting from diabetes.

There are three phases in this project and your participation in this interview falls under the first phase. The three phases include: (1) conducting a literature search and environmental scan on diabetes related foot complications; (2) implementing a formative research plan to study knowledge, attitudes, beliefs, and behaviors of health care professionals and patients with diabetes towards lifestyle modifications to prevent diabetes; and (3) planning and evaluating a communication intervention.

During this interview, I will be asking you questions about your organization's activities as they relate to diabetes and foot complications. We will be using your information as part of our environmental scan and the information you provide me with today will be aggregated with all interviews we have conducted and compiled into a list of general themes. Do you have any questions before I begin?

Questions

1. **What is your position or role at the [insert organization name]?**
2. **To your knowledge, and from your experienced, what are the complications of diabetes?**

Does your organization focus most of its resources on one particular complication?

Which complication?

3. **What do you see as the baseline knowledge, attitudes, beliefs, and behaviors with respect to diabetes related foot complications among:**

People with diabetes and their families/caregivers?

Health care providers?

Podiatrists or foot-care providers?

4. **What programs or resources, for diabetes related foot complications, does your organization conduct and promote?**

Probes:

What is the name and type of program?

Does your organization conduct mass media campaigns? If yes, please describe.

Do any of your programs target minority populations (African Americans, Latinos, Native Americans)? If yes, please describe.

What is the geographic location where the program is implemented?

5. **What foot-related programs or resources that are sponsored by other organizations are you aware of?**

Probes:

What is the name and type of program?

Does the organization conduct mass media campaigns? If yes, please describe.

Do any of the programs target minority populations (African Americans, Latinos, Native Americans)? If yes, please describe.

What is the geographic location where the program is implemented?

Do you know of any local programs using the feet for life campaign?

6. What would you say are the most important factors for interventions aimed at getting patients with diabetes to prevent or control diabetic related foot complications?

Probes:

What things would most motivate a patient with diabetes to seek appropriate foot care and practice good self-management techniques? (i.e. provider support and encouragement or access to support groups)

What are some of the challenges to interventions aimed at this group?

7. What would you say are the most important factors in building family and community support to encourage behaviors to prevent or control diabetes related foot complications?

Probes:

What motivators or resources need to be provided to encourage family and community support?

Are there different factors for minority populations? If yes, what are some of those factors?

What are some of the challenges to interventions aimed at this group?

8. What can be done to encourage health care providers to take a more active role in preventing or controlling diabetes related foot complications?

Probe:

What are some of the challenges to interventions aimed at this group?

- 9. As an organization that addresses diabetes, what criteria does your organization use when considering collaborating with potential partners for interventions or activities which prevent/reduce/control diabetes related foot complications?**

- 10. Do you know of any psychosocial or other trends that might enhance or threaten future research or intervention activities, e.g., media, political and social environment?**

- 11. Do you have any additional comments?**

E-Mail Mailing Lists

Daily alerts from Dr. Joe, the Diabetes Doctor at <http://www.diabeteswell.com>
To subscribe to E-News mailto: Dr.Joe@diabeteswell.com

Daily newsletters, “News From HealthCentral.com” at www.HealthCentral.com

Daily newsletter WebMDHealth ~ DIABETES NEWSLETTER at
http://my.webmd.com/condition_center/dia.

Weekly Living Better newsletter at <http://my.webmd.com>

Weekly Diabetes newsletter at http://my.webmd.com/condition_center/dia

Diabetes E-News Now! - Health Care Professional Edition, weekly newsletter of the American Diabetes at <http://www.diabetes.org>

Monthly Diabetes Digest Newsletter at <http://www.diabetesdigest.com/>

Medformation.com weekly eBriefs & semi-monthly eMagazines in Pregnancy, Diabetes, Heart Health and General Health at <https://www.medformation.com/>

Weekly enews CDC en Español (in Spanish) at <http://www.cdc.gov/spanish>

Diabetes Update is mailing list to make it easier for you to keep up-to-date with new articles, columns, and Web pages about diabetes as well as other items of special interest. To join all you have to do is write to mendoza@mendoza.com with the message “subscribe diabetes update.”

Diabetic Mailing List Information - Lehigh University at
<http://listserv.lehigh.edu/lists/diabetic/html/subinfo.html>

The Diabetes Epidemiology mailing list aims to facilitate communication and promote collaboration between individuals in the field of diabetes epidemiology. To join the Diabetes Epidemiology list send this message to Majordomo@list.pitt.edu: subscribe diabepi

Diabeticos is a mailing list for Spanish speakers diabetics. To subscribe, write an e-mail to diabeticos-subscribe@listbot.com.

GlucLow is an email list for individuals with diabetes who are following a low-carbohydrate eating plan such as those proposed by Dr. Bernstein, Dr. Atkins, and Dr. Eades. To subscribe go to <http://www.topica.com/lists/glucolow> or send an email to glucolow-subscribe@topica.com.

Chat Rooms

The word “chat” unfortunately has several meanings. On discussion boards it means informal or off-topic talk. But it has long had the specific meaning of programs where Internet users can type back and forth to each other in real time. The earliest such programs were called Internet Relay Chat (IRC), and they are still available but they are harder to use and require that the user to download a client program. In the past couple of years, however, easy-to-use chat programs have become available. Some even allow a moderator and guest speaker to speak to you through Windows Media Player or Real Audio. Some of the following sites are for people with diabetes to chat with other people with diabetes. Other sites here are for patients to chat with experts.

The MSN Web Communities all have message boards. At last count, if a person goes to <http://communities.msn.com/home> and searches for diabetes, it will return 103 communities that include diabetes, mainly based in the US and fewer than 10 based abroad (Peru, Brazil, Germany) and in languages other than English. The topics selected to group a community include specific Type 1 or Type 2 diabetes, newly diagnosed, parents of Type 1 diabetes, and equipment, supplies, diet and nutrition, social support networks, mental health issues (i.e., stress, coping, depression). Most of these communities have fewer than 100 members, but four are quite active:

The Diabetes Support Room at <http://communities.msn.com/DiabeticsSupportRoom> has over 200 members and three scheduled chats per week.

Diabetes. Isn't It a Pain at <http://communities.msn.com/DiabetesIsntitapain> has over 200 members.

The Diabetes, Hypoglycemia and Transplant Corner at <http://communities.msn.com/DiabetesHypoglycemiaandTransplantCorner> has over 300 members.

The Yahoo Groups Communities have also message boards. At last count, if a person goes to the Yahoo! groups site at <http://groups.yahoo.com/> and searches for diabetes, over 300 hits will show up. There is more variety in topics than within the MSN communities and also inclusive of more international sites (Australia, Brazil, Canada, Germany, Egypt, Sweden) although these are still the minority with fewer than 15 (out of 310). Topics include the same as the MSN communities plus state-based groups, Jewish Law, nutrition, recipes, diet, women and eating disorders, nutritional supplements and treatments using multi-level marketing (MLM) schemes, and diabetic pets.

The Diabetes ChatRoom is open 24 hours a day and also has 3 scheduled chats. The URL is <http://www.orphanage.com/ChatServer/login.cgi>

Diabetes Community features the first voice chat for people with diabetes. You can use either voice or text chat (or both) to chat with a group in a public room or with one or more individuals in a private room. The URL is <http://www.diabeticvoicechat.com>

Diabetes Station is the interactive part of Diabetes Portal, a large site encompassing Insulin Free World Foundation, Fast Track To A Cure, Diabetes Station and soon to come, Diabetes Living. This site currently has the most active chat schedule. The URL is <http://www.diabetesstation.org/>

WebMD Diabetes has regular typed and audio chats with experts. The URL is http://my.webmd.com/condition_center/dia

DELPHI. A Diabetes Forum (Types 1 and 2) on Delphi opened in December 1996. From the Internet you can now go to directly to the Diabetes Forum. The URL is <http://www.delphi.com/diabetes/start> From the Diabetes Forum click on “Webpage” for a library of useful articles including one on “Financial Help for Diabetics.”

Message Boards

“Diabetes: Open Discussion” at http://my.webmd.com/roundtable_topic/1011

Diabetes Recipe Board with Noelle Jones, RD at http://my.webmd.com/roundtable_topic/9

Live Events like this one: “Are Computers Affecting Your Medical Diagnosis and Health? Learn how computers are changing the medical care -- for better or worse -- that you receive.”

<http://my.webmd.com/splash/article/1705.53503>

America Online. AOL has two types of online support groups available to its members:

One is the DM resource in a support group area. To find it, from the main menu, select GO to Lifestyles and Interests. Then select Better Health and Fitness. Next select the Message Center, then Self-Help and Support Groups, and finally the DM bulletin board. AOL’s other resource is weekly on-line “meetings”. Topics/groups represented include:

- Endocrine Disease and Diabetes Discussion Groups
- PharmInfo - Discussion Groups
- Amputation Discussion List
- Amputee Issues Discussion List
- Your Everything Else List for the Blind
- Parents of Kids Affected by Illness Discussion List
- Building Acceptance of Ourselves-Overweight
- Low Fat Eating
- Essential Oils Online - Alternative Health Discussion List
- Exercise, Diet, and Wellness Discussion List

- Informal Chat Herbal Discussion Group
- Kids Mental Health Discussion List
- Menopause Discussion List
- Nephrology and Transplantation Professional Discussion List
- Weight Loss Discussion List
- Pediatrics for Parents - A Source of Children's Health Information
- Sick Children's Discussion List
- Blindness and Family Life Discussion List
- Diabetic Pets Discussion List
- Immune System Breakdowns Discussion List
- Low Carbohydrate and Ketogenic Diet Technical Discussion List
- Mid Maine Diabetes Discussion List
- Discussion for College Students with Diabetes
- Mailing Lists On-line Diabetes Resources Discussion Group by Rick Mendosa
- Subscription information for Groups in Support of the Low Carbohydrate Lifestyle
- Fat-Free Users Group

National Standards for Culturally and Linguistically Appropriate Services (CLAS)

These are the National Standards for Culturally and Linguistically Appropriate Services (CLAS) in health care by the US Department of Health and Human Services' (HHS) Office of Minority Health (OMH), issued in December 2000.

1. Health Care Organizations Should Ensure That Patients/Consumers Receive From All Staff Members Effective, Understandable, and Respectful Care That Is Provided in a Manner Compatible With Their Cultural Health Beliefs and Practices and Preferred Language
2. Health Care Organizations Should Implement Strategies To Recruit, Retain, and Promote at All Levels of the Organization a Diverse Staff and Leadership That Are Representative of the Demographic Characteristics of the Service Area
3. Health Care Organizations Should Ensure That Staff at All Levels and Across All Disciplines Receive Ongoing Education and Training in Culturally and Linguistically Appropriate Service Delivery
4. Health Care Organizations Must Offer and Provide Language Assistance Services, Including Bilingual Staff and Interpreter Services, at No Cost to Each Patient/Consumer With Limited English Proficiency at All Points of Contact, in a Timely Manner During All Hours of Operation
5. Health Care Organizations Must Provide to Patients/Consumers in Their Preferred Language Both Verbal Offers and Written Notices Informing Them of Their Right To Receive Language Assistance Services
6. Health Care Organizations Must Assure the Competence of Language Assistance Provided to Limited English Proficient Patients/Consumers by Interpreters and Bilingual Staff. Family and Friends Should Not Be Used To Provide Interpretation Services (Except on Request by the Patient/Consumer)
7. Health Care Organizations Must Make Available Easily Understood Patient-Related Materials and Post Signage in the Languages of the Commonly Encountered Groups and/or Groups Represented in the Service Area
8. Health Care Organizations Should Develop, Implement, and Promote a Written Strategic Plan That Outlines Clear Goals, Policies, Operational Plans, and Management Accountability/Oversight Mechanisms To Provide Culturally and Linguistically Appropriate Services

9. Health Care Organizations Should Conduct Initial and Ongoing Organizational Self-Assessments of CLAS-Related Activities and Are Encouraged To Integrate Cultural and Linguistic Competence-Related Measures Into Their Internal Audits, Performance Improvement Programs, Patient Satisfaction Assessments, and Outcomes-Based Evaluations
10. Health Care Organizations Should Ensure That Data on the Individual Patient's/Consumer's Race, Ethnicity, and Spoken and Written Language Are Collected in Health Records, Integrated Into the Organization's Management Information Systems, and Periodically Updated
11. Health Care Organizations Should Maintain a Current Demographic, Cultural, and Epidemiological Profile of the Community as Well as a Needs Assessment to Accurately Plan for and Implement Services That Respond to the Cultural and Linguistic Characteristics of the Service Area
12. Health Care Organizations Should Develop Participatory, Collaborative Partnerships With Communities and Utilize a Variety of Formal and Informal Mechanisms to Facilitate Community and Patient/Consumer Involvement in Designing and Implementing CLAS--Related Activities
13. Health Care Organizations Should Ensure That Conflict and Grievance Resolution Processes Are Culturally and Linguistically Sensitive and Capable of Identifying, Preventing, and Resolving Cross-Cultural Conflicts or Complaints by Patients/Consumers
14. Health Care Organizations Are Encouraged to Regularly Make Available to the Public Information About Their Progress and Successful Innovations in Implementing the CLAS Standards and To Provide Public Notice in Their Communities About the Availability of This Information

From: www.omhrc.gov/clas/frclas2.htm. Accessed: March 30, 2001

**23 States Where Latinos Constitute Largest Minority Population
2000 Population Figures**

	<u>Latino</u>	<u>Black</u>	<u>White</u>	<u>Asian</u>
California	10,966,566	2,181,926	15,816,790	3,648,860
Texas	6,669,666	2,364,255	10,933,313	554,445
New York	2,867,583	2,812,623	11,760,981	1,035,926
Florida	2,682,715	2,264,268	10,458,509	261,693
Arizona	1,295,617	149,941	3,274,258	89,315
New Jersey	1,117,191	1,096,171	5,557,209	477,012
New Mexico	765,386	30,654	813,495	18,257
Colorado	735,601	158,443	3,202,880	93,277
Washington	441,509	184,631	4,652,490	319,401
Massachusetts	428,729	318,329	5,198,359	236,786
Nevada	393,970	131,509	1,303,001	88,593
Connecticut	320,323	295,571	2,638,845	81,564
Oregon	275,314	53,325	2,857,616	100,333
Utah	201,559	16,137	1,904,265	36,483
Kansas	188,252	151,407	2,233,997	46,301
Idaho	101,690	4,889	1,139,291	11,641
Nebraska	94,425	67,537	1,494,494	21,677
Rhode Island	90,820	41,922	858,433	23,416
Iowa	82,473	60,744	2,710,344	36,345
Wyoming	31,669	3,504	438,799	2,670
New Hampshire	20,489	8,354	1,175,252	15,803
Maine	9,360	6,440	1,230,297	9,014
Vermont	5,504	2,921	585,431	5,160

Source: Tomás Rivera Policy Institute analysis of Census 2000 Redistricting Data (Public Law 94-171)

CALENDAR 2002 National Diabetes-Related Health Observances

Health Observances are days, weeks, or months devoted to promoting particular health concerns. This list selected health observances related to diabetes and its complications, and special populations.

January

National Glaucoma Awareness Month
Prevent Blindness America
(800) 331-2020

February

American Heart Month
American Heart Association
1 (800) AHA-USA1

AMD/Low Vision Awareness Month
Prevent Blindness America
(800) 331-2020

March

National Eye Donor Month
Eye Bank Association of America
(202) 775-4999

National Kidney Month
National Kidney Foundation
(800) 622-9010

National Nutrition Month
American Dietetic Association
(800) 877-1600

Workplace Eye Health and Safety Month
Prevent Blindness America
(800) 331-2020

March 3-9

Save Your Vision Week
American Optometric Association
(314) 991-4100

March 27

American Diabetes Alert
American Diabetes Association
(800) DIABETES

April

Women's Eye Health Safety Month
Prevent Blindness America
(800) 331-2020

April 1-7

National Public Health Week
American Public Health Association
(202) 777-APHA

May

National Sight-Saving Month: Ultraviolet Awareness & Home Eye Safety
Prevent Blindness America
(800) 331-2020

Older Americans Month
Administration on Aging
(202) 619-7501

May 5

National Employee Health and Fitness Day
National Association for Health and Fitness
(317) 955-0957

May 29

National Senior Health and Fitness Day
Mature Market Resource Center
(800) 828-8225

June

Light the Night for Sight (through July 31)
Prevent Blindness America
(800) 331-2020

Vision Research Month
Prevent Blindness America
(800) 331-2020

June 10-16

National Men's Health Week
National Men's Health Foundation
(800) 955-202

June 23-29

Helen Keller Deaf – Blind Awareness Week
Helen Keller National Center for Deaf-Blind Youth and Adults
(516) 944-8900, x325

June 27-July 5

Eye Safety Awareness Week
United State Eye Injury Registry
(205) 933-0064

August

Cataract Awareness Month
American Academy of Ophthalmology
(415) 561-8500

September

Children's Eye Health and Safety Month
Prevent Blindness America
(800) 331-2020

Health Aging Month
Educational Television Network, Inc.
(610) 793-0979

October

October 21-27
National Health Education Week
National Center for Health Education
(212) 334-9470

November

American Diabetes Month
American Diabetes Association
(800) 232-3472

Diabetic Eye Disease Month
Prevent Blindness America
(800) 331-2020