Contents

Executive Summary ............................................................................................................ i

1. Introduction ................................................................................................................. 10

2. Survey Methodology .................................................................................................... 12
   2.1 Data Collection Instruments, Screening, and Interviewing Questionnaire ............ 13
   2.2 Survey Response Rates ............................................................................................ 13
   2.3 Statistical Methods .................................................................................................... 14
   2.4 Limitations .................................................................................................................. 14

3. Results of the 2008 Survey .......................................................................................... 15
   3.1 Diabetes Screening ....................................................................................................... 15
   3.2 Awareness of the Term “Pre-diabetes” ........................................................................ 17
   3.3 Hypertension ................................................................................................................ 17
   3.4 High Blood Cholesterol .............................................................................................. 18
   3.5 Advice to Control or Lose Weight .............................................................................. 18
   3.6 Advice to Increase Physical Activity or Exercise ....................................................... 19
   3.7 Advice to Reduce Fat and Calories in the Diet ........................................................... 20
   3.8 Advice to Take a Daily Aspirin .................................................................................. 21
   3.9 Awareness of One’s Own Risk for Diabetes ............................................................... 22
   3.10 Awareness of Risk Factors for Diabetes ................................................................. 23
   3.11 Awareness of the Seriousness of Diabetes ................................................................. 24
   3.12 Awareness of the Complications of Diabetes ............................................................ 25
   3.13 Awareness of the Steps a Person with Diabetes Can Take to Lower His or Her Blood Sugar Level ......................................................................................................................... 26
   3.14 Awareness of the Steps a Person with Diabetes Can Take to Reduce the Chance of Having a Heart Attack ......................................................................................................................... 28
   3.15 Awareness of the NDEP Campaign Messages .......................................................... 29
   3.16 People with Diabetes’ Self-Management Practices .................................................. 30
   3.17 Knowledge of A1C Among People with Diabetes ...................................................... 31
   3.18 People with Diabetes Rate Their Understanding of Diabetes Management ........... 32
   3.19 Awareness of Media Stories About Diabetes ............................................................ 33

4. Comparison of Key Findings 2006-2008 .................................................................... 35
   4.1 Diabetes Status and Testing ....................................................................................... 35
   4.2 Knowledge of Diabetes and Pre-diabetes ................................................................. 36
   4.3 Controlling Risk Factors for Diabetes ....................................................................... 37
4.4 Awareness of Being at Risk for Diabetes.................................................................38
4.5 Awareness of Causes of Diabetes...........................................................................39
4.6 Awareness of Seriousness of Diabetes.................................................................41
4.7 Knowledge of Actions to Lower Blood Sugar Level ............................................42
4.8 Knowledge of Actions to Reduce Risk of Heart Attack or Stroke ......................42
4.9 Knowledge of Diabetes Campaigns and Messages............................................43
4.10 Managing Diabetes ...............................................................................................44

5. Conclusions .............................................................................................................46

Appendix A  Weighting Methodology
Appendix B  2008 Questionnaire
Appendix C  2008 Survey Tables
Appendix D  Tables for 2006 and 2008 Comparisons
Executive Summary

Introduction

The National Diabetes Education Program (NDEP) conducted its second survey of the public’s knowledge, attitudes, and practices related to diabetes in August 2008. The goals of the survey were:

- To collect further information on key questions related to the NDEP campaigns and messages to use for program planning and evaluation purposes. The survey results offer insights into the public’s current awareness that diabetes is serious, yet preventable and controllable, and the public’s knowledge of risk factors for diabetes and of actions that would reduce the risk. In addition, the survey data allow comparisons with the public’s level of awareness two years previously.

- To learn more about the current attitudes and beliefs of target audiences and their perception of their personal susceptibility to diabetes and its complications. The goal of the program is to promote and support behaviors that will help people with diabetes better manage their disease and to help people at risk make lifestyle changes that would delay or prevent type 2 diabetes.

The 2008 survey is a follow-up to a 2006 survey and supports tracking changes in:

- The public’s awareness of diabetes and pre-diabetes and their personal risk factors;
- Attitudes, knowledge, and practices related to diabetes; and
- Awareness of risk for diabetes among at-risk groups.

The target sample size was 2,100 persons, ages 35 years and older. The original survey collected data on persons age 45 and older in order to obtain an adequate proportion of the NDEP’s key target audiences in the sample—people with diabetes and pre-diabetes, and those who are at risk for diabetes. Because the rate of type 2 diabetes is growing fastest among those 35 to 44 years old, this age group was included in the 2008 survey.

- A person with diabetes is defined as one who answers “Yes” to the following question: “{Other than during pregnancy}, has a doctor or other health professional ever told you that you have diabetes or sugar diabetes?”

- A person with pre-diabetes is defined as one who answers “Yes” to one or more of the following: “Have you ever been told by a doctor or other health professional that you have: Pre-diabetes? Impaired fasting glucose? Impaired glucose tolerance? Borderline diabetes? Or high blood sugar?”

- A person at high risk for diabetes is defined as one who, according to his or her self-reported height and weight, has a body mass index (BMI) of 25 or greater and/or has been told by a doctor or other health professional that he or she is at high risk for diabetes and/or has ever been told by a health care provider that she had gestational diabetes or high blood sugar during pregnancy.
A stratified sampling design was used to oversample African American and Hispanic households so that reliable national estimates of those groups could be provided. The African American stratum was created using telephone exchanges where at least 50% of the households were African American; the percentages for some exchanges were higher, which increased the probability of reaching an African American household to 75% in that stratum. The Hispanic stratum was created in a similar manner. The third stratum contained all remaining telephone exchanges. Although African American and Hispanic households were oversampled, once a household member was contacted, any eligible respondent -- regardless of his or her race or ethnicity -- was selected. The interviews were conducted by telephone using computer-assisted telephone interviewing (CATI) techniques. Interviews were conducted in English and Spanish.

The survey was conducted over a 4-month period, August through November 2008. A total of 2,078 interviews were completed, which included 411 people with diagnosed diabetes, 204 people with diagnosed pre-diabetes, 941 people at high risk for diabetes, and 522 others. The overall survey response rate was 54%. The sample was designed to provide reliable national estimates of major demographic groups: males and females; whites, African Americans, and Hispanics; and age groups 35-44, 45-64, and 65 years and older. The sample that was called was drawn from the nine major Census regions and consisted of respondents in all 50 states. The sample strategy was not designed to provide state-specific estimates. The African American and Hispanic Latino sample sizes were not large enough to provide estimates for ethnic differences within the larger groups, for instance Caribbean African Americans and African Immigrants, or Cuban/Cuban Americans, Mexicans, and Central or South Americans. In addition, the sample contained only households which had landline telephones, therefore excluding those without telephones and those with only cell phones. Further limitations may include the self-reported nature of the information obtained. Despite these limitations, the survey does provide a method for tracking evaluation outcomes and demonstrating trends and thus is of great importance in guiding the strategic plan of the NDEP and its individual workgroups.

The survey was designed to answer key questions related to NDEP campaigns and messages, including:

- **Public’s Knowledge of the Serious Yet Controllable Aspects of Diabetes**
  
  Is the general public aware that diabetes is a serious, yet controllable condition? Are they aware of the risk factors for diabetes? Are they aware of the complications or health problems caused by diabetes? Are they aware of the steps a person with diabetes can take to lower his or her blood sugar and that diabetes can be prevented?

- **Diabetes Awareness**
  
  Is the general population aware of their diabetes status? What percentage of the population has been screened for diabetes, and what percentage report that a doctor or other health professional has told them their diabetes status, whether diagnosed with diabetes or pre-diabetes or at high risk?

- **Awareness Among the Population At Risk**
  
  Are those at high risk for diabetes aware that they are at risk? Are those who know that they are at high risk for diabetes aware of the actions that they can take to reduce their risk? Have
they been told by a doctor or other health care professional to take any specific steps to reduce their risk for diseases such as diabetes? Are they following that advice?

- **Diabetes and Cardiovascular Disease**

Are members of the public, especially people with diabetes and their families, aware of the link between diabetes and cardiovascular disease? Are they aware of their A1C, blood pressure, and cholesterol levels? Are they taking actions to control their blood pressure and cholesterol levels or to reduce their risk for cardiovascular disease in any other way?

- **Awareness of NDEP Campaign and Messages**

Are the general public, people with diabetes, and people at risk for diabetes aware of the NDEP and its campaign messages, specifically *Control Your Diabetes? For Life* and *Small Steps. Big Rewards. Prevent Type 2 Diabetes?*

**Survey Results**

The 2008 survey results are reported for respondents 35 years of age and older. Comparisons of the 2006 and 2008 surveys are made for respondents 45 years and older.

**A. Public’s Knowledge of the Serious Yet Controllable Aspects of Diabetes**

<table>
<thead>
<tr>
<th>Question</th>
<th>2006 (%)</th>
<th>2008 (%)</th>
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<tbody>
<tr>
<td>Is the general public aware that diabetes is a serious yet controllable condition?</td>
<td></td>
<td></td>
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<tr>
<td>Are they aware of the risk factors for diabetes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are they aware of the complications or health problems caused by diabetes?</td>
<td></td>
<td></td>
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<tr>
<td>Are they aware of the steps a person with diabetes can take to lower his or her blood sugar and that diabetes can be prevented?</td>
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In 2008, 85% of the population 35 years and older consider diabetes to be a very serious condition. There was no significant change in this opinion between 2006 and 2008 among persons 45 and older.

Being overweight, heredity, and not getting enough exercise are the three risk factors for diabetes that are well known by the public. The percentages of the population reporting that being overweight and not getting enough exercise are definite causes of diabetes increased between 2006 and 2008. In 2008, 96% of the population report that they feel overweight is a cause of diabetes, with 69% reporting that it is a definite cause. From 2006 to 2008, there was a significant increase in the percent of those 45 years of age and older reporting that being overweight is a definite cause of diabetes (55% vs. 68%). In 2008, 91% report that not getting enough exercise is a cause of diabetes and 51% report that it is a definite cause of diabetes. There was a significant increase among persons 45 years of age and older between 2006 and 2008 who identified not getting enough exercise as a definite cause (from 35% to 54%). Ninety-three percent (93%) report that heredity is a cause of diabetes, and 54% report that it is a definite cause of diabetes. The increase among those 45 and older from 2006 to 2008 (from 48% to 54%) was not statistically significant.

Survey respondents report that losing weight, engaging in regular physical activity, and taking medication are three steps that would definitely help a person with diabetes lower his or her blood sugar level. Eighty-four percent (84%) of the population reported that losing weight would
definitely help lower one’s blood sugar; 83% thought that engaging in regular physical activity would do so, while 79% cited taking medication. The percentages of the population reporting that losing weight, engaging in regular physical activity and taking medications would help lower blood sugar level increased from 2006 to 2008, but these increases were not statistically significant.

B. Diabetes Awareness

Is the general population aware of their diabetes status? What percentage of the population has been screened for diabetes and what percentage report that a doctor or other health professional told them their diabetes status, whether diagnosed with diabetes or pre-diabetes or at high risk?

The proportions of the population 45 and older with diabetes, pre-diabetes and at high risk remained largely the same from 2006 to 2008, and about the same percentages have had blood tests for diabetes.

The majority (81%) of the population 35 years of age and older report that they have had a blood test for diabetes. People with a diagnosis of diabetes, pre-diabetes, or hypertension are more likely to have had a blood test for diabetes than others, including people at high risk for diabetes. Those who are obese or who have a family history of diabetes also are more likely to have been tested. Nine percent (9%) of the population have been told by a doctor or other health professional that they have pre-diabetes. Forty-eight percent (48%) of the population are at high risk for diabetes, but have not been told that they have pre-diabetes.

C. Awareness Among the Population At Risk

Are those at high risk for diabetes aware that they are at risk?

When asked, “Do you feel you could be at risk for diabetes?”, only 29% of the people at high risk for diabetes report that they feel that they could be at risk for diabetes. Even among people who have been told that they have pre-diabetes, less than two-thirds (64%) report that they feel at risk for diabetes. Sixty-four percent (64%) of those who feel at risk say they do so because they have a family history of diabetes. Other reasons given include being overweight and poor dietary habits. Among those who indicate a family history of diabetes, 89% report feeling at risk. The prevalence of diabetes is greater among African Americans and Hispanics, but there were no significant differences by race in the percentages of the population who reported feeling at risk for diabetes.

Awareness of their risk for diabetes changed slightly from 2006 among persons with pre-diabetes (from 59% to 64%) but this difference was not statistically significant.

Have they been told by a doctor or other health care professional to take any specific steps to reduce their risk for diabetes? Are they following that advice?

Thirty-eight percent (38%) of the population 35 years and older report that a doctor or other health professional has told them to control or lose weight to reduce their risk for any disease.
This represents 74% of people with diabetes, 50% of people with pre-diabetes, and 40% of people at high risk, compared with 11% of the rest of the population.

While more than 40% of those 45 and older report being told to lose weight, only 23% of those aged 35-44 report hearing the same message.

Seventy-nine percent (79%) of those who have been told to control or lose weight by a doctor or other health professional report that they are following that advice.

The percentage of persons 45 and older who were told to lose weight showed little change from 2006 to 2008, nor did the percentage of those with diabetes told to lose weight.

Forty-eight (48%) of the population 35 years or older have been told by a doctor or other health professional to increase their physical activity or exercise to reduce their risk for any disease. This represents 72% of people with diabetes, 58% of people with pre-diabetes, and 49% of people at high risk for diabetes, compared with 31% of the rest of the population. Women, those who are obese, and those with high blood pressure and high blood cholesterol were more likely than others to have been told to increase their physical activity. Seventy percent (70%) of the population who have been advised by a health professional to increase their physical activity report that they are following that advice.

Among those 45 and older, roughly the same proportion had been advised to increase their physical activity in 2006 and 2008 (52% in 2006, 49% in 2008).

D. Diabetes and Cardiovascular Disease

Is the public, especially people with diabetes and their families aware of the link between diabetes and cardiovascular disease?

In 2008, the population 35 years and older ranked cardiovascular disease third at 34% behind blindness (54%) and amputation (36%) in response to an open-ended question asking about the more serious health problems caused by diabetes. People with diabetes (50%) were more likely to select cardiovascular disease than were people with pre-diabetes (38%), those at high risk (32%) and all others (26%).

Among those 45 years and older, the percentage of the population who cited cardiovascular disease as a serious complication of diabetes remained roughly the same from 2006 (39%) to 2008 (34%). There was a significant decrease over the two year period in the percent of the population 45 years and older that named blindness as a serious complication (64% vs. 54%). Among people with diabetes age 45 and older, there was a significant increase in awareness of kidney disease (24% in 2006 to 35% in 2008). Kidney disease, however, continues to be one of the least known serious complications of diabetes among people with or without diabetes.

Are people with diabetes aware of their A1C levels?

Over half (63%) of people with diabetes have heard the term “glycosylated hemoglobin” or “hemoglobin A1C.” Awareness of the term “A1C” increases with education from 38% of those with no high school diploma to 90% of college graduates. Given the definition of the term “A1C,” 71% of people with diabetes report that they have had their A1C level tested one or more times in the past year. Of those, 53% can report their last A1C level.
To what degree do people with diabetes have high blood pressure and cholesterol levels that increase their risk for cardiovascular disease?

Sixty-five percent (65%) of people with diabetes have been told by a health professional they have hypertension, and 57% of people with diabetes have been told that they have high blood cholesterol.

E. Public’s Awareness of NDEP Campaign and Messages

Survey respondents were asked if in the past year they had heard or seen ads or educational materials with the following messages:

- Control Your Diabetes. For Life
- Be Smart About Your Heart. Control the ABCs of Diabetes
- Make the Link! Diabetes, Heart Disease, and Stroke
- Don’t Be Blind to Diabetes
- Small Steps. Big Rewards. Prevent Type 2 Diabetes

The oldest NDEP campaign message—Control Your Diabetes. For Life—was recognized by 45% of the population and 59% of people with diabetes. The NDEP campaign Be Smart About Your Heart. Control the ABCs of Diabetes was recognized by 37% of the population, and 48% of people with diabetes. This campaign’s messages were incorporated into the Control Your Diabetes. For Life campaign in 2007. Thirty-three percent (33%) of the population and 54% of those with diabetes report that they have heard the American Diabetes Association’s (ADA) similar campaign message: Make the Link! Diabetes, Heart Disease, and Stroke. Thirty-four percent (34%) of the population and 51% of those with diabetes report that they have heard or seen the message associated with another ADA campaign: Don’t Be Blind to Diabetes. The NDEP’s more recent campaign message, which targets people at risk for diabetes, Small Steps. Big Rewards. Prevent Type 2 Diabetes was recognized by 33% of the population, 32% of people with pre-diabetes, and 45% of people with diabetes.

The percent of the population who reported that they were aware of the Small Steps. Big Rewards. Prevent Type 2 Diabetes campaign increased from 28% in 2006 to 33% in 2008, and among people with diabetes the increase was from 36% to 56%. Awareness of the other campaigns did not show change between 2006 and 2008.

Conclusions

The 2006 and 2008 surveys of the National Diabetes Education Program demonstrate that the public is aware that diabetes is serious – 85 percent of respondents report that they believe diabetes is a serious disease in 2008. This result reflects a significant achievement by the
diabetes community – survey results in 1997, as NDEP was founded, showed that only 8 percent of Americans believed that diabetes was serious.

Equally important, these two surveys show an increasing awareness that diabetes can be prevented or delayed. Two particular results stand out:

- The proportion of the population who report that diabetes can be prevented increased significantly between 2006 and 2008, from 64% to 71%.
- The percent of the population who have heard of the condition called pre-diabetes increased from 45% in 2006 to 51% in 2008. The increase was seen primarily in the younger group 45-64 years (46% in 2006 to 54% in 2008).

The Diabetes Prevention Program study was first reported in 2001. The term “pre-diabetes” was defined and introduced to clinicians and the public at that time. NDEP’s public outreach effort, *Small Steps. Big Rewards. Prevent type 2 Diabetes.* was launched in 2002. Broad public recognition of both concepts has advanced in a relatively short period of time.

*People Understand that Lifestyle Changes are Key*

The public is increasingly aware that being overweight and not getting enough exercise are risk factors for diabetes. The percent of the population who report that being overweight and not getting enough exercise are definite causes of diabetes increased significantly between 2006 and 2008.

- In 2006 55% of the survey population reported that being overweight was a definite cause of diabetes, and this increased to 68% in 2008.
- Thirty five percent (35%) of the population in 2006 reported that not getting enough exercise was a definite cause of diabetes, and in 2008 this increased to 54%.

The 2006 and 2008 surveys show that people are being told by their doctors or health care providers to control or lose weight and to increase their physical activity.

- Forty-three percent (43%) have been told to control or lose weight, and 80% of them report that they are following that advice.
- Forty-nine percent (49%) have been told to increase their physical activity, and, of those, 70% report following that advice.
- People with diabetes, the overweight, people with hypertension and those with high blood cholesterol are more likely to report that a doctor has given them this advice. These numbers did not change between 2006 and 2008.

The majority of the population recognizes that losing weight and increasing physical activity would definitely help lower blood sugar level.
In 2008, 84% reported that losing weight would definitely help lower blood sugar levels, an increase from 78% in 2006.

In 2008, 83% report that engaging in regular physical activity would definitely help, up from 76% in 2006. These increases are not statistically significant.

A critical issue, however, emerged in the 2006 survey and was affirmed in 2008. People with diabetes are not confident in their understanding of their role and actions in good diabetes management. In 2008, less than 50 percent of respondents with diabetes believed they have an “excellent” understanding of the role of:

- Diet
- Low blood sugar
- Use of self-monitoring of blood glucose results
- High blood sugar
- Exercise
- Medications
- Management of complications

In response to these findings NDEP has initiated an effort to identify and share materials and tools that help people with diabetes and people at risk make the behavior changes at the core of better health outcomes. The surveys have demonstrated that people understand diabetes is serious and that they understand the role lifestyle changes, and that they report that their health care professionals are counseling them to make changes. None-the-less they lack an understanding of the role of these key steps, including acting on blood glucose testing results. NDEP emerging effort to support behavior change responds to these findings and will provide information for target audiences on “how” to make changes.

**People Recognize Diabetes Complications**

The 2006 and 2008 surveys also examined the public’s awareness of the serious health problems caused by diabetes. In 2008, 54% of the population 35 years and older identified blindness as a serious health problem followed by amputation (36%), and cardiovascular disease (34%).

- People with diabetes were more likely to identify the health problems associated with diabetes than were those with pre-diabetes, at high risk or all others.
- People 45 years and older with diabetes showed a significant increase in awareness of kidney disease from 24% in 2006 to 35% in 2008, but it remains to be the least known serious complication of diabetes among a list of four that included blindness, cardiovascular disease and amputation.
Understanding Risk of Diabetes

A key finding from the 2006 public survey indicated that family history was a significant contributing factor for people who felt at risk for diabetes. In 2008, family history continued to be recognized as a risk factor across all racial and ethnic groups.

In addition, both surveys reflect a disconnect between people’s perception of what creates risk for diabetes (overweight, etc.) and their personal risk for diabetes. For example, in 2006, 55% of the survey population reported that being overweight was a definite cause of diabetes and 30% of people at high risk for diabetes recognized that their weight placed them at risk. Two years later, the awareness of being overweight as a cause of diabetes increased to 68% but recognition of being overweight as a risk factor among those at risk for diabetes remained nearly unchanged (28%). They recognize that overweight people are at risk but do not seem to see themselves as overweight.

In response to this, NDEP has refined public education messages and outreach to people at risk to encourage them to consider their family history. The survey research, supported by subsequent qualitative research, has led NDEP to messages that better engage the public and invite them to take steps to prevent or delay the onset of diabetes.

The progress made in reaching the public and meeting the objectives of the NDEP since 2006 is illustrated in the results of this survey, which are presented in the body of this report and in the tables in Appendix C and Appendix D.

The results of this survey indicate the effect NDEP is having on the public’s knowledge, attitudes, and practices related to diabetes. They provide valuable information that can be used in program planning to strengthen the NDEP campaigns and messages to support positive behavior change as the NDEP works towards preventing the onset of diabetes, promoting early diagnosis and improving the treatment and outcomes in people with diabetes.
1. Introduction

The U.S. Department of Health and Human Services’ National Diabetes Education Program (NDEP) was launched in 1997 to improve diabetes management and help reduce the morbidity and mortality from diabetes and its complications. The NDEP is co-sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) of the National Institutes of Health (NIH) and the Division of Diabetes Translation of the Centers for Disease Control and Prevention (CDC). The overall aim of the NDEP is to improve the treatment and outcomes for people with diabetes, to promote early diagnosis, and to prevent the onset of diabetes. To reach these goals, the NDEP has formulated the following program objectives:

- To increase awareness of the seriousness of diabetes, its risk factors, and strategies for preventing diabetes and its complications among at-risk groups.
- To improve understanding about diabetes and its control and to promote better self-management behaviors among people with diabetes and their social supporters.
- To improve health care providers’ understanding of diabetes and its control and to promote an integrated approach to care.
- To promote health care policies that improve the quality of and access to diabetes care.
- To reduce disparities in health in racial and ethnic populations disproportionately affected by diabetes.

Four central principles guide the NDEP’s planning, implementation, and evaluation activities. These principles are based on approaches used by other NIH and CDC education programs over the past 30 years.

The first principle is that the program must rest squarely on scientific evidence, ranging from basic science to epidemiologic, clinical, and demonstration studies. In the case of the NDEP, this science base provides the evidence that much of the morbidity and mortality associated with diabetes and its complications can be prevented or delayed by aggressive treatment with diet, physical activity, and pharmacological approaches that help to normalize blood glucose levels, blood pressure, and lipids. Further, research now shows that type 2 diabetes can be prevented or delayed through modest weight loss and regular physical activity.

The second principle is that an effective education program must involve a variety of organizations that operate in partnership to achieve program goals and objectives. A significant component of the NDEP is its Partnership Network of more than 200 public-and private-sector organizations. Program partners disseminate and promote the NDEP’s mass media campaigns and educational messages through national, State, and local communication channels. They also provide guidance on developing appropriate messages and strategies by participating in audience-specific work groups. These work groups meet monthly via telephone conference calls and annually at face-to-face meetings where they develop, implement, and review progress on their respective strategic plans, media messages, educational products, and community channel activities.

The third principle is that public, professional, and patient education must use effective communication strategies to reach selected target audiences. The NDEP offers a wide range of resources to support three major public education campaigns. Each campaign offers partners a wealth of tools—brochures, tip sheets, public service advertising, provider kits, and more—for conducting outreach activities in communities across the country. Consumer materials are carefully tailored for groups at highest risk for diabetes, including older adults, African Americans, American Indians, Alaska Natives, Hispanics and Latinos, Asian Americans and
Pacific Islanders, and women with a history of gestational diabetes. Many of the NDEP’s educational and promotional materials are available in as many as 15 languages.

The fourth principle is that evaluation must be an integral component of program planning and implementation and used as part of an iterative process of re-planning and refining program activities. This principle has inspired a comprehensive approach to NDEP evaluation, encompassing both process and outcome evaluation. The process evaluation monitors program implementation and short-term effects. The resulting findings are used to identify areas in need of mid-course correction or continuation. The outcome evaluation focuses on the mid-term and longer-term intended effects of the NDEP’s efforts, particularly the NDEP’s and partner organizations’ promotion and outreach activities to program target audiences. Progress on these mid- and longer-term outcomes is measured by tracking changes in the public’s awareness, knowledge, attitudes/beliefs, and behaviors regarding diabetes prevention and control.
2. Survey Methodology

From August through November 2008, NDEP conducted a second survey of the public’s knowledge, attitudes, and practices related to diabetes. The first such survey was conducted in 2006, and the survey sample was nationally representative of the U.S. civilian non-institutionalized adult population 45 years of age and older and living in telephone households. The age, 45 and older, was selected in order to obtain a sizable proportion of individuals in the sample who have been diagnosed with diabetes or pre-diabetes or who are at risk for diabetes. Because the rate of Type 2 diabetes is growing fastest among those 35 to 44 years old, this age group was added to the 2008 survey.

The survey reports analyses according to these key target audiences of the NDEP—people with diabetes, people with pre-diabetes, and people who are at risk for diabetes. The interviews were conducted by telephone using computer-assisted telephone interviewing (CATI) techniques. Interviews were conducted in English and Spanish. The targeted sample size was 2,100 interviews, including an oversample of African American and Hispanic groups that resulted in 522 and 791 interviews in each of these groups, respectively.

The sample was based on list-assisted random digit dialing (RDD). A stratified sampling design was used to oversample African American and Hispanic households. The African American stratum was created using telephone exchanges where at least 50% of the households were African American, which increased the probability of reaching African American household to 75% in that stratum. The Hispanic stratum was created in a similar manner. The third stratum included all remaining telephone exchanges. Although African American and Hispanic households were over-sampled, once the household member was contacted any eligible respondent regardless of his or her race or ethnicity was selected.

The sample was designed to provide reliable national estimates of major demographic groups: males and females; whites, African Americans, and Hispanics; and age groups 35-44, 45-64, and 65 years and older. The sample that was drawn from the nine major Census regions and consisted of respondents in all 50 states. The sample strategy was not designed to provide state-specific estimates. The African American and Hispanic Latino sample sizes were not large enough to provide estimates for ethnic differences within the larger groups, for instance Caribbean African Americans and African Immigrants, or Cuban/Cuban Americans, Mexicans, and Central or South Americans.

A short screening questionnaire was used to identify an eligible respondent 35 years of age or older. If more than one adult within the household was eligible for the survey, the one with the “most recent birthday” was selected. Once the eligible respondent was identified, questions were asked to determine if he or she had diabetes or pre-diabetes, or was at high risk of developing diabetes.

- **A person with diabetes** is defined as one who answers “Yes” to the following question: “{Other than during pregnancy}, has a doctor or other health professional ever told you that you have diabetes or sugar diabetes?”

- **A person with pre-diabetes** is defined as one who answers “Yes” to one of the following: “Have you ever been told by a doctor or other health professional that you have: Pre-diabetes? Impaired fasting glucose? Impaired glucose tolerance? Borderline diabetes? Or high blood sugar?”
- A person at high risk for diabetes is defined as one who, according to his or her self-reported height and weight, has a body mass index (BMI) of 25 or greater and/or has been told by a doctor or other health professional that he or she is at high risk for diabetes and/or has ever been told by a health care provider that she had gestational diabetes or high blood sugar during pregnancy.

Appendix A presents more information on the sampling and weighting methodology.

2.1 Data Collection Instruments, Screening, and Interviewing Questionnaire

The questionnaire was designed to answer key questions related to the NDEP campaigns and messages, including:

- Is the general population aware of their diabetes status? What percentage of the population has been screened for diabetes, and what percentage reports that a doctor or other health professional told them their diabetes status, either diagnosed with diabetes or pre-diabetes, or at high risk?

- Is the general public aware that diabetes is a serious, yet controllable condition? Are they aware of the risk factors for diabetes? Are they aware of the complications or health problems caused by diabetes? Are they aware of the steps people with diabetes can take to lower their blood sugar? Are they aware that diabetes can be prevented?

- Are those at high risk for diabetes aware that they are at risk? Are those who know that they are at high risk for diabetes aware of the actions that they can take to reduce their risk? Have they been told by a doctor or other health care professional to take any specific steps to reduce their risk for diabetes? Are they following that advice?

- Is the public—especially people with diabetes and their families—aware of the link between diabetes and cardiovascular disease? Are people with diabetes aware of their hemoglobin A1C, blood pressure, and cholesterol levels? Are they taking action to control their blood pressure and cholesterol levels or reduce their risk for cardiovascular disease in any other way?

- Are the general public, people with diabetes, and people at risk for diabetes aware of the National Diabetes Education Program and its campaign messages, specifically:
  - Control Your Diabetes. For Life
  - Be Smart about your Heart. Control the ABCs of Diabetes
  - Small Steps. Big Rewards. Prevent Type 2 Diabetes

Appendix B presents the questionnaire.

2.2 Survey Response Rates

The survey was conducted over a 4-month period beginning in August 2008; by the end of November, 2,078 interviews had been completed. The completed interviews included 411 people with diagnosed diabetes, 204 people with diagnosed pre-diabetes, and 941 people at high risk for diabetes. The survey response rate for the total sample was 54.4%. The response rate was slightly higher for the African American stratum (57.2%) and slightly lower for the Hispanic stratum (50.6%).
Response rates have been calculated using the definitions prescribed by the American Association for Public Opinion Research (AAPOR). Each phone number in the sample is assigned a single disposition code according to AAPOR’s standard definitions.

2.3 Statistical Methods

Sample weights were applied to the survey results using the methods described in Appendix A. Chi-square statistics were computed for all cross-tabulation tables and are included in the tables in Appendix C and D.

2.4 Limitations

The survey was a national probability survey of persons living in households with a landline telephone, therefore excluding those without telephones and those with only cell phones.

Several limitations should be considered in interpreting the survey results. First, in comparing the results of the 2006 and 2008 survey, some of the data may be mistakenly interpreted to mean that there were large shifts in the public awareness of diabetes. The differences found between the two years were generally not statistically significant because of the small sample sizes that resulted when the data was first weighted to obtain national estimates and then reported by personal characteristics such as race or diabetes status. (Large standard errors and less stable estimates occur when sample sizes are below approximately 50.) Gains in public awareness of diabetes would not be expected to occur within this two-year time frame; rather the 2008 data confirms the earlier results. In addition, the sample size precluded making reliable estimates for ethnic subgroups such as Caribbean African Americans and African Immigrants, or Cuban/Cuban Americans, Mexicans, and Central or South Americans. Finally, the data is self-report so reflects the public’s perceptions rather than actual fact. Despite these limitations, the survey does provide a method for tracking evaluation outcomes and demonstrating trends and thus is of great importance in guiding the strategic plan of the NDEP and its individual workgroups.
3. Results of the 2008 Survey

The 2008 survey results are discussed in this section, for the survey population of those 35 and older, and complete results are presented in tables in Appendix C. Comparison of the results of the 2006 and 2008 surveys are presented separately in Section 4, because the data apply only to those ages 45 and older. Tables of key findings appear in Appendix D. Table numbers in both appendices are the same as those used in 2006 to allow for easier cross-referencing.

Table 1 in Appendix C illustrates the percentage of the population with diabetes, with pre-diabetes, and at high risk for diabetes, according to demographic variables and the presence of other risk factors.

Results are presented (1) for both sexes combined and for men and women separately, according to three age groups (ages 35-44, 45-64, and 65 and older), and four categories of race/ethnicity (Hispanic, African American non-Hispanic, white [non-African American and non-Hispanic, or other], and all others); (2) for four categories of education level; (3) according to diabetes status (diabetes, pre-diabetes, at high risk, and other); (4) according to the presence or absence of other risk factors (overweight, obesity, family history of diabetes, high blood pressure, and high blood cholesterol); and (5) for those who feel at risk compared with those who do not.

A person with diabetes is defined as one who answers “Yes” to the following question: “{Other than during pregnancy}, has a doctor or other health professional ever told you that you have diabetes or sugar diabetes?” Sixteen percent (16%) of the surveyed population have diabetes according to this definition. More than a quarter of people ages 65 and over (26%) report being told they have diabetes compared with 16% of those 45 to 64, and 9% of those 35 to 44 years old. (Table 1, Appendix C)

A person with pre-diabetes is defined as one who answers “Yes” to one of the following: “Have you ever been told by a doctor or other health professional that you have: Pre-diabetes? Impaired fasting glucose? Impaired glucose tolerance? Borderline diabetes? Or high blood sugar?” Eight (8%) of the surveyed population are in this group of persons with pre-diabetes.

A person at high risk for diabetes is defined as one who, according to his or her self-reported height and weight, has a body mass index (BMI) of 25 or greater and/or has been told by a doctor or other health professional that he or she is at high risk for diabetes and/or has ever been told by a health care provider that she had gestational diabetes or high blood sugar during pregnancy. Forty-eight percent (48%) of the surveyed population are in this group at high risk.

3.1 Diabetes Screening

The majority (81%) of the adult population 35 years of age and older report that they have had a blood test for diabetes (Table 2, Appendix C). Virtually all people with diabetes (99%), 92% of people with pre-diabetes, and 78% of people at high risk for diabetes report that they have had a blood test for diabetes, compared with 72% of the rest of the population. Adults with diabetes in their family or with hypertension, and those who are obese are more likely to have had a blood test than those who do not have these risk factors. Ninety-two percent (92%) of those with a family history of diabetes report that they have been tested, compared with 76% of those with no family history; 93% of the obese population and 83% of the overweight population have been tested, compared with 76% of those who are not overweight. Ninety percent (90%) of the
hypertensive population report that they have had a blood test for diabetes, compared with 74% of those without high blood pressure. Ninety-four percent (94%) of those who feel they are at risk for diabetes report having been tested compared with 71% who do not share this concern.

Eighty-one percent of the population has had a blood test for diabetes and 61% of them have had a blood test in the last year. The figure rises to 70% of those with diabetes (Figure 1). Those with pre-diabetes are less likely to have been tested in the last year (57%) as are those not at risk (52%). Sixty-two percent of individuals at high risk report having a blood test within the past year. Those who were obese or had high blood pressure or high cholesterol were more likely to have been tested in the last year. (70% of those who are obese and 68% each of those with high blood pressure and high cholesterol). More African Americans reported having had a blood test within the past year (70%) than Hispanics (64%) or whites (59%).

**Figure 1.** Percentage of the survey population 35 years of age and older who have had a blood test for diabetes within the past year according to diabetes status: people with diabetes (PWD), people with pre-diabetes (Pre-D), people at high risk (High Risk), and all others (Others).
3.2 Awareness of the Term “Pre-diabetes”

Fifty (50%) of the population have heard the term “pre-diabetes,” with men (43%) less likely than women (57%) to recognize the term (Table 4, Appendix C). African Americans (39%) and Hispanics (30%) are less likely to have heard of pre-diabetes than whites (54%). People with a college degree (60%) or some college (57%) are more likely to report that they have heard the term than people with only a high school diploma (45%) or no high school diploma (29%). Sixty-three (63%) of those who feel at risk of diabetes have heard the term compared with 45% of those who do not.

Fifty-two percent (52%) of those with diabetes recognize the term “pre-diabetes” compared with 62% of those who have the condition, just 47% of those at risk, and 51% of all others (Figure 2).

Figure 2. Percentage of adults 35 years of age and older who have heard the term “pre-diabetes” according to diabetes status: people with diabetes (PWD), people with pre-diabetes (Pre-D), people at high risk (High Risk), and all others (Others).

3.3 Hypertension

Forty-one percent (41%) of the survey respondents have been told by a doctor or other health professional that they have hypertension or high blood pressure (Table 5, Appendix C). The prevalence increases with increasing age. This represents 18% of those ages 35-44, 43% of those 45 to 64 years of age, and 64% of those 65 years of age and older. People with diabetes have the highest prevalence of hypertension (65%), compared with 58% of people with pre-diabetes, 39% of people at high risk, and 28% of the rest of the population. Those without a high school diploma were more likely than those with a college degree to have hypertension, 52% and 28% respectively. People with risk factors for diabetes and other cardiovascular diseases report a higher prevalence of hypertension: 47% of the overweight population, 56% of the obese population, and 58% of those who have high blood cholesterol. Among the races, more African Americans reported having high blood pressure (49%), than whites (42%), Hispanics (38%) or others (24%). These differences were not statistically significant however.
3.4 High Blood Cholesterol

Thirty-seven percent (37%) of the population 35 years of age and older have been told by a doctor or other health professional that they have high blood cholesterol (Table 7, Appendix C). The prevalence of high blood cholesterol increases with increasing age. Twenty-five percent (25%) of those ages 35-44, 37% of those 45 to 64 years of age and 49% of those 65 years of age and older report that a doctor or other health professional told them that they have high blood cholesterol. People with diabetes are more likely to report that they have high blood cholesterol than others. Fifty-seven percent (57%) of people with diabetes report having been diagnosed with high blood cholesterol, compared with 46% of people with pre-diabetes, 30% of those at high risk and 33% of the rest of the population. People who have been diagnosed with hypertension (51%) are also more likely to be diagnosed with high blood cholesterol than those who do not have high blood pressure (27%). The prevalence of self reported high blood cholesterol did not differ significantly according to race; 44% of Hispanics, 37% of whites and 25% of African Americans reported that they had been told that they have high blood cholesterol.

3.5 Advice to Control or Lose Weight

Thirty-eight percent (38%) of the population 35 years and older report that a doctor or other health professional has told them to control or lose weight to reduce their risk for disease (Table 9, Appendix C). This differs significantly according to diabetes status with 74% of people with diabetes, 50% of people with pre-diabetes, and 40% of people at high risk, compared with 11% of the rest of the population (Figure 3). Only 23% of those ages 35 to 44 years old had been told to lose weight compared with 44% of those 45-64, and 42% of those 65 and older. Forty-seven percent of the Hispanic population reported being by told by a doctor or other health professional to control or lose weight. African Americans followed slightly behind them with 43%, then 37% of whites and 27% of all others. These differences among the races were not statistically significant.

Figure 3. Percentage of the population 35 years of age and older told by a doctor or other health professional to control or lose weight according to diabetes status: people with diabetes (PWD), people with pre-diabetes (Pre-D), people at high risk (High Risk), and all others (Others).
Seventy-eight percent (78%) of the obese population (BMI 30 or greater) and 51% of the overweight population (BMI 25 or greater) report that they have been given weight-control advice from a health professional, compared with 17% of those not overweight. People with hypertension or high blood cholesterol are also more likely to be told to control or lose weight than others (55% vs. 26% and 50% vs. 32%, respectively), as are those with a family history (46%) compared with those who have none (35%).

Seventy-eight percent (78%) of those who have been told to control or lose weight by a doctor or other health professional report that they are following that advice. There are little or no differences by demographic or risk factors (Table 10, Appendix C).

3.6 Advice to Increase Physical Activity or Exercise

Forty-eight percent (48%) of the population 35 years or older have been told by a doctor or other health professional to increase their physical activity or exercise to reduce their risk for disease (Table 11, Appendix C). This represents 72% of people with diabetes, 58% of people with pre-diabetes, and 49% of people at high risk for diabetes, compared with 31% of the rest of the population (Figure 4). Approximately half of each race population reported being told to increase physical activity or exercise, with 49% whites, 48% African Americans, 47% Hispanics, and 39% of all others.

Figure 4. Percentage of the population 35 years of age and older told by a doctor or other health professional to increase physical activity or exercise according to diabetes status: people with diabetes (PWD), people with pre-diabetes (Pre-D), people at high risk (High Risk), and all others (Others).

Women are more like than men to report being told to increase their physical activity, 54% compared with 42%. Sixty-eight percent (68%) of those who are obese have been told by a health professional to increase their physical activity, compared with 56% of the overweight population and 35% of those not overweight. Persons with hypertension or high blood cholesterol or who feel at risk also are more likely to have been given this advice than those without these conditions (61% of those with hypertension vs. 39%; 63% of those with high cholesterol vs. 40%; 60% of those who feel at risk vs. 38%).
Seventy percent (70%) of the population who have been advised by a health professional to increase their physical activity and 79% of persons with diabetes report that they are following that advice (Table 12, Appendix C). There are little or no differences in the percentages who report that they are following the physical activity advice by other demographic or risk factor characteristics. And likewise among the races, 70% of whites, 71% of African Americans, 66% of Hispanics and 77% of others report following the advice to increase physical activity or exercise.

3.7 Advice to Reduce Fat and Calories in the Diet

Forty-one percent (41%) of the population report that they have been told by a doctor or other health professional to reduce the fat and calories in their diet (Table 13, Appendix C). Seventy-four percent (74%) of people with diabetes and 53% of people with pre-diabetes report that they have received this advice, compared with 38% of the population at high risk for diabetes and 23% of the rest of the population (Figure 5).

Figure 5. Percentage of the population 35 years of age and older told by a doctor or other health professional to reduce fat or calories according to diabetes status: people with diabetes (PWD), people with pre-diabetes (Pre-D), people at high risk (High Risk), and all others (Others).

Those who are obese (65%) and those who are overweight (48%) were more likely to receive this advice those who are not overweight (28%). Fifty-three percent (53%) of people without a high school diploma and 46% of high school graduates were advised to cut fat and calories, compared with those with some college (35%) and college graduates (34%). People with hypertension or high blood cholesterol were more likely to have been given this advice than those without these conditions (55% vs. 31% of those with and without hypertension and 59% and 30% of those with or without high blood cholesterol). Those with a family history of diabetes or who felt at risk for developing diabetes (49% and 47%, respectively) reported being told to cut fat and calories more often than those not in these categories. Fifty five percent of Hispanics, 45% of African Americans and 38% of whites and 33% of all others reported being
told to reduce fat and calories in their diet. These differences according to race and ethnicity were not statistically significant.

Eighty-nine percent (89%) of the population who have been told by a health professional to reduce the fat and calories in their diet report that they were following that advice (Table 14, Appendix C). Those with hypertension were less likely than those without this condition to report following this advice, 84% vs. 96%. Among the race groups who had been told to reduce fat and calories, 95% of the Hispanics, 93% of African Americans, 88% of whites and 84% of others report following that advice. These differences were not significantly different.

3.8 Advice to Take a Daily Aspirin

Thirty-two percent (32%) of the population have been told by a doctor or other health professional to take daily aspirin to reduce their risk for disease (Table 15, Appendix C). The population over 65 years of age (60%) is more likely to receive this advice than those ages 45-64 (32%) or 35-44 (11%). People with risk factors for cardiovascular disease are more likely to receive the advice to take a daily aspirin than those without risk factors. Among people with diabetes, 64% have been told to take daily aspirin compared with 40% of people with pre-diabetes, 26% of people at high risk for diabetes, and 23% of the rest of the population (Figure 6). A greater percentage of those with high blood pressure are given this advice than those without a diagnosis of high blood pressure (51% vs. 19%), and a greater percentage of those with a diagnosis of high blood cholesterol are given this advice than those without this diagnosis (50% vs. 22%). More people who are obese (41%) receive this advice than those who are overweight (36%) or not overweight (26%). Approximately one-third of each race/ethnic group reported being told to take daily aspirin, with whites being told slightly more often (35%) than African Americans (29%), Hispanics (29%) or others (32%).

Figure 6. Percentage of the population 35 years of age and older told by a doctor or other health professional to take daily aspirin according to risk factors for cardiovascular complications: people with diabetes (PWD), high blood pressure (HBP), high blood cholesterol (HBC)
Eighty-five percent (85%) of those who are given advice by a health professional to take a daily aspirin to reduce their risk for disease report that they are following this advice (Table 16, Appendix C). Those with a family history of diabetes are more likely to report following this advice than those without such a history (93% vs. 82%). Among the races, majority of Hispanics (86%), whites (86%) and others (87%) reported following this advice to take daily aspirin, and slightly fewer African Americans (73%) reported following this advice. Differences by race are not statistically significant.

3.9 Awareness of One’s Own Risk for Diabetes

Awareness of one’s own risk for diabetes was assessed by asking the following questions:

“Do you feel you could be at risk for diabetes?”

“Why do you think you are at risk for diabetes?”

Among the population 35 years of age and older who have not been diagnosed with diabetes, 26% report that they feel at risk for diabetes (Table 19, Appendix C).

**Figure 7.** Percentage of the population 35 years of age and older who feel at risk for diabetes according to diabetes status: people with pre-diabetes (Pre-D), people at high risk (High Risk), and all others (Others).

Sixty-four percent (64%) of people with pre-diabetes report that they feel at risk for diabetes, compared with 29% of people who are at high risk and 12% of the rest of the population (Figure 7). Approximately one-fourth of each race population feels at risk for diabetes, with Hispanics feeling slight more at risk (31%) than whites (26%), African Americans (23%), or others (24%).

Fifty-two percent (52%) of those who have a family history of the disease but have not been diagnosed with diabetes report that they feel at risk for diabetes. Persons who are obese (48%) or overweight (31%) are more likely than those who are not overweight (18%) to report that they feel at risk for diabetes.
Reasons given for feeling at risk for diabetes include having a family history of diabetes, being overweight, and having poor dietary habits. Sixty-four percent (64%) of those who feel at risk for diabetes cite family history as the reason (Figure 8). This represents 89% of people who actually have a family history of diabetes (Table 20, Appendix C). More African Americans (90%) feel at risk due to family history than Hispanics (77%), whites (59%) and others (61%).

Being overweight is given as a reason for feeling at risk for diabetes among 21% of those who feel at risk and among 26% of the overweight and 43% of the obese population who feel at risk, while only 8% of those not overweight feel at risk for this reason (Table 21, Appendix C). Twelve percent (12%) of the population felt at risk because of poor dietary habits (Table 22, Appendix C). Approximately one-fourth of African Americans (25%) and whites (24%) report feeling at risk due to being overweight, while only 9% of Hispanics report this as a risk factor, and 1% of others.

Of those who reported feeling at risk for diabetes, 93% felt they could do something to reduce their risk for developing the disease.

### 3.10 Awareness of Risk Factors for Diabetes

Awareness of the risk factors for diabetes was addressed in the survey in two ways. Survey respondents were told:

“I’d like to read you a list of some things that other people we have interviewed have said are possible causes of diabetes. For each one, would you please tell me if you feel it is a definite cause of diabetes, a possible cause, or not a cause? What about: Race or ethnic group? Being overweight? Heredity? Eating too much sugar? Eating too much salt? Eating fatty foods? Not getting enough exercise? Old age?”

Being overweight, heredity, and not getting enough exercise are three causes of diabetes that are well known among the population of adults 35 years of age and older. Ninety-six percent (96%) of the population report that they feel that overweight is a cause of diabetes (Table 23, Appendix C).
Sixty-eight percent (68%) report that overweight is a definite cause and 28% feel it is a possible cause. Ninety-three percent (93%) of the population report that they feel that heredity is a cause of diabetes; 54% feel it is a definite cause and 39% a possible cause (Table 24, Appendix C). Ninety-one percent (91%) of the population report that they feel that not getting enough exercise is a cause of diabetes; 51% report it is a definite cause and 40% report that it is a possible cause (Table 25, Appendix C).

Too much sugar, fatty foods, and too much salt in the diet are identified by a large proportion of the population as at least a possible cause of diabetes. Approximately three-quarters of the population report that they feel that eating too much sugar and eating fatty foods are causes of diabetes. Eating too much sugar is reported by 38% of the population as a possible cause and by 39% as a definite cause (Table 26, Appendix C). Eating fatty foods is reported by 46% of the population as a possible cause and by an additional 30% as a definite cause (Table 27, Appendix C). Eating too much salt is reported by 42% of the population as a cause of diabetes: 30% as a possible cause and 12% as a definite cause (Table 28, Appendix C).

Risk factors such as race and ethnicity and older age are not recognized as causes of diabetes. Thirty-nine percent (39%) of the population report that they feel belonging to a particular race or ethnic group is definitely not a cause of diabetes (Table 29, Appendix C), while (37%) of the population feel that old age is not a cause of diabetes (Table 30, Appendix C).

Figure 9. Percentage of the population 35 years of age and older who have heard being overweight, heredity, not getting enough exercise, race/ethnicity or old age can cause diabetes, by race/ethnicity

Consistent with the overall population, when shown by race/ethnicity, people have heard or believe that being overweight, heredity and not getting enough exercise are causes of diabetes, with race/ethnicity and old age lesser known as causes (Figure 9).

### 3.11 Awareness of the Seriousness of Diabetes

Asked how serious they consider diabetes to be, 85% of the population report that diabetes is very serious (Table 31, Appendix C). This did not vary by diabetes status. However, women were significantly more likely than men to rate diabetes as very serious (91% vs. 78%). People who had a family history of diabetes also were more likely to rate it as very serious (92% of those with a family history, 82% of those without). There were no significant differences in the percentage who consider diabetes to be serious according to race or ethnicity with the majority of
Hispanics (88%), African Americans (88%) and whites (85%) consider diabetes to be very serious.

### 3.12 Awareness of the Complications of Diabetes

The survey addressed the public’s awareness of the complications of diabetes in two ways. In one open-ended question, respondents were asked:

“To the best of your knowledge, what are the most serious health problems caused by diabetes?”

![Figure 10. Percentage of the adult population or percentage of people with diabetes 35 years of age and older who report that blindness, cardiovascular disease, amputation, and kidney disease are the most serious health problems caused by diabetes.](image)

Blindness was the most frequent response to the open-ended question about serious health problems caused by diabetes, chosen by 54% of all surveyed and 63% of those with diabetes. The percentage of persons who cited blindness increased with increased education from 38% of those with no high school diploma to 60% of those with a college degree. People with a family history of diabetes (62%) are more likely to identify blindness as a serious health problem caused by diabetes than those with no family history (50%), as are those who are obese (65% vs. 49%). Those who feel at risk for diabetes (68%) are more likely to identify blindness as a serious health problem caused by diabetes than those who do not feel at risk (46%) (Table 33, Appendix C). Slightly more Hispanics (60%) believed blindness to be the most serious health problem caused by diabetes than whites (55%), then African Americans (42%), and all others (46%). These differences were not statistically significant.

Thirty-six percent (36%) of the surveyed population and 37% of those with diabetes identify amputation as one of the most serious health problems caused by diabetes. The percentage of persons who cited amputation generally increased with increased education, from 24% of those with no high school diploma to 45% of those with some college. Only 31% of those with a college degree thought amputation was the most serious problem caused by diabetes (Table 35, Appendix C). Forty-seven percent (47%) of people who feel at risk for diabetes thought that amputation was one of the most serious health problems caused by diabetes, compared with
those who do not feel at risk (31%). The differences among race and ethnic groups are not significant where 38% of whites, 30% of African Americans, 26% of Hispanics or 29% of all others identified amputation as a serious health problem associated with diabetes.

Thirty-four percent (34%) of the population identified cardiovascular disease as one of the most serious health problems caused by diabetes. This included those who reported stroke, heart attack, heart condition, and hypertension as well as cardiovascular disease as serious health problems caused by diabetes (Table 34, Appendix C). People with diabetes (50%) were more likely to identify cardiovascular disease as a health problem caused by diabetes than were people with pre-diabetes (38%) or at high risk (32%). There were no significant difference among the race/ethnic groups who reported cardiovascular disease as a health complication of diabetes; with 40% of Hispanics, 34% of whites, 30% of African Americans, and 27% of all others.

Kidney disease was identified as a serious health problem caused by diabetes by 17% of the total population surveyed but by 40% of people with diabetes (versus 10% of those with pre-diabetes, 13% of those at risk, and 12% of others). This represents 21% of women and 12% of men. Those who are obese or have a family history of diabetes are more likely than others to identify kidney disease as a serious problem caused by diabetes (Table 36, Appendix C). Those who are obese (26% vs. 14%) and those with a family history (24% vs. 14%) also are more likely to cite kidney disease. There were no statistically significant differences among the race/ethnic groups with 18% of whites identify kidney disease as a serious complication of diabetes, 16% of Hispanics, 15% of African Americans, and 13% of all others.

### 3.13 Awareness of the Steps a Person with Diabetes Can Take to Lower His or Her Blood Sugar Level

The public’s awareness of steps a person with diabetes can take to lower his or her blood sugar was assessed by asking the question:

“I’d like to read you a list of possible treatments for diabetes that other people we have interviewed have mentioned. For each one, would you please tell me if you feel that as a treatment it would definitely help lower one’s blood sugar level, might help lower one’s blood sugar level, or would not help lower one’s blood sugar level? Taking medication? Low-salt diet? Low-fat diet? Losing weight? Engaging in regular physical activity?”
As shown in Appendix C Table 43, 98% of the population reports that losing weight would help lower one’s blood sugar, including 84% who say that losing weight would definitely help and 14% who say that it might help (Figure 11). There is no difference in the percentage of the population who are overweight or not overweight who feel that losing weight would help lower one’s blood sugar level; however, a greater percentage of the obese population (90%) report that losing weight would definitely help lower one’s blood sugar than the non-obese population (82%). Eighty-one percent (81%) of people with pre-diabetes report a loss in weight would definitely help lower their blood sugar level, and 85% of those at risk feel this way. Among people with diabetes, 88% feel losing weight would definitely help. Ninety percent (90%) of those who felt at risk for diabetes thought weight loss would definitely help lower blood sugar versus those who did not feel at risk (81%).

Ninety-eight percent (98%) of the population believe that engaging in regular physical activity would help lower one’s blood sugar level; 83% say it would definitely help and 15% say it might help (Table 44, Appendix C). A greater percentage (90%) of people with diabetes say exercise would definitely help lower blood sugar. This is compared to 86% of those with pre-diabetes, 80% of those at high risk for diabetes and 82% of all others.

Ninety-seven percent (97%) of the population report that taking medication would help lower one’s blood sugar level, including 79% who say it would definitely help and 19% who say it might help (Table 45, Appendix C). Among people with diabetes, 82% say medication would definitely help lower blood sugar.

Ninety percent (90%) of the population report that following a low-fat diet would help lower one’s blood sugar level, including 56% who say it would definitely help and 34% who say it might help (Table 46, Appendix C). Three-fourths (75%) of Hispanics, 64% of African Americans, and 52% of whites who responded felt a low-fat diet would definitely help. Among people with diabetes, 67% believe a low fat diet would definitely help lower their blood sugar level, 50% of people with pre-diabetes believe it would definitely help, and 56% of people at risk for diabetes believe this.
Seventy-four percent (74%) of the population report that following a low-salt diet would help lower one’s blood sugar level, with 34% who say it would definitely help and 41% who say it might help (Table 47, Appendix C). Thirty-six percent (36%) of people with diabetes thought a low salt diet definitely would help. Hispanics were more likely to say a low salt diet would definitely help (64%) than African-Americans (47%) or whites (27%). As educational level rose, there was a drop in the percentage who said a low-salt diet would definitely help, from 51% of those with no high diploma to 25% of those with a college degree.

3.14 Awareness of the Steps a Person with Diabetes Can Take to Reduce the Chance of Having a Heart Attack

To assess the public’s awareness of steps a person with diabetes can take to reduce the chance of having a heart attack or stroke, survey respondents were asked:

“To the best of your knowledge, what are the most important things a person with diabetes can do to reduce the chance of having a heart attack or stroke?”

Figure 12. Percentage of the population 35 years of age and older who are aware of the steps a person with diabetes can take to reduce the chance of having a heart attack

In response to this question, 65% of the surveyed population reported eating a better or healthier diet is the most important thing a person with diabetes can do to reduce the chance of having a heart attack or stroke (Figure 12). Those with a family history of diabetes were more likely to select diet than those with no family history (76% vs. 60%) as were those who felt at risk (also 75% vs. 60%). (Table 48, Appendix C). More African Americans reported eating a healthier diet as a way to reduce risk for stroke (71%) than whites (65%), Hispanics (63%), or others (56%). In addition, 12% specifically said that the most important thing a person with diabetes could do is diet to lose weight (Table 49, Appendix C). Since this question was asked in an open-ended fashion, it is difficult to know whether those who said eating a better or healthier diet also meant losing weight.

Fifty-two percent (52%) of the population (44% of men and 60% of women) said that a person with diabetes can reduce the risk of having a heart attack or stroke by increasing physical activity or exercise (Table 50, Appendix C). The percentage mentioning exercise rose with education from 40% of those with no high school diploma to 65% of those with a college degree. People
with a family history and those who felt at risk also were more likely to mention exercise (61% vs. 49%, and 60% vs. 48%, respectively. Twenty-four percent (24%) of the population reported that checking blood sugar is the most important thing a person with diabetes can do to reduce the risk of having a heart attack or stroke (Table 51, Appendix C). Approximately half of Hispanics (54%), African Americans (54%) and whites (53%) said increasing physical activity would reduce the risk of heart attack or stroke, while 36% of those categorized as other believed this.

3.15 Awareness of the NDEP Campaign Messages

To assess the public’s awareness of the NDEP campaign messages, survey respondents were asked:

“In the past year, have you heard or seen any ads or education materials with the following messages about diabetes? Control Your Diabetes. For Life? Be Smart About Your Heart. Control the ABCs of Diabetes? Make the Link! Diabetes, Heart Disease and Stroke? Don’t Be Blind to Diabetes? Small Steps. Big Rewards. Prevent Type 2 Diabetes?”

Figure 13. Percentages of people with diabetes 35 years of age and older who have heard the NDEP and ADA campaigns in the past year, compared with the total population.

The Control Your Diabetes. For Life campaign is the oldest of all the NDEP campaigns, and the target of the campaign’s messages and materials is people with diabetes and their families. Forty-five (45%) of the population report that they have heard or seen this message in the past year. Fifty-nine percent (59%) of people with diabetes report being aware of the message, compared with 39% of those with pre-diabetes, 41% of people at high risk, and 44% of the rest of the population (Table 52, Appendix C).

The target of the Be Smart About Your Heart. Control the ABCs of Diabetes campaign is also people with diabetes and their families. Thirty-seven percent (37%) of the population report that they have heard or seen the message in the past year (Table 53, Appendix C). This represents 48% of people with diabetes, 37% with pre-diabetes, 36% of those at high risk, and 30% of the rest of the population.

Thirty-three (33%) of the population report that they have heard or seen the most recent NDEP campaign, Small Steps. Big Rewards. Prevent type 2 Diabetes (Table 54, Appendix C), which
targets people at risk for diabetes. People with diabetes (45%) are somewhat more likely to report having heard the campaign than people with pre-diabetes (32%), people at high risk (30%) and the rest of the population (31%). Those with a family history of diabetes are more likely to report having heard of the campaign (42% vs. 28% of those without a family history).

Thirty-three percent (33%) of the population report that they have heard or seen the ADA campaign message Make the Link! Diabetes, Heart Disease, and Stroke (Table 55, Appendix C). This represents 54% of people with diabetes, 28% of people with pre-diabetes, 30% of people at high risk, and 28% of all others. Those who were obese were more likely to report hearing about the campaign (43% vs. 29% of those not obese). A greater proportion of Hispanics reported being aware of the campaign message (56%) than did African Americans (44%) or whites (28%). Those with less education were more likely to recognize the campaign (49% of those without a high school diploma vs. 22% of college graduates).

Thirty-four percent (34%) of the population report that they have heard or seen the message Don’t Be Blind to Diabetes, another ADA campaign (Table 56, Appendix C). This represents 51% of people with diabetes, 38% of people with pre-diabetes, 30% of people at high risk, and 28% of all others.

3.16 People with Diabetes’ Self-Management Practices

Eighty-nine percent (89%) of people with diabetes report that they check their own blood sugar; 66% report that on days when they check their blood sugar, they check it two or more times (Tables 57 and 58, Appendix C). Just as many men check their own blood sugar (89%) as women (90%). Approximately ninety-percent (90%) of people across the age groups check their own blood sugar; age 35-44 (89%), 45-64% (90%), 65 and older (89%). Slightly more African Americans report checking their own blood sugar (94%) than whites (92%), with 80% of Hispanics checking and 72% of others (Figure 13). These differences by race are not statistically significant.

Figure 14. Percentage of the population 35 years of age and older who check their own blood sugar, by race
Sixty-six percent (66%) of people with diabetes who check their own blood sugar at least once a day keep a record of their blood sugar results (Table 59, Appendix C).

Fifty-eight percent (58%) of people with diabetes report that they have received diabetes education (Table 60, Appendix C). More people aged 35-44 (63%) and 45-64 (67%) reported that they had received diabetes education than people aged 65 and older (47%). More African Americans reported having diabetes education (69%) than white (59%), Hispanics (52%) or others (37%). These differences are not statistically significant.

Figure 15. Percentage of the population 35 years of age and older who have received diabetes education, by race

Eighty-four percent (84%) of people with diabetes take medication to lower their blood sugar: 13% use insulin alone, 54% take diabetic pills alone, and 17% both use insulin and take diabetic pills (Table 61, Appendix C).

3.17 Knowledge of A1C Among People with Diabetes

Sixty-three percent (63%) of people with diabetes report that they have heard the term “glycosylated hemoglobin or hemoglobin A1C” (Table 62, Appendix C). The proportion of people with diabetes who know about A1C increases with education from 38% of those with no high school diploma to 90% of college graduates. More men (70%) than women (57%) have heard the term. Almost half as many people age 65 and older (49%) have heard the term “glycosylated hemoglobin or hemoglobin A1C” compared with those age 35-44 years (90%), while 65% of those age 45-64 report having heard the term. More whites report being familiar with the term (71%) than African Americans (63%), Hispanics (36%), or others (26%).
Given the definition of A1C, 71% of people with diabetes report that they have had their A1C level tested one or more times in the past year (Table 63, Appendix C). Fifty-two percent (53%) of people with diabetes reported their last A1C level was between 1 and 18, and the remainder either reported a number outside this range or did not know their last level (Table 64, Appendix C).

When asked what their doctor or other health professional says their A1C level should be, people with diabetes either do not know (38%) or say that their health care provider did not specify a goal (25%) (Table 65, Appendix C). Thirty-four percent (34%) of people with diabetes say that their health care provider specified that their A1C level should be 7 or less.

3.18 People with Diabetes Rate Their Understanding of Diabetes Management

Figure 17. Understanding of diabetes management. People with diabetes 35 years of age and older
Using a scale from 1 to 5, where 1 is poor, 3 is good, and 5 is excellent, people with diabetes were asked to rate their understanding of the following: the role of diet in blood sugar control, the role of exercise in diabetes care, the medications that they take, how to use the results of blood sugar monitoring, the prevention and treatment of high blood sugar, the prevention and treatment of low blood sugar, the prevention of long-term complications of diabetes, proper foot care, and the benefits of improving blood sugar control (Tables 66-74, Appendix C).

Approximately half of the people with diabetes rated their understanding of the medications they are taking (49%), the role of blood sugar monitoring results (47%), foot care (49%), and the benefits of improving blood sugar control (48%) as excellent. Their understanding of the prevention of high blood sugar and complications was rated excellent by around 42% of the people with diabetes. The role of diet and the prevention and treatment of low blood sugar were rated the lowest; only 35% and 33% rated their understanding in these areas as excellent. (See Figure 9).

3.19 Awareness of Media Stories About Diabetes

Fifteen percent (15%) of the population report that they follow news stories about diabetes very closely, and an additional 39% follow news stories about diabetes somewhat closely (Table 75, Appendix C). Hispanics (25%) and African Americans (25%) are more likely than whites (12%) to report that they follow news stories about diabetes very closely. People with diabetes (31%) are more likely to follow news stories about diabetes very closely than people with pre-diabetes or at high risk for diabetes (both 12%) or others (10%). People with a family history (17%) are more likely to follow the news about diabetes very closely than those with no family history (13%). Those who feel at risk for diabetes are twice as likely to follow the news about it as those who do not feel at risk (19% vs. 9%).

40% of Adults currently have pre-diabetes

Thirty-four percent (34%) of the population and 47% of those with diabetes have heard that 40% of adults have pre-diabetes (Table 76, Appendix C).

One-third of the persons with diabetes do not know they have it

Fifty-five percent (55%) of the population have heard that about one-third of persons with diabetes in the United States do not know they have diabetes (Table 77, Appendix C). This represents 71% of people with diabetes, 68% of people with pre-diabetes, 53% of people at high risk for diabetes, and 47% of people who are not at high risk for diabetes. Sixty-five percent
(65%) of people with a family history have heard the message, compared with 52% of people with no family history. Sixty-five percent (65%) of people who feel at risk for diabetes have heard the message, while 48% of those who do not feel at risk for diabetes have heard it. People with hypertension and high blood cholesterol were more likely to report being aware of the message.

**Diabetes can be Prevented**

Seventy-three percent (73%) of the population and 75% of those with diabetes report that they have heard that diabetes can be prevented (Table 78, Appendix C). Awareness does not differ significantly by demographic categories or risk factors.
4. Comparison of Key Findings 2006-2008

In this section appear comparisons of key findings from the 2006 and 2008 surveys. Since the 2006 survey was limited to those 45 years and older, comparisons are limited to those in the same age categories in 2008. Tables showing the variables discussed are found in Appendix D.

4.1 Diabetes Status and Testing

The percentages of people ages 45 and older who have diabetes, pre-diabetes or are at risk for diabetes has not changed appreciably since 2006 (Table 1, Appendix D, and Table 4-1).

<table>
<thead>
<tr>
<th>Table 4-1. Diabetes Status of Population Ages 45 and Older (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Has diabetes</td>
</tr>
<tr>
<td>Has pre-diabetes</td>
</tr>
<tr>
<td>At high risk for diabetes</td>
</tr>
<tr>
<td>All others</td>
</tr>
</tbody>
</table>

There was an increase in the percent of the population with no high school diploma that were diagnosed with diabetes from 24% in 2006 to 36% in 2008. There was an increase in the percentage of persons diagnosed with diabetes among the obese population from 28% in 2006 to 38% in 2008.

The percentage of the population 45 and older who had had a blood test for diabetes remained around 83% (Table 2, Appendix D).

For those who had been tested, the length of time since their last test remained largely unchanged between the two surveys (Table 3, Appendix D and Table 4-2).

<table>
<thead>
<tr>
<th>Table 4-2. Length of Time Since Last Blood Test for Diabetes (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>&lt;1 year</td>
</tr>
<tr>
<td>1 to 5 years</td>
</tr>
<tr>
<td>&gt; 5 years or DK/RF</td>
</tr>
</tbody>
</table>

The percentages of those with diabetes or at high risk for it who had been tested in the last year remained about the same from 2006 to 2008 (69% in 2006 for persons with diabetes vs. 68% in 2008; 64% in both years for those at high risk.)
4.2 Knowledge of Diabetes and Pre-diabetes

Fifty-one percent (51%) of the population had heard of pre-diabetes in 2008 compared with 45% in 2006 (Table 4, Appendix D). This increase was statistically significant. The increase was seen primarily in the younger age group (45-64 years) where 54% of this group had heard of pre-diabetes in 2008 compared to 46% in 2006. The proportion of those 65 years and older who had heard of pre-diabetes remain unchanged.

The proportion of those with pre-diabetes who recognized the term remained the same at around 57%, while the percentage of those with diabetes who knew the term rose from 37% to 51%.

Although African Americans and Hispanics were less likely than the total population to have heard the term pre-diabetes; there was an increase in the percentage of African Americans who have heard the term 31% in 2006 to 41% in 2008 but this increase was not statistically significant.

Figure 18. Percentage of people 45 years of age and older who have heard of pre-diabetes.

Figure 19. Percentage of people 45 years of age and older who have heard of pre-diabetes.

Awareness of the fact that 40% of the U.S. population has pre-diabetes has remained the same, at about 36% of the survey population (Table 76, Appendix D).
The proportion who reported knowing that diabetes can be prevented grew from 64% in 2006 to 71% in 2008 (Table 78, Appendix D). Among those with diabetes, the percentage rose from 61% in 2006 to 74% in 2008. These increases are statistically significant.

Figure 20. Percentage of people with diabetes 45 years of age and older who knew diabetes could be prevented, compared with the total population.

4.3 Controlling Risk Factors for Diabetes

Approximately the same percentages of people in both surveys reported being advised to lose weight by a health professional (45% in 2006 and 43% in 2006) (Table 9, Appendix D). The percentage of people who reported following the advice to lose weight remained around 80% (81% in 2006, 80% in 2008) (Table 10, Appendix D).

Roughly half of the surveyed populations in both years reported that a doctor or other health professional had told them to increase their physical activity or exercise (52% in 2006, 49% in 2008) (Table 11, Appendix D, and Table 4-3). Of those told to increase their physical activity, almost three-quarters reported doing so (74% in 2006 vs. 70% in 2008) (Table 12, Appendix D.)

There were no significant differences in the percent that had been told to increase their physical activity or the percent following that advice between 2006 and 2008 among any of the groups.

| Table 4-3. Percentages of Those Told to Increase Exercise by Selected Categories |
|-----------------|------|------|
|                 | 2006 | 2008 |
| Overall         | 52   | 49   |
| Hispanics       | 68   | 52   |
| Diabetes        | 80   | 72   |
| Pre-diabetes    | 67   | 56   |
| Obese           | 76   | 67   |
Table 4-4. Percentages Following Advice to Increase Exercise by Diabetes Status

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has diabetes</td>
<td>76</td>
<td>77</td>
</tr>
<tr>
<td>Has pre-diabetes</td>
<td>71</td>
<td>79</td>
</tr>
<tr>
<td>At high risk for diabetes</td>
<td>74</td>
<td>67</td>
</tr>
<tr>
<td>All others</td>
<td>71</td>
<td>61</td>
</tr>
</tbody>
</table>

Around 43% of the population in both 2006 and 2008 said they were told by a health professional to reduce the fat and calories in their diets (Table 13, Appendix D). Eighty-eight percent (88%) in both years reported following this advice (Table 14, Appendix D).

The percentage of those who had been advised to take an aspirin every day to prevent disease remained virtually the same (39% in 2006 compared with 40% in 2008) (Table 15, Appendix D).

The percentage of those following the advice to take a daily aspirin rose from 81% in 2006 to 87% in 2008 (Table 16, Appendix D, and Table 4-5).

Table 4-5. Changes in Percentages of Those Following Advice to Take Daily Aspirin by Selected Categories

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanics</td>
<td>77</td>
<td>87</td>
</tr>
<tr>
<td>Some college</td>
<td>76</td>
<td>89</td>
</tr>
<tr>
<td>No HBP</td>
<td>77</td>
<td>91</td>
</tr>
</tbody>
</table>

All categories of diabetes status reported an increase in compliance, the largest being among those with some college, from 76% to 89%.

4.4 Awareness of Being at Risk for Diabetes

One-fourth of the population ages 45 and older said they felt at risk for diabetes in both 2006 and 2008 (Table 19, Appendix D). Approximately 25% of those actually at risk said they felt at risk in both 2006 and 2008, whereas the proportion of those with pre-diabetes who said they felt at risk rose from 59% in 2006 to 64% in 2008. The reasons people who feel at risk for diabetes remains the same in both survey years. In both 2006 and 2008 approximately 60% of those who feel at risk for diabetes said they felt that way because of a family history of diabetes (60% in 2006; 63% in 2008) (Table 20, Appendix D) and 22% of those who feel at risk did so because of being overweight (Table 21, Appendix D).
4.5 Awareness of Causes of Diabetes

The percentage of those who reported that being overweight was a definite cause of diabetes rose from 55% in 2006 to 68% in 2008 (Table 23, Appendix D). This increase was significant among the total population surveyed, both men and women, in both age groups, in three of the four categories of education, among the overweight and non-overweight and among those at high risk for diabetes (Figure 20). There was an increase in the percent who reported that being overweight is a definite cause of diabetes among Hispanics (58% to 64%) and African Americans (48% to 56%). These increases, however were not statistically significant.

The percentage of the population who reported that not getting enough exercise can be a definite cause of diabetes showed a similar pattern as the percent who reported that being overweight is a definite cause of diabetes. The percent increased from 35% in 2006 to 54% in 2008 and again this increase was significant among men and women, in both age groups, three of the four education categories, among the overweight as well as those who are not overweight (Figure 21). There was an increase in the percent who reported that not getting enough exercise is a definite cause of diabetes among Hispanics (51% to 58%) and African Americans (36% to 39%) but these increases were not statistically significant.
The percent that report that older age can be a definite cause of diabetes increased from 11% in 2006 to 23% in 2008.

There was no significant increase in the percent who reported that being a member of a particular racial or ethnic group is a definite cause of diabetes with 12% in 2006 and 16% in 2008.
Figure 25. Percentage of people 45 years of age and older who thought being overweight was a definite cause of diabetes

4.6 Awareness of Seriousness of Diabetes

Nearly 9 in 10 of those surveyed considered diabetes to be a very serious condition (89% in 2006; 85% in 2008) (Table 31, Appendix D).

The survey population named blindness most often in both 2006 and 2008 as a serious problem caused by diabetes. The percent of the population who reported blindness decreased from 64% in 2006 to 54% in 2008. Amputation and cardiovascular problems were the conditions named next often. Thirty-five percent of people with diabetes cite kidney disease as a serious health problem caused by diabetes compared to 15% of people at risk for diabetes. The percent of people with diabetes who cite kidney disease as a serious health problem caused by diabetes increased significantly from 24% in 2006 to 35% in 2008.

Table 4-6a. Percentages of Survey Population Citing Serious Problems Caused by Diabetes

<table>
<thead>
<tr>
<th>Condition</th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blindness</td>
<td>64</td>
<td>54</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>39</td>
<td>34</td>
</tr>
<tr>
<td>Amputation</td>
<td>39</td>
<td>35</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>16</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 4-6b. Percentages of Those with Diabetes Citing Serious Problems Caused by Diabetes

<table>
<thead>
<tr>
<th>Condition</th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blindness</td>
<td>69</td>
<td>62</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>Amputation</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>24</td>
<td>35</td>
</tr>
</tbody>
</table>
4.7 Knowledge of Actions to Lower Blood Sugar Level

Asked whether certain actions would help lower blood sugar, survey respondents in 2006 and 2008 responded that they would “definitely help” in the following proportions:

Figure 26. Percentage of population 45 years of age and older selecting actions that would definitely help lower blood sugar

![Graph showing percentages of population selecting actions to lower blood sugar.]

Figure 27. Percentage of people with diabetes 45 years of age and older selecting actions that would definitely help lower blood sugar

![Graph showing percentages of people with diabetes selecting actions to lower blood sugar.]

Changes in percentages between the two surveys primarily involved shifts in the numbers of those saying an action would “definitely help” versus “might help” (Tables 43-47, Appendix D, and Tables 4-7a and 4-7b).

4.8. Knowledge of Actions to Reduce Risk of Heart Attack or Stroke

Asked the most important things a person with diabetes could do to reduce the risk of heart attack or stroke, the largest percentages of those surveyed in both 2006 and 2008 cited eating a healthy diet and exercise. Smaller but similar percentages mentioned weight loss or controlling blood sugar as the most important things to do (Tables 48-51, Appendix D, and Tables 4-8a and 4-8b).
Table 4-8a. Percentages of Survey Population Selecting Actions to Reduce Risk of Heart Attack or Stroke

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Diet</td>
<td>72</td>
<td>64</td>
</tr>
<tr>
<td>Exercise</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Glucose control</td>
<td>27</td>
<td>22</td>
</tr>
<tr>
<td>Weight loss</td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 4-8b. Percentages of Those with Diabetes Selecting Actions to Reduce Risk of Heart Attack or Stroke

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Diet</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>Exercise</td>
<td>58</td>
<td>54</td>
</tr>
<tr>
<td>Glucose control</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td>Weight loss</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>

4.9 Knowledge of Diabetes Campaigns and Messages

Roughly the same proportion of people surveyed in 2006 and 2008 had heard or seen NDEP’s *Control Your Diabetes. For Life* message (49% in 2006 and 45% in 2008) (Table 52, Appendix D).

The percentage of people who had heard or seen *Be Smart About Your Heart. Control the ABCs of Diabetes* message was 41% in 2006 and 40% in 2008) (Table 3, Appendix D).

The percentage of the population who reported that they were aware of the *Small Steps. Big Rewards. Prevent Type 2 Diabetes* campaign increased significantly from 28% in 2006 to 33% in 2008 (Table 54, Appendix D). The campaign was recognized by 36% of people with diabetes in 2006 compared with 45% in 2008; 37% of people with pre-diabetes in 2006 and 31% in 2008; and 26% of those at high risk in 2006 versus 32% in 2008.

Those reporting they had heard of or seen the ADA’s *Make the Link! Diabetes, Heart Disease and Stroke* message were 38% of those surveyed in 2006 and 34% in 2008 (Table 55, Appendix D).

The percentage of persons who reported that they had heard of another ADA campaign, *Don’t Be Blind to Diabetes*, remained about the same: 34% in 2006 compared with 33% in 2008 (Table 56, Appendix D).
4.10 Managing Diabetes

Among those with diagnosed diabetes, 81% in 2006 and 89% in 2008 checked their own blood sugar (Table 57, Appendix D). Among African Americans with diabetes the percent who report that they check their own blood sugar increased from 81% in 2006 to 91% in 2008.

Fifty-one percent (51%) reported checking their blood sugar two times a day in 2006, compared with 62% in 2008 (Table 58, Appendix D). The percentage of those who report keeping a record of their blood sugar tests dropped from 76% to 63% (Table 59, Appendix D).

A little more than half of those with diabetes reported ever receiving diabetes education, both in 2006 (55%) and in 2008 (57%) (Table 60, Appendix D).

The proportions of people with diabetes taking medication and the type that they use have remained about the same (Table 61, Appendix D, and Table 4-9).

<table>
<thead>
<tr>
<th>Type</th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulin alone</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Pills alone</td>
<td>57</td>
<td>53</td>
</tr>
<tr>
<td>Both</td>
<td>15</td>
<td>19</td>
</tr>
</tbody>
</table>

Table 4-10. Types of Medication Taken by Persons with Diabetes (%)

The percentage of those with diabetes recognizing the terms “glycosylated hemoglobin” or “hemoglobin A1C” varied little between 2006 and 2008 (57% vs. 59%, respectively) (Table 62, Appendix D), while the percentage of those being tested one or more times in the past year grew slightly from 61% to 67% (Table 63, Appendix D). This increase in the percent who had their A1C tested in the past year increased significantly among whites (66% in 2006 to 72% in 2008) and among those with a college degree (61% to 91%).

The proportion of those tested who reported an A1C score from 1 to 18 was 49% in 2006 and 45% in 2008. (Table 64, Appendix D). In 2006, 27% reported their A1C score should be 7 or less; in 2008 the proportion was 30%. (Table 65, Appendix D).

The percentage of persons with diabetes who rate their understanding of the use of blood sugar monitoring as excellent was 39% in 2006 to 47% in 2008 (Table 69, Appendix D). This increase was not statistically significant. Roughly the same percentages (38% in 2006 and 39% in 2008) rated their understanding of the prevention and treatment of high blood sugar as excellent (Table 70, Appendix D). The results for understanding the prevention and treatment of low blood sugar remained level at 28% (Table 71, Appendix D). Forty-three (43%) rated their understanding of the prevention of long-term complications as excellent in 2006, while 37% did so in 2008 (Table 72, Appendix D). The prevention and treatment of low blood sugar remained the most poorly understood self-management behavior among people with diabetes from 2006 to 2008.
Figure 28. Percentage of people with diabetes 45 years of age and older who rate their understanding of self-management behaviors, 2006 and 2008

2006

2008
5. Conclusions

The 2006 and 2008 surveys of the National Diabetes Education Program demonstrate that the public is aware that diabetes is serious – 85 percent of respondents report that they believe diabetes is a serious disease in 2008. This result reflects a significant achievement by the diabetes community – survey results in 1997, as NDEP was founded, showed that only 8 percent of Americans believed that diabetes was serious.

Equally important, these two surveys show an increasing awareness that diabetes can be prevented or delayed. Two particular results stand out:

- The proportion of the population who report that diabetes can be prevented increased significantly between 2006 and 2008, from 64% to 71%.
- The percent of the population who have heard of the condition called pre-diabetes increased from 45% in 2006 to 51% in 2008. The increase was seen primarily in the younger group 45-64 years (46% in 2006 to 54% in 2008).

The Diabetes Prevention Program study was first reported in 2001. The term “pre-diabetes” was defined and introduced to clinicians and the public at that time. NDEP’s public outreach effort, Small Steps. Big Rewards. Prevent type 2 Diabetes. was launched in 2002. Broad public recognition of both concepts has advanced in a relatively short period of time.

People Understand that Lifestyle Changes are Key

The public is increasingly aware that being overweight and not getting enough exercise are risk factors for diabetes. The percent of the population who report that being overweight and not getting enough exercise are definite causes of diabetes increased significantly between 2006 and 2008.

- In 2006 55% of the survey population reported that being overweight was a definite cause of diabetes, and this increased to 68% in 2008.
- Thirty five percent (35%) of the population in 2006 reported that not getting enough exercise was a definite cause of diabetes, and in 2008 this increased to 54%.

The 2006 and 2008 surveys show that people are being told by their doctors or health care providers to control or lose weight and to increase their physical activity.

- Forty-three percent (43%) have been told to control or lose weight, and 80% of them report that they are following that advice.
- Forty-nine percent (49%) have been told to increase their physical activity, and, of those, 70% report following that advice.
- People with diabetes, the overweight, people with hypertension and those with high blood cholesterol are more likely to report that a doctor has given them this advice. These numbers did not change between 2006 and 2008.
The majority of the population recognizes that losing weight and increasing physical activity would definitely help lower blood sugar level.

- In 2008, 84% reported that losing weight would definitely help lower blood sugar levels, an increase from 78% in 2006.
- In 2008, 83% report that engaging in regular physical activity would definitely help, up from 76% in 2006. These increases are not statistically significant.

A critical issue, however, emerged in the 2006 survey and was affirmed in 2008. People with diabetes are not confident in their understanding of their role and actions in good diabetes management. In 2008, less than 50 percent of respondents with diabetes believed they have an “excellent” understanding of the role of:

- Diet
- Low blood sugar
- Use of self-monitoring of blood glucose results
- High blood sugar
- Exercise
- Medications
- Management of complications

In response to these findings NDEP has initiated an effort to identify and share materials and tools that help people with diabetes and people at risk make the behavior changes at the core of better health outcomes. The surveys have demonstrated that people understand diabetes is serious and that they understand the role lifestyle changes, and that they report that their health care professionals are counseling them to make changes. None-the-less they lack an understanding of the role of these key steps, including acting on blood glucose testing results. NDEP emerging effort to support behavior change responds to these findings and will provide information for target audiences on “how” to make changes.

**People Recognize Diabetes Complications**

The surveys also examined the public’s awareness of the serious health problems caused by diabetes. In 2008, blindness was identified by 54% of the population, amputation by 36%, and cardiovascular disease by 34%.

- People with diabetes were more likely to identify the health problems associated with diabetes than were those with pre-diabetes, at high risk or all others.
- People with diabetes showed a significant increase in awareness of kidney disease from 24% in 2006 to 35% in 2008, but it remains to be the least known serious complication of diabetes among a list of four that included blindness, cardiovascular disease and amputation. Among those 45 years and older, the awareness of kidney disease as a serious health problem caused by diabetes increased significantly from 24% in 2006 to 35% in 2008.
A key finding from the 2006 public survey indicated that family history was a significant contributing factor for people who felt at risk for diabetes. In 2008, family history continued to be recognized as a risk factor across all racial and ethnic groups.

In addition, both surveys reflect a disconnect between people’s perception of what creates risk for diabetes (overweight, etc.) and their personal risk for diabetes. For example, in 2006, 55% of the survey population reported that being overweight was a definite cause of diabetes and 30% of people at high risk for diabetes recognized that their weight placed them at risk. Two years later, the awareness of being overweight as a cause of diabetes increased to 68% but recognition of being overweight as a risk factor among those at risk for diabetes remained nearly unchanged (28%). They recognize that overweight people are at risk but do not seem to see themselves as overweight.

In response to this, NDEP has refined public education messages and outreach to people at risk to encourage them to consider their family history. The survey research, supported by subsequent qualitative research, has led NDEP to messages that better engage the public and invite them to take steps to prevent or delay the onset of diabetes.

The progress made in reaching the public and meeting the objectives of the NDEP since 2006 is illustrated in the results of this survey, which are presented in the body of this report and in the tables in Appendix C and Appendix D.

The results of this survey indicate the effect NDEP is having on the public’s knowledge, attitudes, and practices related to diabetes. They provide valuable information that can be used in program planning to strengthen the NDEP campaigns and messages to support positive behavior change as the NDEP works towards preventing the onset of diabetes, promoting early diagnosis and improving the treatment and outcomes in people with diabetes.
Appendix A
Weighting Methodology

Sample weights were computed by the sampling statistician at Marketing Systems Group. Marketing Systems Group provided the sample using GENESYS, an RDD sample design generation system. The weighting procedure incorporates three stages. The first stage of weighting involved the probability of selection within the household, defined as the number of household members 35 and older. The second stage incorporated a Race/Ethnicity correction across the three sampling strata. Basically, this weight was incorporated to correct for oversampling of each Race/Ethnicity category (African American, Hispanic, and Other) across the individual strata. The proportion of each group was determined using the GENESYS Race/Ethnicity estimates corresponding to the actual numbers comprising each sample stratum. The sample distribution for each stratum was computed using the weighted totals from the first stage.

In the third stage, the weighted results from stages 1 and 2 were recast into a geodemographic matrix comprised of Gender (Male/Female), Age (35-44, 45-54, 55-64, 65+, DK), Census Division (4), Race/Ethnicity (AA, Hispanic, Other), and Metropolitan Status (Metro, non-Metro)—a total of 192 cells. Cells with fewer than five interviews were collapsed to obtain a minimum of five interviews; the order of combination was Metropolitan Status, followed by Age—all within Gender, Race/Ethnicity, and Region. Population estimates from the 2005 Current Population Survey (CPS) Demographic Supplement were generated for each of the original 192 cells. The final weight was the Population Estimate corresponding to an individual cell or summation of collapsed cells divided by the corresponding weighted sample total through stages 1 and 2.
Appendix B

2008 Questionnaire
INTRODUCTION

Hello, my name is ______________, and I’m calling on behalf of the National Institutes of Health and Centers for Disease Control and Prevention. We’re gathering information on health issues.

S1. Could you tell me how many members of your household, including yourself are 35 years of age or older?

1…………………………………………1 GO TO Si3
2…………………………………………2 GO TO Si3
3…………………………………………3 GO TO Si3
4+……………………………………….4 GO TO Si3
NONE…………………………………..END SURVEY
BUSINESS…………………………….END SURVEY

IF NONE, thank you very much, but we’re only gathering information from adults who are 35 years of age or older, so you would be ineligible for our survey, STOP.

IF “NONE”, BUSINESS, OR R REFUSES, VERIFY PHONE NUMBER. END CALL IF WRONG NUMBER, GO BACK TO INTRODUCTION AND REDIAL PHONE NUMBER.

Si3. Who is the person 35 years or older with the most recent birthday?

TALKING TO THE PERSON .......... 1 (s6)
PERSON NOT AVAILABLE .......... 2 (S4)
PERSON AVAILABLE .................. 3 (S5)
REFUSED ........................................ R

IF R REFUSES, VERIFY PHONE NUMBER. END CALL IF WRONG NUMBER, GO BACK TO INTRODUCTION AND REDIAL PHONE NUMBER.
Si3. May I please speak to the person age 35 or older?

TALKING TO THE PERSON ............ 1 (S6)
PERSON NOT AVAILABLE ............ 2 (S4)
PERSON AVAILABLE ................ 3 (S5)
REFUSED .............................. R

IF R REFUSES, VERIFY PHONE NUMBER. END CALL IF WRONG NUMBER, GO BACK TO INTRODUCTION AND REDIAL PHONE NUMBER.

Si4. May I have your/his/her first name?

S4. IF NOT AVAILABLE: OBTAIN FIRST NAME AND SET CALL BACK TIME. When would be a good time to reach him/her? And could I get his/her first name or initials?

TIME: _______________________________

FIRST NAME:

END CALL.

S5. Good (morning/afternoon). This is ________ and I'm calling on behalf of the National Institutes of Health and the Centers for Disease Control and Prevention. We are asking people their opinions about health issues related to diabetes. First, I just want to verify that you are at least 35 years old.

YES................................................................. 1 (GO TO S6)
NO................................................................. 2

IF NO, DETERMINE IF THERE IS AN ELIGIBLE PERSON IN THE HOUSEHOLD. IF NO ELIGIBLE PERSON OR REFUSED, VERIFY PHONE NUMBER AND END.

Si5. I (also) want to verify that the phone number I dialed was ________________. Is that correct?

YES................................................................. 1 (GO TO S7)
NO................................................................. 2
Si5a
IF NO, SAY: For this study I needed to speak to someone at the phone number I mentioned. Thank you for your time. END CALL.

Si6. May I speak to __________?
    YES, AVAILABLE (GO TO S7)
    NO, NOT AVAILABLE

Si6a. When would be a good time to reach him/her? [GO TO APPOINTMENT SCREEN]

S7. (As I mentioned), we're gathering information on health issues. Your phone number has been chosen randomly, and I'd like to ask some questions. Although your participation in this study is voluntary, it is very important. It will take only 15 minutes, and I won't ask your full name, address or other personal information that can identify you. You don't have to answer any question you don't want to, and you can end the call at any time. All information you give me will be kept confidential (to the extent allowed under law).

INTRO8. Could we start now?
    YES............................................................................... 1 (name2)
    CALL BACK OR SET APPT ............................................. 2
    (GO TO STATUS SCREEN)
    REFUSES ..................................................................... 7 (END)

Name2. In case we get cut off, could I get your first name or initials?

________________________________________________________________________________________

CALL BACK:
This is __________, calling on behalf of the National Institutes of Health. May I speak to (NAME)?

IF NEW RESPONDENT: GO TO S5.

IF SPEAKING TO ORIGINAL RESP WITH APPOINTMENT, SAY: We had an appointment to do the interview for the National Institute of Health study on health issues related to diabetes. GO TO S7 OR INTRO8 DEPENDING ON WHERE THE SCREENER LEFT OFF.

IF SPEAKING TO ORIGINAL R IN CALLBACK: I wondered if you have time now to do the interview for the National Institutes of Health study on health issues. GO TO S7.
Survey of People with Diabetes and their Families,
People with Pre-diabetes and
People at High Risk of Developing Diabetes

Section A: Identifies People with Diabetes (PWD) and their families, People with Pre Diabetes (PPD) and People at High Risk for Developing Diabetes (PHR).

A1Mo. First, in what month and year were you born?
A1Yr.

/___/___/
MM/YYYY
DON’T KNOW ..................................... 8
REFUSED ....................................... R
NOT ASCERTAINED ...................... 9 (ENTER NOTE)

IF BIRTH YEAR IS NOT ASCERTAINED, ASK AGAIN IF THE R IS AGE 35 OR OLDER. IF NO OR NOT KNOWN, END SURVEY.

A2. ASK ONLY IF NECESSARY:

MALE............................................. 1
FEMALE ......................................... 2

A3. Have you ever had a blood test to see if you have diabetes or high blood sugar?

YES .............................................. 1
NO.................................................. 2 (GO TO A5)
REFUSED ..................................... R
A4. About how long has it been since you had this test? Would you say:

Less than 1 year ago ........................................ 1
At least 1 year but less than 2 years ago .......... 2
At least 2 years but less than 3 years ago ....... 3
At least 3 years but less than 5 years ago ...... 4
5 years or more ................................................ 5

A5. {IF A2=2} Other than during pregnancy}, has a doctor or other health professional ever told you that you have diabetes or sugar diabetes?

YES .......................................................... 1
NO ........................................................... 2 (GO TO A7)
REFUSED .................................................. R (GO TO A7)
DON'T KNOW .............................................. 8 (GO TO A7)

A6. How old were you when a doctor or other health professional first told you that you had diabetes or sugar diabetes? Please give me your best estimate.

ENTER AGE IN YEARS

A7. Does anyone {IF A5=YES else} in your immediate family have diabetes?

YES .......................................................... 1
NO ........................................................... 2 (GO TO A9)
REFUSED .................................................. R (GO TO A9)
DON'T KNOW .............................................. 8 (GO TO A9)

A8. May I ask which member of your immediate family has diabetes? (DO NOT READ, ENTER ALL THAT APPLY)

SPOUSE (HUSBAND/WIFE) ........... 02
MOTHER ............................................... 03
FATHER ............................................... 04
SISTER ................................................. 05
BROTHER ............................................. 06
DAUGHTER ......................................... 07
SON ..................................................... 08
GRANDPARENT ................................. 09
OTHER ............................................... 10
A9. Have you ever heard of the term pre-diabetes?

YES ................................................ 1
NO .................................................. 2
REFUSED ...................................... R
DON'T KNOW ................................. 8

ASK A10 – A12 ONLY IF A5 IS NO

A10intro.

{(IF A9=YES) As you may already know} Pre-diabetes is a term that means a person is at higher than average risk for developing diabetes or a person has blood sugar levels that are higher than normal but do not yet reach the level of diabetes.

Have you ever been told by a doctor or other health professional that you have:

A10a. Pre-diabetes?

YES ................................................ 1
NO .................................................. 2
REFUSED ...................................... R
DON'T KNOW ................................. 8

A10b. Impaired fasting glucose?

YES ................................................ 1
NO .................................................. 2
REFUSED ...................................... R
DON'T KNOW ................................. 8

A10c. Impaired glucose tolerance?

YES ................................................ 1
NO .................................................. 2
REFUSED ...................................... R
DON'T KNOW ................................. 8
A10d. Borderline diabetes?

YES ................................................ 1
NO .................................................... 2
REFUSED ........................................ R
DON’T KNOW ................................. 8

A10e. High blood sugar?

YES ................................................ 1
NO .................................................... 2
REFUSED ........................................ R
DON’T KNOW ................................. 8

A10f. Have you ever been told by a doctor or other health professional that you are at risk for diabetes?

YES ................................................ 1
NO .................................................... 2
REFUSED ........................................ R
DON’T KNOW ................................. 8

A11. Do you feel you could be at risk for diabetes or pre-diabetes?

YES ................................................ 1
NO .................................................... 2 (GO TO A14)
REFUSED ........................................ R (GO TO A14)
DON’T KNOW ................................. 8 (GO TO A14)

A12. Why do you think you are at risk for diabetes?

(DO NOT READ; ENTER ALL THAT APPLY)

Risk Factors
Family history ................................. 1
Overweight ................................. 2
Age ................................................. 3
Poor dietary habits ......................... 4
Race ............................................... 5
Had a baby that weighed over 9 lbs. at birth ................................ 6
Lack of physical activity or sedentary lifestyle ............................. 7

Medical Conditions
High blood pressure ........................ 1
High blood sugar ............................ 2
High Cholesterol ......................... 3
Hypoglycemic .............................. 4

**Experienced symptoms**
Extreme hunger ........................... 1
Tingling/numbness
in hands or feet .......................... 2
Blurred vision ............................. 3
Increased fatigue .......................... 5

**Other Factors**
Anyone could be at risk .................. 6
Doctor warning ............................ 7
Other, specify ............................. 4
Don’t know ................................. 8

A12Sp  (Why do you feel at risk for diabetes or pre-diabetes?)
please specify
__________________________________ *(250 characters)*

ENTER RESPONSE

A12a. Do you think you can reduce your risk of diabetes?

YES ............................................. 1
NO .............................................. 2 (GO TO A13)
REFUSED ................................. R

A12b. How can you reduce your risk?

**(DO NOT READ; ENTER ALL THAT APPLY)**
Lose Weight ............................... 1
Increase physical activity ............... 2
Eat a healthier diet ....................... 3
Eat fewer calories ....................... 4
Eat less fat ................................. 5
Eat less sugar ............................. 6
Have surgery .............................. 7
Take medication ........................... 8
Other, specify ............................. 4
Don’t know ................................. 98

A12bSp  (How can you reduce your risk?)
please specify
__________________________________ *(250 characters)*

ENTER RESPONSE
A13. How much do you weigh without shoes?

____________________ LBS

ENTER WEIGHT
(RANGE 75-400 – SOFT EDIT)

A14. How tall are you without shoes?

A14 ft. A14in.

_________ FEET ________ INCHES

ENTER HEIGHT
(RANGE 4’6” – 7’0” – SOFT EDIT)

FOR WOMEN ONLY (A2=2)

A15. Have you ever been pregnant?

YES ................................................ 1
NO .................................................. 2 (GO TO SECTION B)

A15a. Are you pregnant now?

YES ................................................ 1
NO .................................................. 2

A16. Were you ever told by a health care provider that you had gestational diabetes or high blood sugar during pregnancy?

YES ................................................ 1
NO .................................................. 2
DON'T KNOW .................................. 8
Section B:  
Health Care Practices Questions

B1. Have you ever heard of the term glycosylated hemoglobin or hemoglobin A1C?

YES ................................................ 1  
NO .................................................. 2

B2. {(IF B1=YES) As you may know,} glycosylated hemoglobin or the “A one C” test  
measures the average level of blood sugar over the past 3 months, and usually  
ranges between 5 and 14. During the past 12 months, how many times has a  
doctor, nurse, or other health care professional checked you for glycosylated  
hemoglobin or “A one C”?

TIMES (RANGE 1-50)

NONE ............................................. 0 (GO TO B5)  
DON’T KNOW ................................. 8 (GO TO B5)

B3. What was your last “A one C” level?

ENTER VALUE (RANGE = 1-400)

REFUSED ........................................ R  
DON’T KNOW .................................... 8

B4. What does your doctor or other health professional say your “A one C” level should  
be?

7 or less........................................... 1  
8 or less......................................... 2  
9 or less.......................................... 3  
10 or less........................................ 4  
More than 10 ................................. 5  
NO GOAL SPECIFIED .................... 96
B5. Has a doctor or other health professional ever told you that you have high blood pressure or hypertension?

YES ................................................. 1
NO .................................................. 2
DON’T KNOW ............................... 8

B6. Blood pressure is usually given as one number over another. What was your most recent blood pressure in numbers?

ENTER VALUES:

B6sys. ___/___/___/ SYSTOLIC (RANGE 50-500)
B6dia. ___/___/___/ DIASTOLIC (RANGE 50-500)

REFUSED ................................. R
DON’T KNOW ............................... 8

B7. What does your doctor or other health professional say your blood pressure should be?

ENTER VALUES. IF RANGE GIVEN, RECORD UPPER VALUE OF RANGE:

B7Sys. ___/___/___/ SYSTOLIC (RANGE 50-500)
B7Dia. ___/___/___/ DIASTOLIC (RANGE 50-500)

REFUSED ................................. R
DON’T KNOW ............................... 8
NO GOAL SPECIFIED .................. 996

B9. Has a doctor or other health professional ever told you that you have high blood cholesterol? (HBC)

YES .................................................. 1
NO .................................................. 2
DON’T KNOW ............................... 8

61
B10. What was your most recent cholesterol level?

ENTER VALUES. IF RANGE GIVEN, RECORD UPPER VALUE OF RANGE:

___/___/___/ (ALLOWABLE RANGE: 30 - 600)

REFUSED .................................................. R (GO TO B12)
DON'T KNOW ............................................. 8 (GO TO B12)

B11. Is that your total cholesterol level?

YES .......................................................... 1
NO ........................................................... 2
DON'T KNOW ............................................. 8

B12. One part of total serum cholesterol in your blood is a bad cholesterol, called LDL, which builds up and clogs your arteries. What was your most recent LDL cholesterol number?

ENTER VALUE (RANGE: 30 - 600)

REFUSED .................................................. R
DON'T KNOW ............................................. 8

B13. What does your doctor or other health professional say your LDL cholesterol should be?

ENTER VALUE. IF RANGE GIVEN, RECORD UPPER VALUE OF RANGE

(RANGE: 30 - 600)

REFUSED .................................................. R
DON'T KNOW ............................................. 8
NO GOAL SPECIFIED .............................. 996
B12a. One part of total serum cholesterol in your blood is a good cholesterol, called HDL. What was your most recent HDL cholesterol number?

**ENTER VALUE** *(RANGE: 30 - 600)*

REFUSED .................................................. R
DON'T KNOW ........................................... 8

B13a. What does your doctor or other health professional say your HDL cholesterol should be?

**ENTER VALUE. IF RANGE GIVEN, RECORD UPPER VALUE OF RANGE** *(RANGE: 30 - 600)*

REFUSED .................................................. R
DON'T KNOW ........................................... 8
NO GOAL SPECIFIED ......................... 996

B15. To lower your risk for any type of disease, (has a doctor or other health professional ever told you to:

Control your weight or lose weight?

YES ...................................................... 1
NO ......................................................... 2 (GO TO B16)
DON'T KNOW ................................. 8 (GO TO B16)
REFUSED .................................................. R (GO TO B16)

B15i. Are you now following this advice? (to control or lose weight)

YES ...................................................... 1
NO ......................................................... 2 (GO TO B16)
DON'T KNOW ................................. 8 (GO TO B16)
REFUSED .................................................. R (GO TO B16)
B15 j. What are you doing to control or lose weight?

**DO NOT READ; ENTER ALL THAT APPLY**
- Dieting ........................................ 1
- Eating fewer calories ..................... 2
- Getting more exercise .................... 3
- Eat less fat ................................... 5
- Eat less sugar ............................... 6
- Had surgery ................................. 7
- Taking medication ......................... 8
- Eat less carbohydrates ................. 9
- Other specify .............................. 4
- Don’t know ................................. 98

B15jSp  (What are you doing to control or lose weight?)
please specify

_________________________________________________________________________

* (250 characters)

ENTER RESPONSE

B16. (Has a doctor or other health professional ever told you to) Increase your physical activity or exercise?

- YES ........................................... 1
- NO .......................................... 2 (GO TO B17)
- DON’T KNOW ............................ 8
- REFUSED ................................. R

B16i. Are you now following this advice? (to increase your physical activity or exercise)

- YES ........................................... 1
- NO .......................................... 2
- DON’T KNOW ............................ 8

B17. (Has a doctor or other health professional ever told you to) Reduce the amount of fat or calories in your diet?

- YES ........................................... 1
- NO .......................................... 2 (GO TO B18)
- DON’T KNOW ............................ 8
- REFUSED ................................. R
B17i. Are you now following this advice? (to reduce the amount of fat or calories in your diet)

YES ............................................. 1
NO .............................................. 2
DON'T KNOW ..................................... 8

B19. (Has a doctor or other health professional ever told you to) Take daily aspirin?

YES ............................................. 1
NO .............................................. 2 (GO TO B21)
DON'T KNOW ..................................... 8
REFUSED ....................................... R

B19i. Are you now following this advice (to take daily aspirin)?

YES ............................................. 1
NO .............................................. 2
DON'T KNOW ..................................... 8

B21. Has a doctor or other health professional ever told you to do anything else to lower your risk for any type of disease?

Yes ............................................. 1
No .............................................. 2 (GO TO B22)
DON'T KNOW ..................................... 8

B21sp. What did the doctor tell you to do?

__________________________ (250 characters)

ENTER RESPONSE

B21i. Are you now following this advice? (to FILL FROM B21sp)?

YES ............................................. 1
NO .............................................. 2
DON'T KNOW ..................................... 8
B22. Are you taking any steps either on your own or as result of a health professionals advice to get more physically active?

YES ........................................ 1
NO ........................................ 2 (GO TO C1)
DON'T KNOW ................................ 8 (GO TO C1)
REFUSED .................................. R (GO TO C1)

B22a. What are you doing? (DO NOT READ; ENTER ALL THAT APPLY)

Going To The Gym ..................... 1
Walking .................................... 2
Running .................................... 3
Taking Exercise Classes .......... 4
Participating in Sports .............. 5
Other, specify ............................ 8

B22aSp. What are you doing?

__________________________ (250 characters)

ENTER RESPONSE

B22b. How many times per week do you do these activities?

B22c. About how long do you spend doing these leisure-time physical activities each time? How many minutes would you say?

ENTER NUMBERIC VALUE BETWEEN 0-120 _________
Section C: People with Diabetes
Self-Management Questions

C1. Now I’d like to ask you some questions about how you manage your diabetes.

Do you check your own blood sugar?

YES ............................................. 1
NO ............................................. 2 (GO TO C4)

C2. On days that you test, how many times do you test your blood sugar?

TIMES/ DAY (RANGE 1-20)
DON’T KNOW .................................................. 8

C3. Do you keep a record of your blood sugar test results?

YES .................................................. 1
NO .................................................. 2

C4. Do you now use insulin?

YES .................................................. 1
NO .................................................. 2

C5. Are you now taking diabetic pills to lower blood sugar? These are sometimes called oral agents or oral hypoglycemic agents.

YES .................................................. 1
NO .................................................. 2
REFUSED ............................................. R
DON’T KNOW ........................................ 8
C5a. Have you had a blood test within the past year to determine if you have weak or failing kidneys?

<table>
<thead>
<tr>
<th>Option</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
</tr>
<tr>
<td>REFUSED</td>
<td>R</td>
</tr>
<tr>
<td>DON’T KNOW</td>
<td>8</td>
</tr>
</tbody>
</table>

C6. Have you ever received diabetes education, for example, attended a series of classes or series of meetings with a diabetes educator?

<table>
<thead>
<tr>
<th>Option</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>1</td>
</tr>
<tr>
<td>NO</td>
<td>2</td>
</tr>
<tr>
<td>NOT SURE</td>
<td>8</td>
</tr>
</tbody>
</table>

C7. Using a scale of 1-5 with **1=poor and 3=good and 5=excellent**, Please tell me how you would rate your understanding of the following: (INSERT):

**C7a. The role of diet in blood sugar control?**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(POOR)</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(GOOD)</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>(EXCELLENT)</td>
</tr>
</tbody>
</table>

**C7b. The role of exercise in diabetes care?**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(POOR)</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(GOOD)</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>(EXCELLENT)</td>
</tr>
</tbody>
</table>
C7c. The medications you are taking?
1 .............................................. 1 (POOR)
2 .............................................. 2
3 .............................................. 3 (GOOD)
4 .............................................. 4
5 .............................................. 5 (EXCELLENT)

C7d. How to use the results of blood sugar monitoring?
1 .............................................. 1 (POOR)
2 .............................................. 2
3 .............................................. 3 (GOOD)
4 .............................................. 4
5 .............................................. 5 (EXCELLENT)

C7e. The prevention and treatment of high blood sugar?
1 .............................................. 1 (POOR)
2 .............................................. 2
3 .............................................. 3 (GOOD)
4 .............................................. 4
5 .............................................. 5 (EXCELLENT)

C7f. The prevention and treatment of low blood sugar?
1 .............................................. 1 (POOR)
2 .............................................. 2
3 .............................................. 3 (GOOD)
4 .............................................. 4
5 .............................................. 5 (EXCELLENT)

C7g. The prevention of long-term complications of diabetes?
1 .............................................. 1 (POOR)
2 .............................................. 2
3 .............................................. 3 (GOOD)
4 .............................................. 4
5 .............................................. 5 (EXCELLENT)
C7h. Proper foot care?

1 ........................................... 1 (POOR)
2 ........................................... 2
3 ........................................... 3 (GOOD)
4 ........................................... 4
5 ........................................... 5 (EXCELLENT)

C7i. The benefits of improving blood sugar control?

1 ........................................... 1 (POOR)
2 ........................................... 2
3 ........................................... 3 (GOOD)
4 ........................................... 4
5 ........................................... 5 (EXCELLENT)

C8. New Have you ever received instruction on the following:

C8a. The role of diet in blood sugar control?

YES ........................................... 1
NO ........................................... 2
DON'T KNOW ................................ 8
REFUSED ................................... R

C8b. The role of exercise in diabetes care?

YES ........................................... 1
NO ........................................... 2
DON'T KNOW ................................ 8
REFUSED ................................... R

C8c. The medications you are taking?

YES ........................................... 1
NO ........................................... 2
DON'T KNOW ................................ 8
REFUSED ................................... R

C8d. How to use the results of blood sugar monitoring?

YES ........................................... 1
NO ........................................... 2
DON'T KNOW ................................ 8
REFUSED ................................... R
C8e. The prevention and treatment of **high** blood sugar?

YES ...................................................... 1
NO ......................................................... 2
DON'T KNOW ......................................... 8
REFUSED ................................................ R

C8f. The prevention and treatment of **low** blood sugar?

YES ...................................................... 1
NO ......................................................... 2
DON'T KNOW ......................................... 8
REFUSED ................................................ R

C8g. The prevention of long-term complications of diabetes?

YES ...................................................... 1
NO ......................................................... 2
DON'T KNOW ......................................... 8
REFUSED ................................................ R

C8h. Proper foot care?

YES ...................................................... 1
NO ......................................................... 2
DON'T KNOW ......................................... 8
REFUSED ................................................ R

C8i. The benefits of improving blood sugar control?

YES ...................................................... 1
NO ......................................................... 2
DON'T KNOW ......................................... 8
REFUSED ................................................ R
Section D: Public Knowledge of NDEP Messages

D1. In the past year, have you heard or seen any ads or educational materials with the following messages about diabetes?

<table>
<thead>
<tr>
<th>D1a. Control Your Diabetes for Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES .................................................. 1</td>
</tr>
<tr>
<td>NO .................................................... 2</td>
</tr>
<tr>
<td>DON’T KNOW ......................................... 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D1b. Be Smart About Your Heart. Control the ABCs of Diabetes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES .................................................. 1</td>
</tr>
<tr>
<td>NO .................................................... 2</td>
</tr>
<tr>
<td>DON’T KNOW ......................................... 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D1c. Make the link: Diabetes, heart disease and stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES .................................................. 1</td>
</tr>
<tr>
<td>NO .................................................... 2</td>
</tr>
<tr>
<td>DON’T KNOW ......................................... 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D1d. Don’t be blind to diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES .................................................. 1</td>
</tr>
<tr>
<td>NO .................................................... 2</td>
</tr>
<tr>
<td>DON’T KNOW ......................................... 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D1e. Small Steps. Big Rewards. Prevent Type 2 Diabetes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES .................................................. 1</td>
</tr>
<tr>
<td>NO .................................................... 2</td>
</tr>
<tr>
<td>DON’T KNOW ......................................... 8</td>
</tr>
</tbody>
</table>
D2. To the best of your knowledge, what are the most serious health problems caused by diabetes? (DO NOT READ. CODE ALL THAT APPLY)

BLINDNESS..........................................................1
AMPUTATION ......................................................2
KIDNEY DISEASE ..................................................3
CARDIOVASCULAR DISEASE .........................4
HEART CONDITION.............................................5
HEART ATTACK..................................................6
FOOT ULCERS....................................................7
DEATH...............................................................8
STROKE .............................................................9
HIGH BLOOD PRESSURE/HYPERTENSION ....10
IMPOTENCE......................................................11
OTHER, SPECIFY .............................................12

D2Sp. (What are the most serious health problems caused by diabetes)  
Please specify  
__________________________________________  (250 characters)  
ENTER RESPONSE  

D3. To the best of your knowledge, what are the most important things a person with diabetes can do to reduce the chance of having a heart attack or stroke? (DO NOT READ, ENTER ALL THAT APPLY)

DIET: Healthier/better diet.................................1
EXERCISE: Regular exercise ...............................2
BLOOD SUGAR: Control/check blood sugar ........3
WEIGHT: Lose weight.........................................4
MEDICATIONS: Take prescription medications ......5
CHOLESTEROL: Lower cholesterol ....................6
SMOKING: Quit smoking ..................................7
LIFESTYLE: Lead a healthy lifestyle ....................8
BLOOD PRESSURE: Lower blood pressure .......9
CHECK-UPS: Regular check-ups ........................10
STRESS: Reduce stress ......................................11
ASPIRIN: Take aspirin .......................................12
OTHER, SPECIFY .............................................13
DON’T KNOW ..................................................98

D3Sp. Specify Other (item to reduce the chance of having a heart attack or stroke)  
__________________________________________  (250 characters)  
ENTER RESPONSE  

73
THE GOAL OF THIS SECTION IS TO DETERMINE THE PUBLIC’S KNOWLEDGE ABOUT DIABETES, TO WHAT DEGREE THEY HAVE HEARD CURRENT NDEP DIABETES INFORMATION, AND TO PINPOINT AREAS FOR FUTURE EDUCATIONAL CAMPAIGNS.

G1. How serious do you consider diabetes to be? Would you say:

- Very serious ................................ 1
- Somewhat serious ......................... 2
- Not very serious, or .................... 3
- Not serious at all? ..................... 4

G2a Where do you get most of your health information from?

(DO NOT READ, CHECK ALL THE APPLY)

- Doctor/Physician .......................... 1
- Other Health Care Professional .... 2
- Friend or Family member .............. 3
- Insurance company or HMO ........... 4
- Television or radio ...................... 5
- Newspaper or magazine ............... 6
- Internet sites .............................. 7
- Other, Specify ............................ 8
- Don’t Know ............................... 9

G2aSp. (Where do you get most of your health information from?)

Please specify

__________________________________________ (250 characters)

ENTER RESPONSE

G2b. To what extent do you agree or disagree with the statement that the number of people with diabetes is increasing rapidly in the United States:

- Strongly agree ......................... 1
- Agree ...................................... 2
- Disagree ................................. 3 (GO TO G3)
- Strongly disagree ..................... 4 (GO TO G3)
G2c. What do you think is causing this rapid increase in diabetes?

(DO NOT READ, CHECK ALL THAT APPLY)

- Poor diet / unhealthy eating.............. 1
- Lack of exercise / sedentary lifestyle..... 2
- Increase in overweight ...................... 3
- Increase in obesity .......................... 4
- Lack of educational material.............. 5
- Lack of access to healthcare ............. 6
- Heredity / genetics ............................. 7
- Other, specify .................................. 8
- DON’T KNOW ................................. 9

G2cSp. (What do you think is causing this rapid increase in diabetes?)
Please specify

____________________________________ (250 characters)
ENTER RESPONSE

G3. How closely do you follow news stories about diabetes? Would you say:

- Very closely ...................................... 1
- Somewhat closely ............................... 2
- Not too closely, or............................ 3
- Not at all closely? ............................. 4

G3a. Where do you get most of your health news from?

(DO NOT READ, CHECK ALL THE APPLY)

- Newspaper ..................................... 1
- TV News ........................................ 2
- TV Commercial .................................. 3
- TV, Other ....................................... 4
- Radio .......................................... 5
- Magazines ...................................... 6
- Internet ........................................ 7
- Other, Specify .................................. 9
G3aSp. (Where do you get most of your health news from?) Please specify

____________________________________ (250 characters)
ENTER RESPONSE

G4intro.
I am now going to read you a list of health-related statements about diabetes that have appeared in the news. For each please tell me if you were aware of or had heard the information included in the statement.

G4a. 40 percent of adults currently have a condition called pre-diabetes. Were you aware of this?

WAS AWARE ................................... 1
WAS NOT AWARE .......................... 2 (GO TO G6b)

G4ai. To the best of your recollection where did you hear this information?

NEWSPAPER................................. 1
TV NEWS.................................... 2
TV COMMERCIAL.......................... 3
RADIO........................................ 4
POSTER.....................................  5
BILLBOARD................................  6
BROCHURE................................. 7
OTHER, SPECIFY.........................  8

G4aiSp. (To the best of your recollection where did you hear this information?) Please specify

____________________________________ (250 characters)
ENTER RESPONSE

G4b. About one third of persons with diabetes in the United States do not know they have it. (Were you aware of this?)

WAS AWARE ............................... 1
WAS NOT AWARE .......................... 2 (GO TO G4c)
G4bi. To the best of your recollection where did you hear this information?

<table>
<thead>
<tr>
<th>Source</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEWSPAPER</td>
<td>1</td>
</tr>
<tr>
<td>TV NEWS</td>
<td>2</td>
</tr>
<tr>
<td>TV COMMERCIAL</td>
<td>3</td>
</tr>
<tr>
<td>TV, OTHER</td>
<td>4</td>
</tr>
<tr>
<td>RADIO</td>
<td>5</td>
</tr>
<tr>
<td>POSTER</td>
<td>6</td>
</tr>
<tr>
<td>BILLBOARD</td>
<td>7</td>
</tr>
<tr>
<td>BROCHURE</td>
<td>8</td>
</tr>
<tr>
<td>OTHER, SPECIFY</td>
<td>9</td>
</tr>
</tbody>
</table>

G4biSp. (To the best of your recollection where did you hear this information?) Please specify

__________________________ (250 characters)

ENTER RESPONSE

G4c. Diabetes can be prevented. (Were you aware of this?)

<table>
<thead>
<tr>
<th>Awareness Level</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAS AWARE</td>
<td>1</td>
</tr>
<tr>
<td>WAS NOT AWARE</td>
<td>2</td>
</tr>
</tbody>
</table>

GO TO G5intro

G4ci. To the best of your recollection where did you hear this information?

<table>
<thead>
<tr>
<th>Source</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEWSPAPER</td>
<td>1</td>
</tr>
<tr>
<td>TV NEWS</td>
<td>2</td>
</tr>
<tr>
<td>TV COMMERCIAL</td>
<td>3</td>
</tr>
<tr>
<td>TV, OTHER</td>
<td>4</td>
</tr>
<tr>
<td>RADIO</td>
<td>5</td>
</tr>
<tr>
<td>POSTER</td>
<td>6</td>
</tr>
<tr>
<td>BILLBOARD</td>
<td>7</td>
</tr>
<tr>
<td>BROCHURE</td>
<td>8</td>
</tr>
<tr>
<td>OTHER, SPECIFY</td>
<td>9</td>
</tr>
</tbody>
</table>

G4ciSp. (To the best of your recollection where did you hear this information?) Please specify

__________________________ (250 characters)

ENTER RESPONSE
G5 intro

I’d like to read you a list of some things that other people have said are possible causes of diabetes. For each one would you please tell me, from what you know or have heard, if you feel it is a definite cause of diabetes, a possible cause, or not a cause? What about:

G5a. Race or ethnic group?

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes ................. 3

G5b. Being overweight?

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes ................. 3

G5c. Heredity, that is, people are born with it or the tendency for it.

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes ................. 3

G5d. Eating too much sugar.

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes ................. 3
G5e. Eating too much salt.

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes.................. 3

G5f. Eating fatty foods.

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes.................. 3

G5g. Not getting enough exercise.

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes.................. 3

G5h. Old age.

PROBE: Is this a definite cause, possible cause, or not a cause of diabetes?

Definite cause, ......................... 1
Possible cause, .......................... 2
Not a cause of diabetes.................. 3
I’d like to read you a list of possible treatments for diabetes that other people have mentioned. For each one would you please tell me if you feel it is a treatment that would definitely help lower one’s blood sugar level, might help lower one’s blood sugar level or would not help lower one’s blood sugar level?

G7a. Taking medication.

PROBE: Do you think this would definitely help, might help, or would not help lower blood sugar?

Would definitely help, ...................... 1
Might help, or................................. 2
Would not help ............................. 3

G7b. Low salt diet.

PROBE: Do you think this would definitely help, might help, or would not help lower blood sugar?

Would definitely help, ...................... 1
Might help, or................................. 2
Would not help ............................. 3

G7c. Low fat diet.

PROBE: Do you think this would definitely help, might help, or would not help lower blood sugar?

Would definitely help, ...................... 1
Might help, or................................. 2
Would not help ............................. 3

G7d. Losing weight.

PROBE: Do you think this would definitely help, might help, or would not help lower blood sugar?

Would definitely help, ...................... 1
Might help, or................................. 2
Would not help ............................. 3
G7e. Engaging in regular physical activity

PROBE: Do you think this would definitely help, might help, or would not help lower blood sugar?

Would definitely help, ...................... 1
Might help, or.................................. 2
Would not help .................................. 3
Demographic Questions

H1intro
Thank you. I have just a few final questions about you that will help us analyze this research.

H1. Are you Hispanic or Latino?

YES .................................................. 1
NO .................................................... 2
DON’T KNOW ...................................... 9
REFUSED .......................................... R

H2. What is your race? Please select one or more of the following:

American Indian or Alaska Native .. 1
Asian .................................................. 2
Black or African American .......... 3
Native Hawaiian or Other Pacific Islander........................................ 4
White .................................................. 5
DON’T KNOW/NOT SURE .............. 8
REFUSED .......................................... R

H3. What is the HIGHEST level of school you’ve finished or the highest degree you have received?

Never attended school ............... 00
GRADE 1................................. 01
GRADE 2................................. 02
GRADE 3................................. 03
GRADE 4................................. 04
GRADE 5................................. 05
GRADE 6................................. 06
GRADE 7................................. 07
GRADE 8................................. 08
GRADE 9................................. 09
GRADE 10............................... 10
GRADE 11............................... 11
12th Grade, no diploma ............. 12
High school diploma ................. 13
GED ............................................. 14
Vocational Training.................. 15
Some College, No Diploma ........ 16  
Associate’s degree ...................... 17  
Bachelor’s degree ...................... 18  
Master’s Degree ......................... 19  
Professional Degree .................... 20  
Doctorate .................................. 21  
Refused ...................................... 97  
Not Ascertained ............................ 98  
Don’t Know .................................. 99  

H4. Are you…? **Please read:**

Married ..............................................1  
Divorced ...........................................2  
Widowed ...........................................3  
Separated ..........................................4  
Never married ..................................5  

**Or:**  
A member of an unmarried couple ......6  

**Do not read:**  
Refused.............................................9  

These are all the questions I have. Thank you very much for taking the time to take part in this study.

COMPLETE ......................................1