



# **ARIZONA DIABETES INDICATORS ANNUAL REPORT 2008**

*July 2008*

**Arizona Diabetes Coalition  
Surveillance Committee  
Arizona Department of Health Services  
Diabetes Prevention and Control Program**

# Arizona Diabetes Indicators Annual Report: July 2008

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## EXECUTIVE SUMMARY

### ❖ **Increase in women with diabetes while pregnant.**

After years of decline, diabetes while pregnant is once again on the rise in Arizona. There has been a 34% increase in the rate of diabetes while pregnant from 2002 to 2006.

### ❖ **Increase in babies with macrosomia (birth weight $\geq$ 9 lbs, or 4,000 grams).**

Since 2004, the rate of babies with macrosomia has steadily increased. Macrosomia can be a result of uncontrolled gestational diabetes.

### ❖ **Obesity among Arizona adults is at its highest ever.**

Currently, 22.9% of Arizona adults are obese, a 13.2% increase from 1992, when only 9.7% of Arizona adults were obese. Arizona has failed to reach the Healthy People 2010 goal of 15% since 1999.

### ❖ **The relative successes of the Indian Health Service on many secondary and prevention indicators.**

Amidst an epidemic of diabetes, the three Indian Health Service units reported having a relatively high success rate for several secondary prevention indicators, such as vaccinations for influenza and pneumonia, and microalbuminuria tests.

### ❖ **The rapid pace at which hospitalizations and the total amount of hospital charges related to diabetes are increasing.**

The number of hospitalizations and the amount of hospital charges for diabetes-related hospitalizations is outpacing Arizona's population growth and the rate of inflation. There was over \$3.5 billion in charges in 2006, not counting the charges in the VA system and the Indian Health Service.

### ❖ **Many diabetic patients are not getting the tests they need.**

#### ***A<sub>1</sub>C test***

This test shows blood glucose levels during the past two to three months. As low as 70 percent of diabetic patients during the past year received the A<sub>1</sub>C test.

#### ***Blood pressure (hypertension)***

The goal for diabetic patients is less than 130/80, but as low as 41% of diabetic patients had their blood pressures measured.

#### ***Cholesterol***

The LDL goal for diabetic patients is less than 100, while the HDL goal for diabetic patients is above 40. As low as 41% of diabetic patients had a lipid panel within the last year.

# SELECTED DIABETES INDICATORS IN ARIZONA

## *Introduction*

It is estimated that about 375,000 adults in Arizona had diabetes in 2006, and another 125,000 are living with undiagnosed diabetes. Diabetes continues to be a serious health problem in Arizona and the United States. At the national level, the Healthy People 2010 goal for diabetes states, "Through prevention programs, reduce the disease and economic burden of diabetes, and improve the quality of life for all persons who have or are at risk for diabetes." This report has 27 indicators that address primary, secondary, tertiary prevention categories and process objectives.

The purpose of this document is to measure the annual progress of diabetes control efforts. The objectives were chosen with several criteria:

1. The objectives need to reflect activities that have occurred recently so programmatic and surveillance changes can be made accordingly and quickly.
2. Easily obtainable objectives are desired due to limited staffing and resources of the ADHS Diabetes Prevention and Control Program.
3. The objectives must be able to monitor trends to determine whether progress was achieved.
4. The objectives must cover the wide range of activities of the Arizona Diabetes Coalition and its members.

The following objectives have been categorized into four groups: (a) Precursor Conditions and Primary Prevention, (b) Secondary Prevention, (c) Tertiary Prevention, and (d) Process Objectives.

## Methodology

In 1999, the Surveillance Committee of the Arizona Diabetes Council selected a set of indicators important to the Council's partners that would provide information to measure the annual progress of diabetes control efforts by various agencies and health care systems in Arizona. Each organization has its own methods of collecting data on selected indicators; therefore, both the numerator and denominator have been defined in this report for clarification. These definitions may or may not correspond with all national standards or measurements of care as promulgated by the American Diabetes Association, Medicare Standards, Healthy People 2010, HEDIS® Comprehensive Diabetes Care, FACCT Diabetes Standards or the American Associations of Diabetes Educators Standards. Each reporting organization has its own characteristics that are listed below. However, all information reported in this document is from users of the sources (Agencies) or self-reported through surveys. Limitations are stated for each of the indicators within the relevant category.

The information from Indian Health Service (IHS) is obtained from a database of chart audits, where a percentage of each IHS area's diabetic patient charts are audited. The percentages described in this report only represent the percentages of those charts that were audited.

Audit FY2003	Charts audited (#)	Total in registry (#)	Percent audited (%)	Audit FY2007	Charts audited (#)	Total in registry (#)	Percent audited (%)
Navajo	1,625	16,205	10%	Navajo	1,578	18,400	9%
Phoenix	2,662	19,968	13%	Phoenix	6,596	18,258	36%
Tucson	1,155	3,960	29%	Tucson	1,193	3,099	38%
All	30,192	110,305	27%	All	54,415	123,979	44%

For this report, two new indicators were added to help in describing progress in primary and secondary prevention. Specifically, measurements on diabetes prevalence and pneumococcal vaccinations were added.

## Data Sources

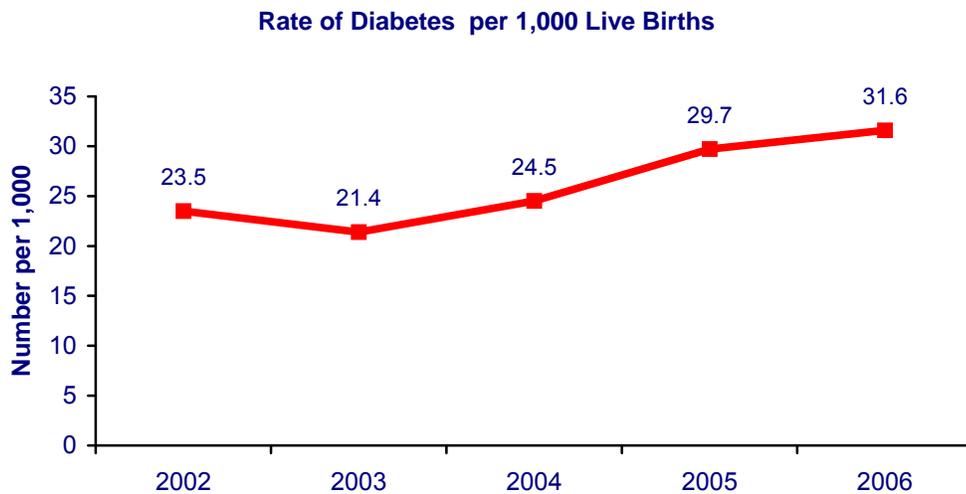
❖ Indian Health Service (IHS)	❖ Arizona Association of Community Health Centers (AACHC)
❖ Arizona Department of Health Services (ADHS)	❖ Veterans Affairs medical Center (VA)
❖ Pediatric Nutrition Surveillance System (PedNSS)	❖ Youth Risk Behavior Surveillance System (YRBSS)
❖ Healthcare Effectiveness Data and Information Set (HEDIS®)	❖ Behavior Risk Factor Surveillance System (BRFSS)

## A. PRECURSOR CONDITIONS AND PRIMARY PREVENTION (Prevention of Diabetes Mellitus)

### 1. Proportion Of Mothers With Diabetes During Pregnancy:

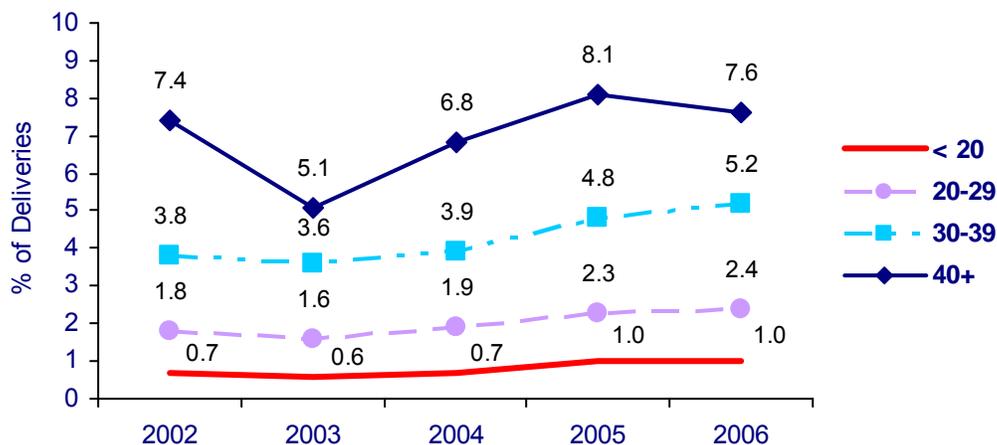
Mothers with diabetes during pregnancy are defined as those mothers who have chronic diabetes and/or women who develop diabetes during pregnancy (gestational diabetes). Figure 1a presents the count of birth certificates indicating the prevalence of maternal diabetes expressed per 1,000 live births from 2002 to 2006. The graph reveals that the rate of diabetes has been increasing over the past five years. Figure 1b represents the age distribution of deliveries by mothers with diabetes, which seem to be on the rise as well.

**Figure 1a. Percentage of Mothers with Diabetes (Chronic or Gestational) 2002-2006, All Races.**



Source: Arizona Health Status and Vital Statistics 2002-2006, ADHS.

**Figure 1b. Age Distribution for Deliveries Associated with Diabetes, 2002-2006.**



Source: Arizona Health Status and Vital Statistics 2002-2006, ADHS.

**2. Rate Of Babies With Macrosomia (Birth weight  $\geq$  4,000 Grams):**

Table 1 shows the rate of babies with macrosomia for 1998-2006. The rate of macrosomia among births to mothers with diabetes has been steadily decreasing for the past seven years, although the rates are still extremely high compared to all births.

**Table 1. Births to Diabetic Mothers of Infants Weighing at or Greater than 4,000 Grams, 1998 – 2006, All Races.**

Year	Births of Infants $\geq$ 4,000 Grams (9 lbs) to Mothers with Diabetes	Rate Per 1,000 Live Births to Mothers with Diabetes	Births of All Infants $\geq$ 4,000 Grams (9 lbs)	Rate Per 1,000 Live Births
1998	353	192.8	6900	88.5
1999	251	142.9	6593	81.9
2000	332	171.2	6796	80.0
2001	320	169.1	7297	85.6
2002	342	166.7	7364	84.3
2003	304	156.6	7439	81.9
2004	352	153.8	7269	77.8
2005	407	143.0	7463	77.9
2006	434	134.7	7821	76.6

Source: Birth Database 1998-2006, ADHS.

**3. Pre-School Children Who Are Overweight:**

This indicator is defined as low-income two to four-year-old children in the Arizona WIC Program, Inter Tribal Council of Arizona, Inc. (ITCA) WIC Program, and Navajo WIC Program, with weight for height  $\geq$  95<sup>th</sup> percentile (see Table 2).

**Table 2. WIC Participants, Children Ages 2-4, and Program Characteristics.**

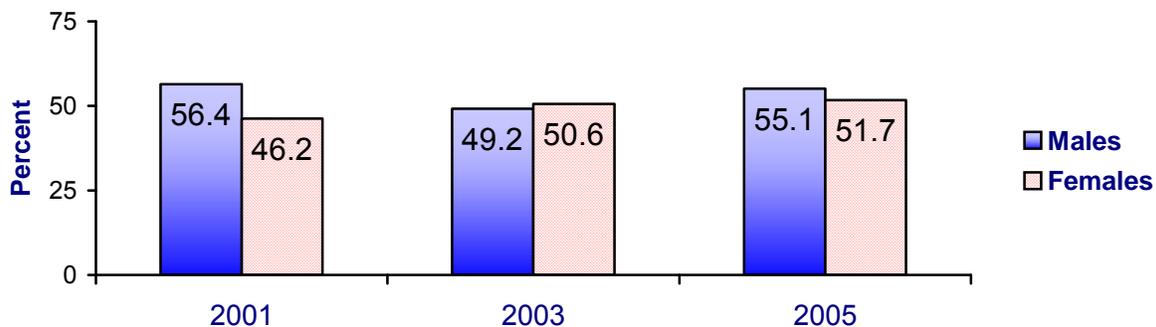
Source	Year	Number of Clients	Percent Overweight
State of Arizona WIC Program	2005	51,843	12.8%
ITCA WIC Program	2005	5,001	24.2%
Navajo WIC Program	2005	9,109	16.5%

Source: Pediatric Nutrition Surveillance System, CDC, 2005.

**4. Proportion Of Adults Who Are Considered Physically Active:**

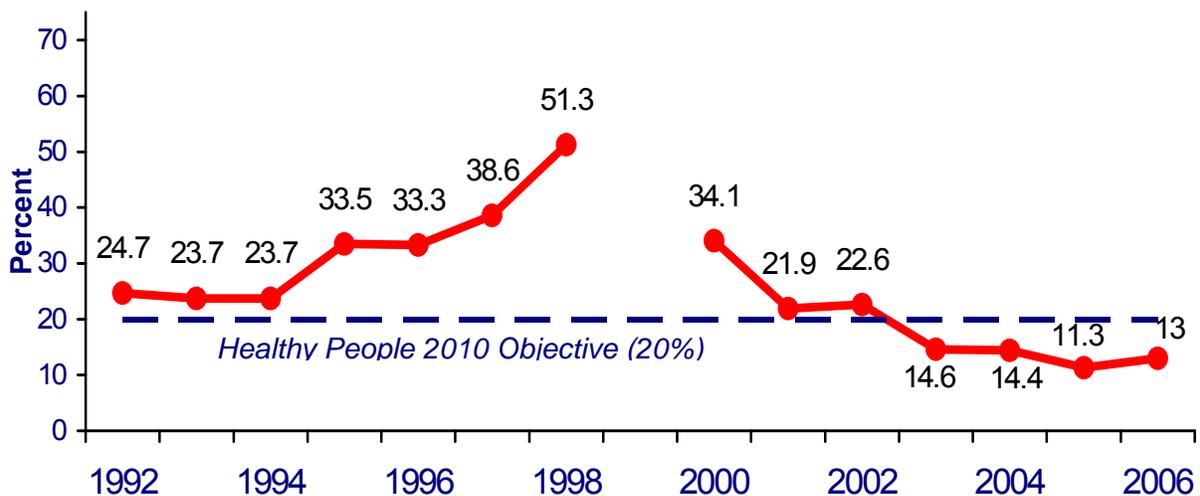
These data are obtained from the self-reports of the Behavioral Risk Factor Surveillance System (BRFSS). BRFSS is a telephone survey that has been conducted monthly since 1992 and results are reported annually. Figure 2a shows the proportion of Arizona Adults who meet the recommendations for physical activity (30+ minutes of moderate physical activity, five or more days per week or vigorous physical activity for 20+ minutes three or more days per week). Figure 2b shows the proportion of Arizonans Adults (age 18 and older) who are physically inactive (that is, they reported that they did not participate in physical activity during leisure time during the past month). Based on the trend line presented, the percentage of adults in Arizona who participate in no leisure-time physical activity has been decreasing since 2000.

**Figure 2a. Proportion of Arizona Adults Who Met the Recommendations for Moderate or Vigorous Activity in the Past Month, 2001-2005.**



Source: Behavior Risk Factor Surveillance System, CDC, 2001 – 2005.

**Figure 2b. Proportion of Arizona Adults Not Participating in Physical Activity in the Past Month, 1992-2006.**



Source: Behavior Risk Factor Surveillance System, CDC, 1990 – 2006.

**5. Proportion Of Adolescents Who Are Considered Physically Active:**

This information is compiled from high school students surveyed from the 2003 and 2005 Youth Risk Behavioral Surveillance System (YRBSS). The survey included students in grades 9 through 12. These figures represent self-reported data (see Table 3).

**Table 3. Self-reported Physical Activity Among Youth During Past Seven Days.**

	2003	2005
No vigorous or moderate physical activity	7.7%	8.7%
Vigorous activity for 20 minutes or more/ 3 or more days	66.9%	62.5%
Moderate activity 30 minutes or more/ 5 or more days	29.2%	28.1%
Participated in recommended physical activity in past week*	72.2%	32.3%

Source: YRBS, 2003-2005. Arizona Department of Education ([www.ade.state.az.us](http://www.ade.state.az.us))

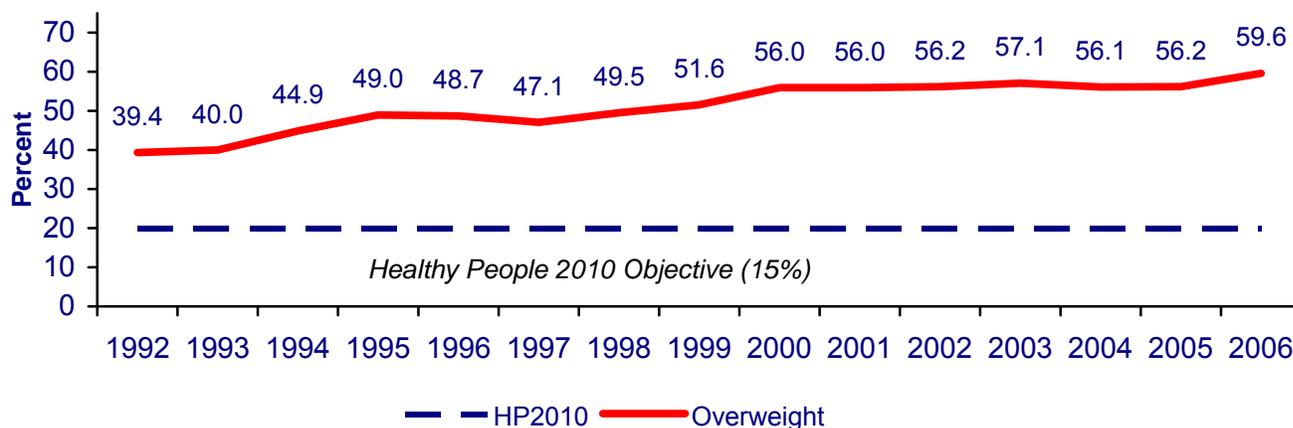
\* The recommended amount of physical activity for children changed from 2003 to 2005, to at least 60 minutes of moderate intensity physical activity on most days (Division of Nutrition, Physical Activity and Obesity, CDC).

**6. Proportion Of Adults Who Are Overweight:**

All respondents to the Arizona BRFSS with a Body Mass Index (BMI) that is between 25.0 and 29.9 are considered overweight. BMI is defined as weight in kilograms divided by height in meters squared ( $w/h^2$ ). The figures do not include survey respondents with missing, don't know or refused answers. Figure 3 shows the proportion of Arizonans whose BMI exceeds the lower limit of overweight adults during a 10-year period.

**Figure 3. Proportion of Arizonans Whose Body Mass Index (BMI) Exceeds the Lower Limit of Overweight, 1992-2002.**

**Proportion Of Arizonans Who Are Overweight or Obese (BMI  $\geq$  25)**

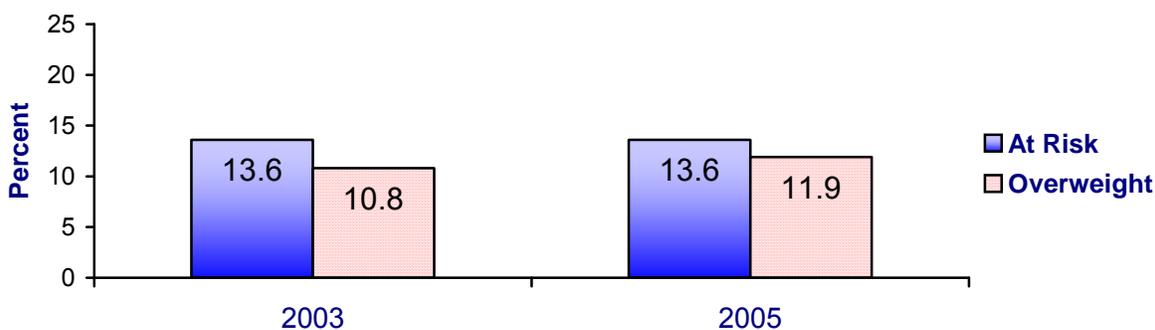


Source: Behavior Risk Factor Surveillance System, CDC, 1992 – 2006.

**7. Proportion of Adolescents Who Are Overweight or At Risk to Become Overweight:**

This information is compiled from high school students in grades 9 through 12 responding to the 2003 and 2005 Youth Risk Behavioral Surveys. These figures represent self-reported data from all children who participated in the survey. From 2003 to 2005, the rate of children who were overweight increased from 10.8% to 11.9% (see Figure 4). For children under age 19, BMI is calculated by height and weight measurements and then compared to the percentile for the respective age (*About BMI for Children and Teens, 2007*).

**Figure 4. Percentage of Students Grades 9 through 12 Who are Overweight or At Risk, 2003 - 2005.**

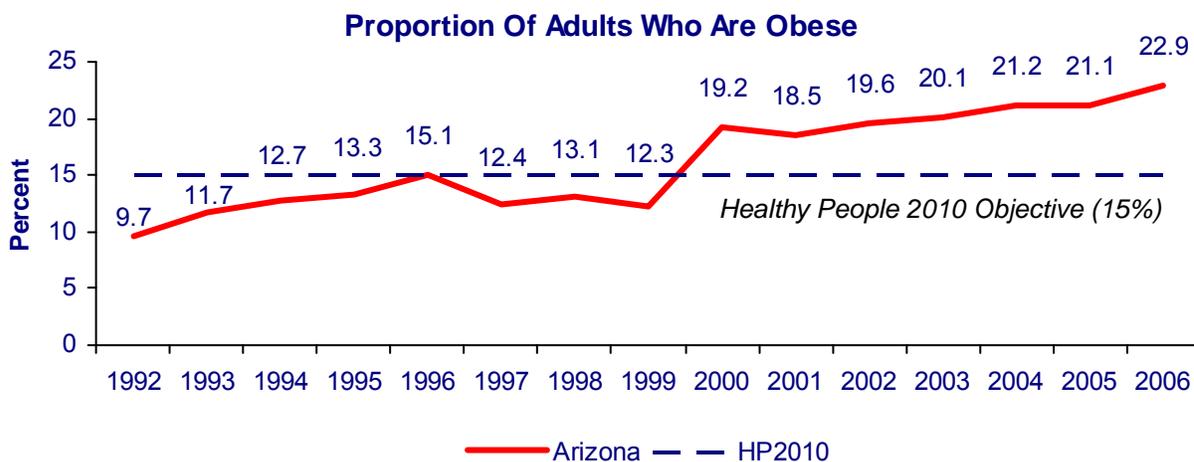


Source: Arizona YRBS 2003-2005, [www.ade.state.az.us](http://www.ade.state.az.us).

**8. Proportion Of Adults Who Are Obese:**

All respondents to the Arizona Behavioral Risk Factor Survey with a Body Mass Index (BMI) that is 30.0 or higher are considered obese. BMI is defined as weight in kilograms divided by height in meters squared ( $w/h^2$ ). The figures do not include survey respondents with missing, don't know and refused answers. The level of obesity has continued to rise above the Healthy People 2010 Objective of 15 percent (see Figure 5).

**Figure 5. Proportion of Arizona Adults Whose Body Mass Index Exceeds the Lower Limit of Obese, 1992-2006.**

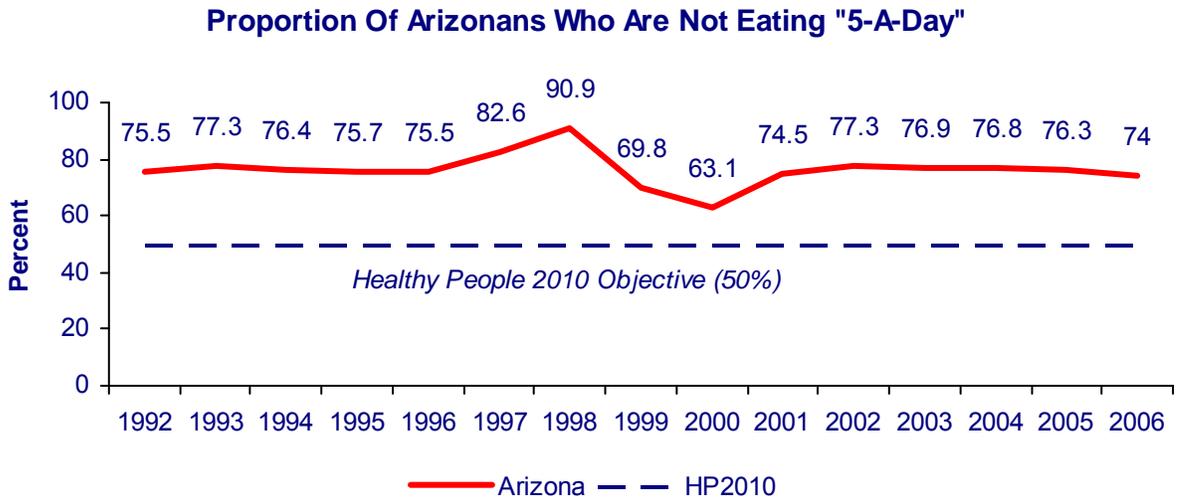


Source: Behavior Risk Factor Surveillance System, CDC, 1992 – 2006.

**9. Proportion Of Arizonans Consuming Inadequate Servings Of Fruits And Vegetables Daily:**

This indicator is defined as adults age 18 and older who self-reported eating less than five servings of fruits and vegetables per day in the Arizona BRFSS. Figure 6 shows that the percentage of adults who consume an inadequate amount of fruits and vegetables has remained stable over the past six years.

**Figure 6. Proportion of Arizonans Consuming Less Than 5 Servings of Fruits or Vegetables Per Day, 1992-2006.**

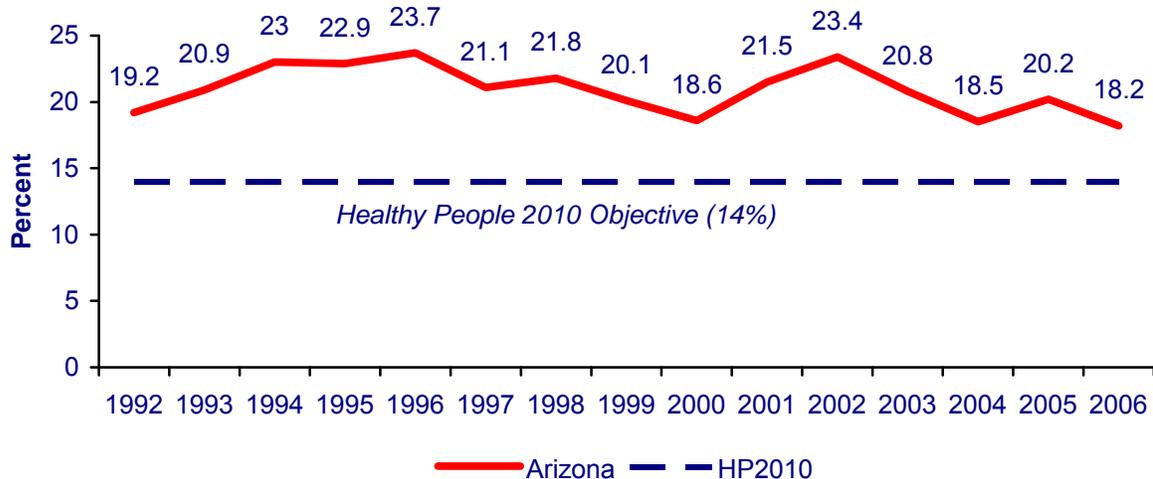


Source: Behavior Risk Factor Surveillance System, CDC, 1992 – 2006.

**10. Proportion of Arizonans Who are Current Smokers:**

This indicator is defined as self-reported current smokers by adults age 18 and older who participated in the Arizona BRFSS. During the 15 year period, the year 2006 had the lowest proportion of Arizonans who were current smokers (18.2%) (See Figure 7).

**Figure 7. Proportion of Arizonans Who Are Current Smokers, 1992-2006.**



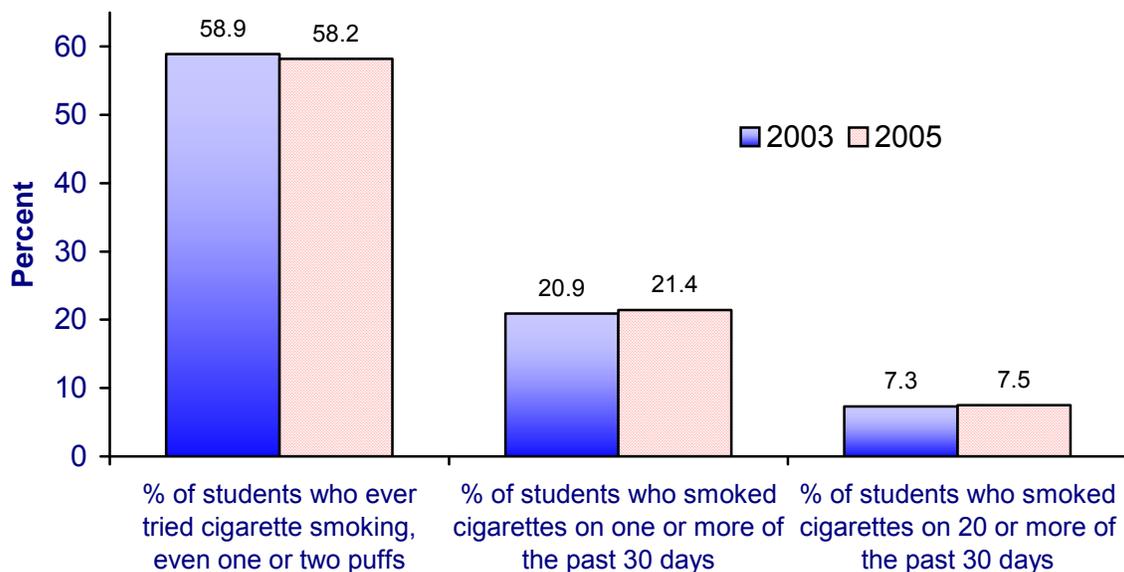
Source: Behavior Risk Factor Surveillance System, CDC, 1992 – 2006.

**11. Proportion of Adolescents Who are Current Smokers:**

This information is compiled from students in grades 9 through 12 who participated in the 2003 and 2005 YRBSS. Figure 8 shows the self-reported smoking behavior among these students.

**Figure 8. The Percentage of Students Grades 9 through 12 Who Smoke.**

**YRBS 2003 - 2005: Arizona High School Survey for Smoking**



Source: YRBS, 2003 - 2005. Arizona Department of Education, [www.ade.state.az.us](http://www.ade.state.az.us).

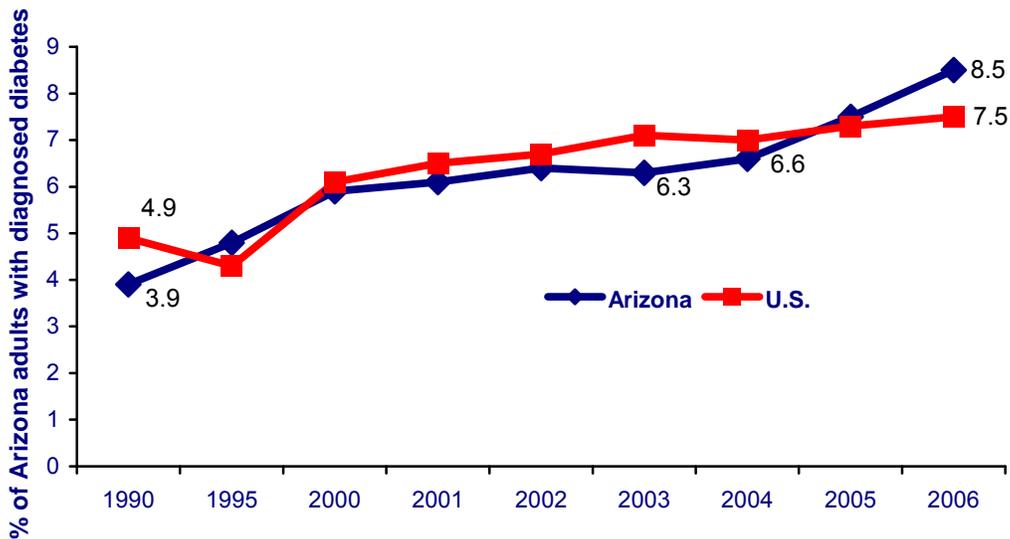
## B. SECONDARY PREVENTION

### (Prevention of complications among persons who already have clinically diagnosed Diabetes Mellitus)

#### 1. Percentage of Adults with Diabetes:

This indicator comes from the BRFSS and represents the percentage of adults in Arizona who have been told by a doctor that they have diabetes (see Figure 9). The number has been increasing steadily since 2003, and has more than doubled since 1990.

**Figure 9. The Prevalence of Diagnosed Diabetes Among Adults in Arizona and the U.S., 1994 –2006.**

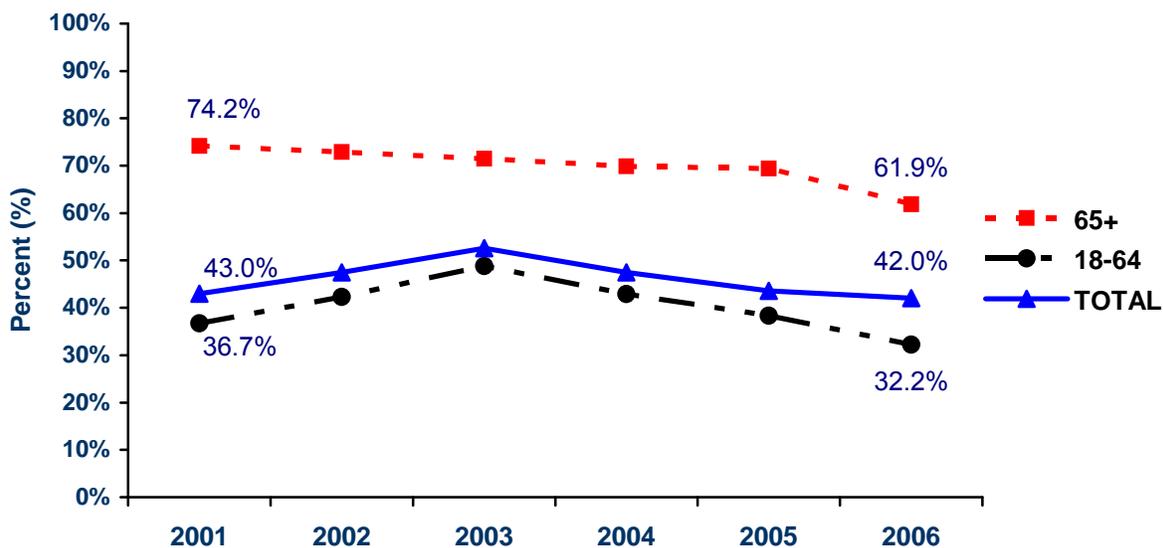


Source: Behavior Risk Factor Surveillance System, CDC, 1990 – 2006.

**2. Percentage of Adults with Diabetes Receiving Influenza Vaccination in the Last Year:**

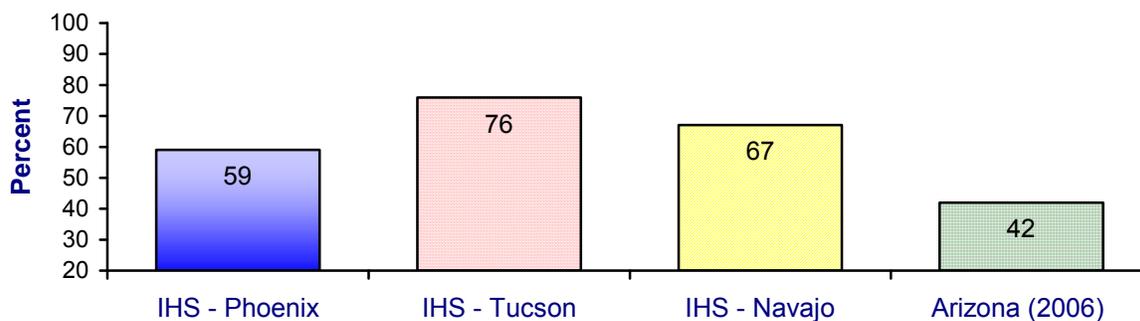
Number of persons age 18 or older who report that they have been told by a doctor that they have diabetes and have received a flu shot in the past year (see Figures 10a and 10b). Persons with diabetes are at increased risk of hospitalization, morbidity, and mortality associated with influenza. Influenza vaccination has the potential to improve morbidity and mortality outcomes among persons with diabetes. This process indicator provides information about the quality of diabetes care provided.

**Figure 10a. The Percentage of Adults with Diabetes Receiving Influenza Vaccination in the Last Year, 2001-2006.**



Source: Behavior Risk Factor Surveillance System, CDC, 2001 – 2005.

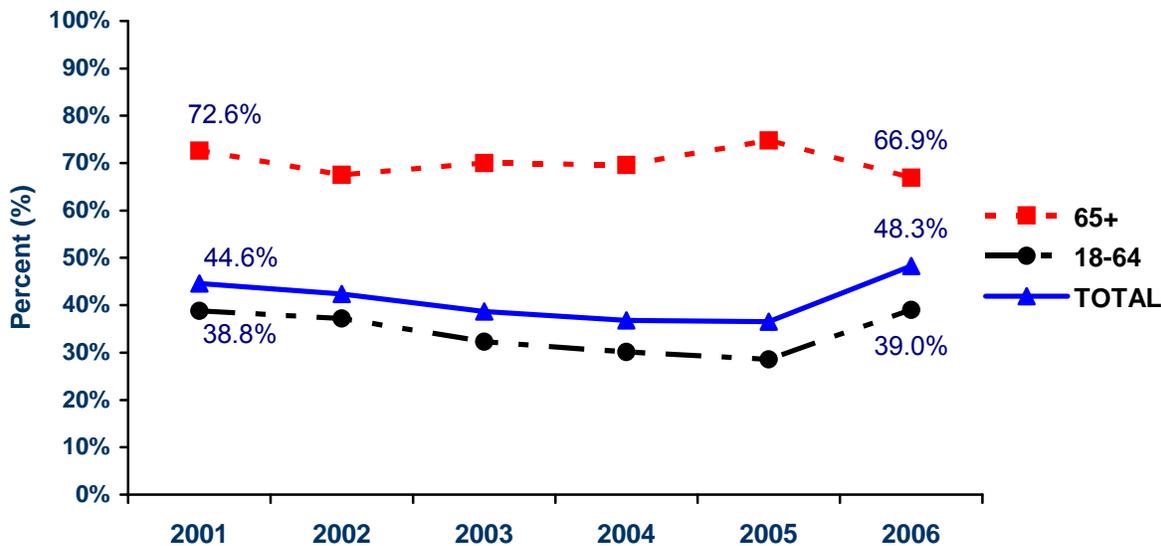
**Figure 10b. The Percentage of Adults with Diabetes Receiving Influenza Vaccination in the Last Year, Selected Indian Health Service Sites, 2007.**



Source: Indian Health Service Diabetes Audit 2007 & BRFSS, 2006.

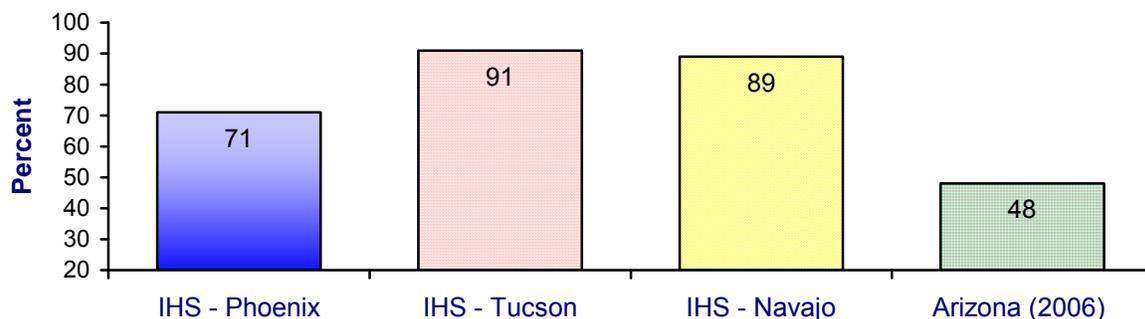
3. **Percentage of Adults with Diabetes Ever Receiving a Pneumococcal Vaccination:** This indicator is defined by the number of persons age 18 or older with diabetes and who report that they have ever received a pneumonia shot (see Figures 11a and 11b). Persons with diabetes are at increased risk of hospitalization, morbidity, and mortality associated with pneumonia. Pneumococcal vaccination has the potential to improve morbidity and mortality outcomes among persons with diabetes. This process indicator provides information about the quality of diabetes care provided.

**Figure 11a. The Percentage of Adults with Diabetes Ever Receiving a Pneumococcal Vaccination, 2001-2006.**



Source: Behavior Risk Factor Surveillance System, CDC, 2001 – 2005.

**Figure 11b. The Percentage of Adults with Diabetes Receiving a Pneumococcal Vaccination, Selected Indian Health Service Sites, 2007**

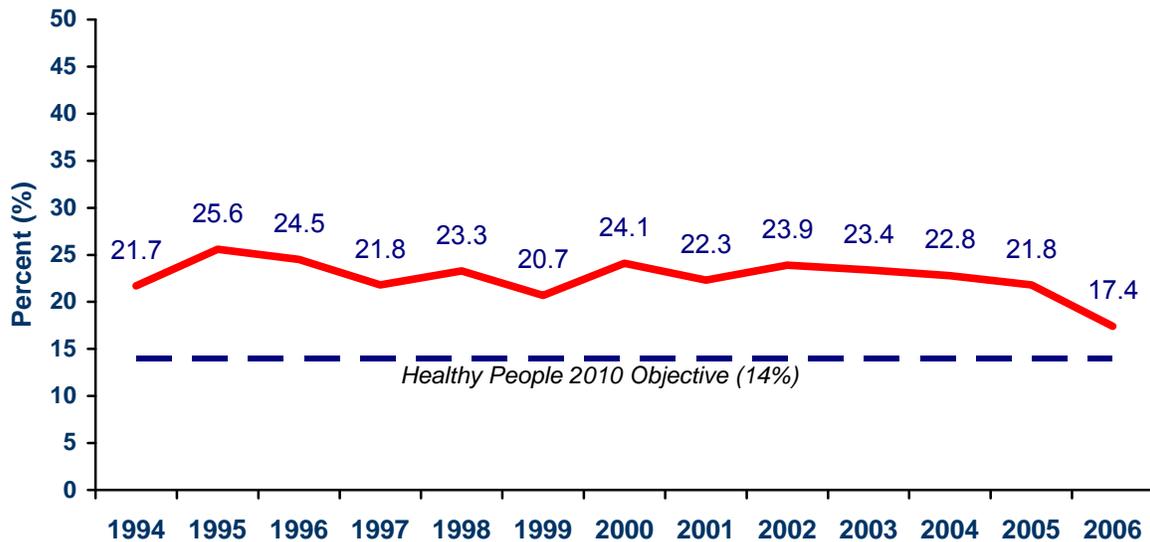


Source: Indian Health Service Diabetes Audit 2007 & BRFSS, 2006.

**4. Percentage of Adults with Diabetes who are Current Smokers:**

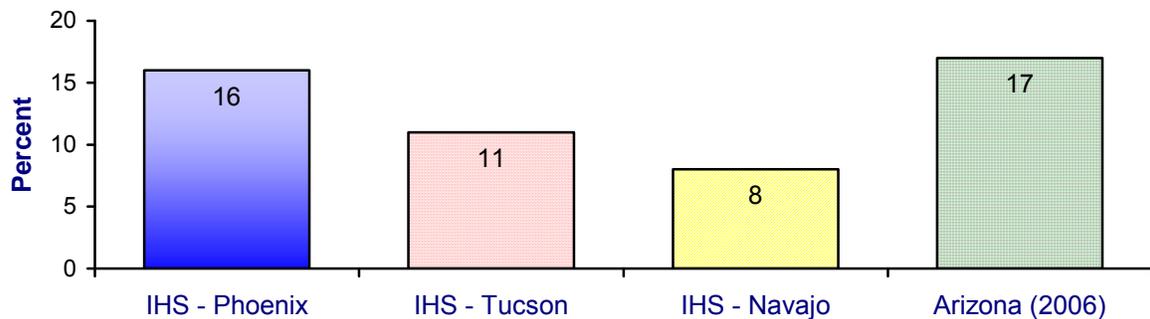
This indicator was calculated as the percentage of adults that consider themselves current smokers and report that they have been told by a doctor they have diabetes. Among many other negative affects of smoking, it significantly increases one’s risk of cardiovascular disease, especially among persons with diabetes. Quitting smoking is highly encouraged for persons with diabetes. Figure 12a indicates that the rate of smoking among adults who report they have diabetes has been slowly but steadily decreasing since 1995. Figure 12b compares the adults with diabetes current smoking rates for the three Arizona Indian Health Service areas.

**Figure 12a. The Rate of Being a Current Smoker Among Adults Who Have Been Told by a Doctor That They Have Diabetes.**



Source: Behavior Risk Factor Surveillance System CDC, 1994 – 2006

**Figure 12b. The Rate of Being a Current Smoker Among Adults with Diabetes, Selected Indian Health Service Sites, 2007 and Arizona, 2006.**



Source: Indian Health Service Diabetes Audit 2007 & BRFSS, 2006.

**16. Percentage Of Diabetic Patients Receiving One Or More A<sub>1</sub>C Tests During The Last 12 Months:**

The numerator for this indicator is the number of diabetic patients who have had at least one A<sub>1</sub>C test coded as CPT code 83036 in the past year. The denominator is defined as “diabetic patients”, that is persons seen for medical services who also were coded with at least one diagnosis of diabetes (ICD-9 code=250). Measurement of A<sub>1</sub>C quantifies glucose control over the previous two to three months and is the preferable measure of long-term glycemic control. The Diabetes Quality Improvement Project (DQIP) recommends that health plans and providers be accountable for at least one test per year. Table 4 presents the provider percentages of diabetic patients who received one or more A<sub>1</sub>C tests during the past year. Figures 13a – 13b use HEDIS Comprehensive Diabetes Care data to show the rate of A<sub>1</sub>C testing and control among several Arizona health plans.

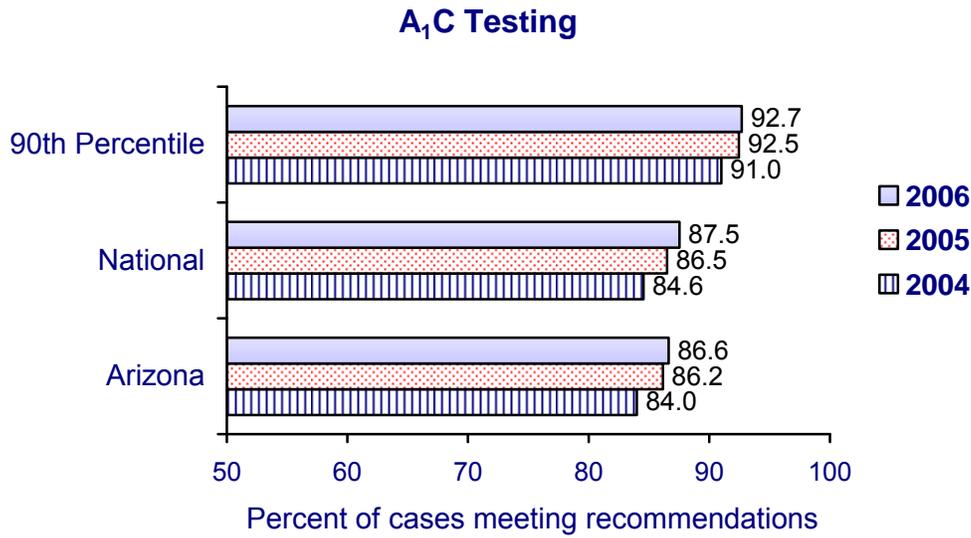
**Table 4. Percentage of Diabetic Patients Receiving One or More A<sub>1</sub>C Tests During the Last 12 Months by Reporting Organization.**

Source	Year of Collection	Patient Tested (Numerator)	Diabetic Patient (Denominator)	Percent
Community Health Centers	FY2003	486	529	91.9%
	FY2004	212	273	77.7%
IHS - Phoenix Area	FY2003	2,556	2,662	96%
	FY2007	6,134	6,596	93%
IHS -Tucson Area	FY2003	1,028	1,155	89%
	FY2007	1,086	1,193	91%
IHS – Navajo	FY2003	1,609	1,625	99%
	FY2007	1,546	1,578	98%
Medicare Fee for Service	2002	18,940	26,087	72.6%
Medicare HMO (7 groups)	2001	Not Available	Not Available	88%
	2002	Not Available	Not Available	85%
VA - Phoenix	2000	4,244	6,017	80.5%
	2001	5,238	7,217	72.6%
	2002	6,085	8,597	70.8%
	2003	7,069	9,660	73.2%
BRFSS (N=491)	2006	Not Available	Not Available	70.0%
HEDIS®	2006	Not Available	Not Available	86.6%

**Notes:**

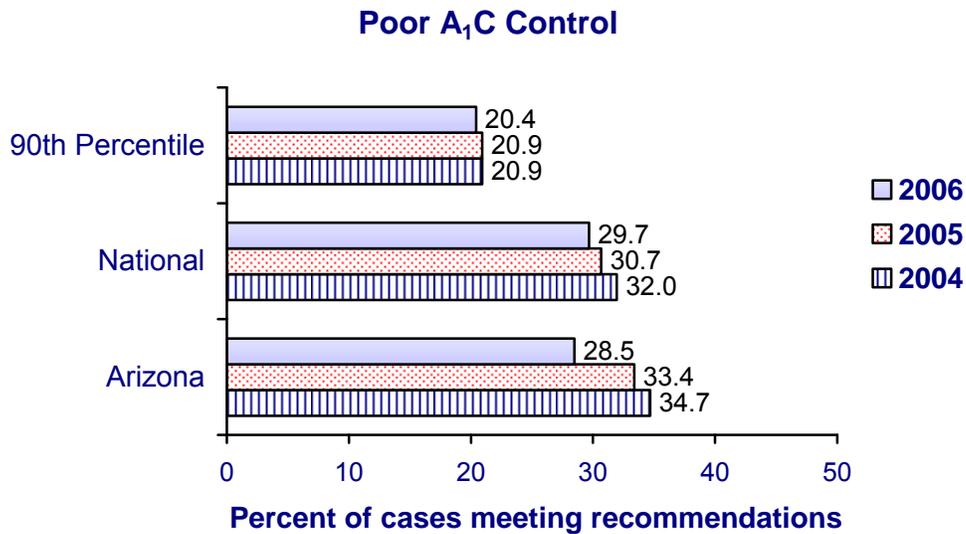
- ❖ Community Health Centers – Information reported from four of the Community Health Centers.
- ❖ IHS Phoenix, Tucson, Navajo – The numbers are based on the IHS Diabetes Audit 2007.
- ❖ Medicare Fee For Service - Figures represent annual exam. Data are currently obtained from claims.
- ❖ Medicare HMO – Figures represent annual exam. Summary HEDIS® data obtained from [www.cms.gov](http://www.cms.gov).
- ❖ BRFSS – Telephone survey collected in a calendar year.

**Figure 13a. Estimated Percentage of Diabetic Patients who Received Annual A<sub>1</sub>C test, Arizona, U.S. and Top 10 Percent of Health Plans, 2004–2006.**



Source: Quality Compass® 2007, used with the permission of the National Committee for Quality Assurance (NCQA).

**Figure 13b. Estimated Percentage of Diabetic Patients whose A<sub>1</sub>C was not under control (>9.0%), Arizona, U.S. and Top 10 Percent of Health Plans, 2004–2006.**



Source: Quality Compass® 2007, used with the permission of the National Committee for Quality Assurance (NCQA).

**17. Percentage of Diabetic Patients Receiving at Least One Microalbuminuria Test During the Last 12 Months:**

Diabetic patients receiving a microalbuminuria test with the CPT procedure code of 82043 (quantitative microalbumin urine) or 82044 (semi-quantitative microalbumin urine). This test is a measure for early detection of renal disease in people with diabetes. Note: patients with diabetes who already have evidence of renal disease with high protein levels shown in other preliminary basic urine tests do not usually receive a microalbuminuria. This is a difficult factor to consider and certainly accounts for some variability seen between organizations. Table 5 presents the provider percentages of diabetic patients who received at least one microalbuminuria test during the past year.

**Table 5. Percentage of Diabetic Patients Receiving at Least One Microalbuminuria Test During the Last 12 Months by Reporting Organization.**

Source	Year of Collection	Patient Tested (Numerator)	Diabetic Patient (Denominator)	Percent
Community Health Centers	FY2003	243	529	45.9%
	FY2004	88	207	42.5%
IHS - Phoenix Area	FY2003	2,130	2,662	80%
	FY2007	4,287	6,596	65%
IHS -Tucson Area	FY2003	1,155	1,155	100%
	FY2007	716	1,193	60%
IHS –Navajo Area	FY2003	926	1,625	57%
	FY2007	1,136	1,578	72%
Medicare Fee For Service	2002	Not Available	Not Available	Not Available
Medicare HMO	2002	Not Available	Not Available	Not Available
VA - Phoenix	2003	153	9,660	1.6%

**NOTES:**

- ❖Community Health Centers – Information reported from four of the Community Health Centers.
- ❖IHS Phoenix, Tucson, Navajo – The numbers are based on the IHS Diabetes Audit 2007.

**18. Eye Examination:**

Percent of diabetic patients receiving a dilated eye examination performed by an eye care professional (ophthalmologist or optometrist) within the past 12 months (see Table 6). The following CPT codes were used to determine whether patients received a dilated eye examination: 92002, 92004, 92012, 92014, 92018, 92019, 99201-99215, and 99241-99245. Figure 14 uses HEDIS® Comprehensive Diabetes Care data to show the rate of dilated eye exams among several Arizona health plans.

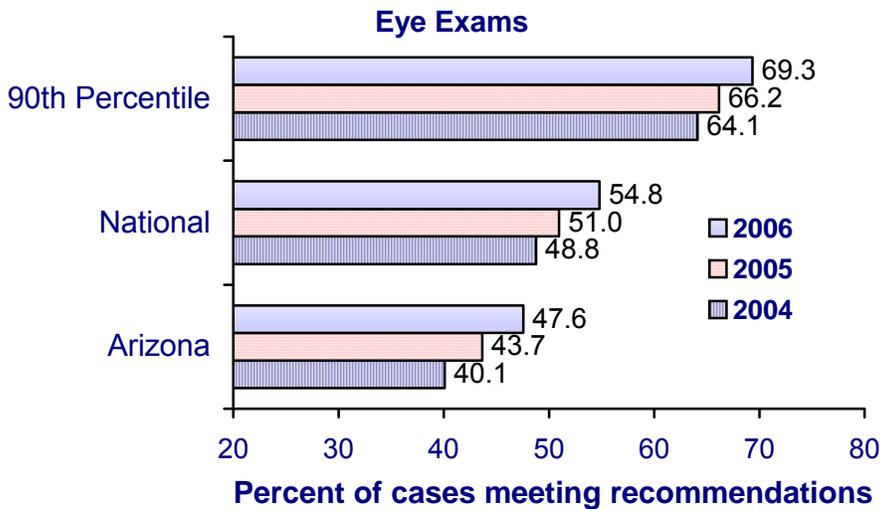
**Table 6. Percent of Diabetic Patients with Eye Examination by Reporting Organization.**

Sources	Year of Collection	Patient Tested (Numerator)	Diabetic Patient (Denominator)	Percent
Community Health Centers	FY2003	286	529	54.1%
	FY2004	81	207	39.1%
IHS - Phoenix Area	FY2003	1,677	2,662	63%
	FY2007	3,760	6,596	57%
IHS – Tucson Area	FY2003	566	1,155	49%
	FY2007	656	1,193	55%
IHS –Navajo Area	FY2003	959	1,625	59%
	FY2007	947	1,578	60%
Medicare Fee For Service	1/01 – 12/02	17,518	26,087	67.2%
Medicare HMO (7 groups)	2001	Not Available	Not Available	63%
	2002	Not Available	Not Available	63%
VA - Phoenix	2000	1,647	6,017	27.4%
	2001	1,673	7,217	23.2%
	2002	2,347	8,597	27.3%
	2003	2,559	9,660	26.5%
VA – Prescott	FY2003	Not Available	Not Available	66%
	FY2004	26	31	84%
BRFSS (N=491)	2006	Not Available	Not Available	71.1%
HEDIS®	2006	Not Available	Not Available	47.5%

**NOTES:**

- ❖Community Health Centers - Information reported from four of the Community Health Centers.
- ❖IHS Phoenix, Tucson, Navajo - The numbers are based on the IHS Diabetes Audit 2007.
- ❖Medicare Fee For Service - Figures represent biennial exam. Data are currently obtained from claims.
- ❖Medicare HMO - Figures represent biennial exam. Summary HEDIS® data obtained from [www.cms.gov](http://www.cms.gov).
- ❖VA - Phoenix - Data is capture based on calendar year and CPT codes.
- ❖VA – Prescott - The information is based on fiscal year.
- ❖BRFSS - Telephone survey collected in a calendar year.
- ❖HEDIS® - Data represents services provided in calendar year 2005.

**Figure 14. Estimated Percentage of Diabetic Patients who Received an Annual Dilated Eye Exam, Arizona, U.S. and Top 10 Percent of National Health Plans, 2004–2006.**



Source: Quality Compass® 2007, used with the permission of the National Committee for Quality Assurance (NCQA).

**19. Foot Examination:**

The foot examination measure is defined as a documented foot examination (CPT code 99239). The examination includes an evaluation of protective sensation, vascular status (i.e., palpation for pulses), and a visual inspection for foot deformities/ulcers. A proper foot exam is a low-cost and effective means to detect complications and assess the risk of future serious complications due to diabetes. Table 7 presents the provider percentages of diabetic patients with recorded foot examination during the past year.

**Table 7. Percent of Diabetic Patients with Recorded Foot Examination.**

Source	Year of Collection	Patient Tested (Numerator)	Diabetic Patient (Denominator)	Percent
Community Health Centers	FY2003	456	529	86.2%
	FY2004	123	273	45.1%
IHS – Phoenix Area	FY2003	1,544	2,662	58%
	FY2007	3,100	6,596	47%
IHS -Tucson Area	FY2003	589	1,155	51%
	FY2007	668	1,193	56%
IHS –Navajo Area	FY2003	764	1,625	47%
	FY2007	915	1,578	58%
Medicare Fee For Service	2002	Not Available	Not Available	Not Available
Medicare HMO	2002	Not Available	Not Available	Not Available
VA - Phoenix	2000	1,363	6,017	22.7%
	2001	1,417	7,217	19.6%
	2002	1,344	8,597	15.6%
	2003	1,386	9,660	14.4%
VA – Prescott	FY2003	Not Available	Not Available	71%
	FY2004	21	30	70%
BRFSS (N=491)	2006	Not Available	Not Available	65.9%

**NOTES:**

- ❖ Community Health Centers - Information reported from four of the Community Health Centers.
- ❖ IHS - Phoenix Area - Foot examination is gathered by chart audits.
- ❖ IHS Tucson Area - The numbers are based on the IHS Diabetes Audit 2003, there were a total of 3,960 clients in their registry, of those 1,155 were audited.
- ❖ Medicare Fee for Service - Information not available.
- ❖ Medicare HMO - Information not available.
- ❖ VA - Phoenix - Data is collected based on calendar year, percent of patients seen in the podiatric clinic not associated with specific CPT code.
- ❖ VA – Prescott - The information is based on fiscal year.
- ❖ BRFSS - Telephone survey collected in a calendar year.

**C. TERTIARY PREVENTION  
(Prevention of impairment from diabetes complications)**

**20. Uncontrolled Hypertension:**

In this report, a person has uncontrolled hypertension if the average blood pressure was above 130/80 mm/Hg during the last 12 months. Table 8 presents the percentages of diabetic patients with uncontrolled hypertension.

**Table 8. Percent of Diabetic Patients with Uncontrolled Hypertension by Reporting Organization.**

Source	Year of Collection	Patient Tested (Numerator)	Diabetic Patient (Denominator)	Percent
Community Health Centers	FY2003	210	344	61.1%
	FY2004	112	273	41.0%
IHS - Phoenix Area	FY2003	1,571	2,662	59%
	FY2007	3,298	6,596	50%
IHS -Tucson Area	FY2003	404	1,155	35%
	FY2007	537	1,193	45%
IHS –Navajo Area	FY2003	975	1,625	60%
	FY2007	757	1,578	48%
Medicare Fee For Service	2002	Not Available	Not Available	Not Available
Medicare HMO	2002	Not Available	Not Available	Not Available
VA - Phoenix	2000	2,813	6,017	46.8%
	2001	4,733	7,217	65.6%
	2002	5,068	8,597	59.0%
	2003	6,131	9,660	63.5%
VA - Prescott	FY2003	26	31	84%

**NOTES:**

- ❖ Community Health Centers - Information reported from four of the Community Health Centers.
- ❖ IHS - Phoenix Area - The numbers are based on the IHS Diabetes Audit 2007.
- ❖ IHS - Tucson Area - The numbers are based on the IHS Diabetes Audit 2007.
- ❖ IHS - Navajo - The numbers are based on the IHS Diabetes Audit 2007.
- ❖ Medicare Fee for Service - Information not available.
- ❖ Medicare HMO - Information not available.
- ❖ VA - Phoenix - Current data was collected based on calendar year.
- ❖ VA – Prescott - The information is based on fiscal year.

## 21. Lipid Profile:

Lipid profile was calculated as the percentage of diabetic patients who had a lipid panel within the last 12 months (see Table 9). The CPT code 80061 was used to identify patients who had a lipid panel. CPT code 80061 includes total serum cholesterol, direct measurement of high density lipoproteins and triglycerides. Figures 15a, 15b and 15c use HEDIS Comprehensive Diabetes Care data to show the rate of LDL-cholesterol control among several Arizona health plans. Figure 15d compares the adults with diabetes estimated percentage with LDL cholesterol that was <130 mg/dL for the three Indian Health Service areas in Arizona.

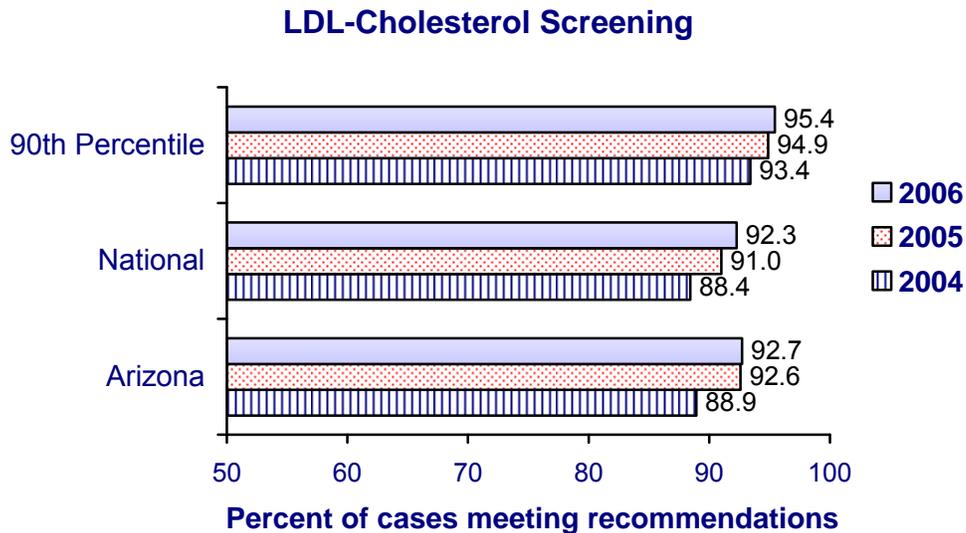
**Table 9. Percent of Diabetic Patients Who Had a Lipid Panel Within the Last Year by Reporting Organization.**

Sources	Year of Collection	Patient Tested (Numerator)	Diabetic Patient (Denominator)	Percent
Community Health Centers	FY2003	454	529	85.8%
	FY2004	42	66	63.6%
IHS - Phoenix Area	FY2003	1,997	2,662	75%
	FY2007	4,881	6,596	74%
IHS -Tucson Area	FY2003	601	1,155	52%
	FY2007	799	1,193	67%
IHS – Navajo Area	FY2003	1,089	1,625	67%
	FY2007	1,184	1,578	75%
Medicare Fee For Service	1/01 – 12/02	20,330	26,087	77.9%
Medicare HMO (7 groups)	2001	Not Available	Not Available	89%
	2002	Not Available	Not Available	91%
VA - Phoenix	2000	4,279	6,017	71.1%
	2001	4,470	7,217	61.9%
	2002	5,275	8,597	61.4%
	2003	6,162	9,660	63.8%
VA - Prescott	FY2003	Not Available	Not Available	78%
	FY2004	22	31	71%
HEDIS®	2006	Not Available	Not Available	92.3%

### NOTES:

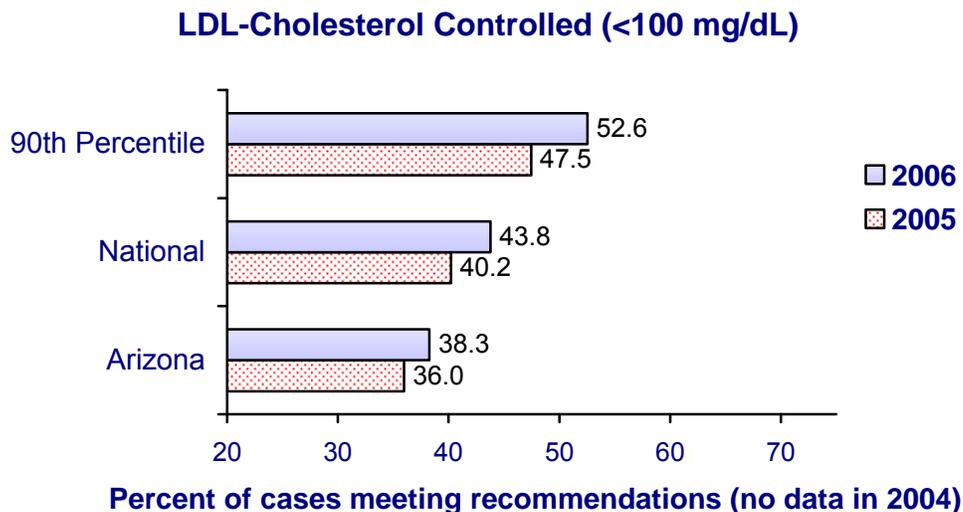
- ❖ Community Health Centers - Information reported from four of the Community Health Centers.
- ❖ IHS – Phoenix, Tucson, Navajo - This information is the percent of patients with cholesterol measured, which amounts to the same thing, as those patients are likely to have had the other profile components.
- ❖ Medicare Fee For Service - Figures represent biennial exam. Data are currently obtained from claims.
- ❖ Medicare HMO - Figures represent biennial exam. Summary HEDIS® data obtained from [www.cms.gov](http://www.cms.gov).
- ❖ VA - Phoenix - Current data was collected based on calendar year.
- ❖ VA – Prescott - The information is based on fiscal year. Based in full lipid profile in the prior 2 years.
- ❖ HEDIS® - Data represents services provided in calendar year 2005.

**Figure 15a. Estimated Percentage of Diabetic Patients Who Received Annual LDL-Cholesterol Test, Arizona, U.S. and Top 10 Percent of Health Plans, 2004–2006.**



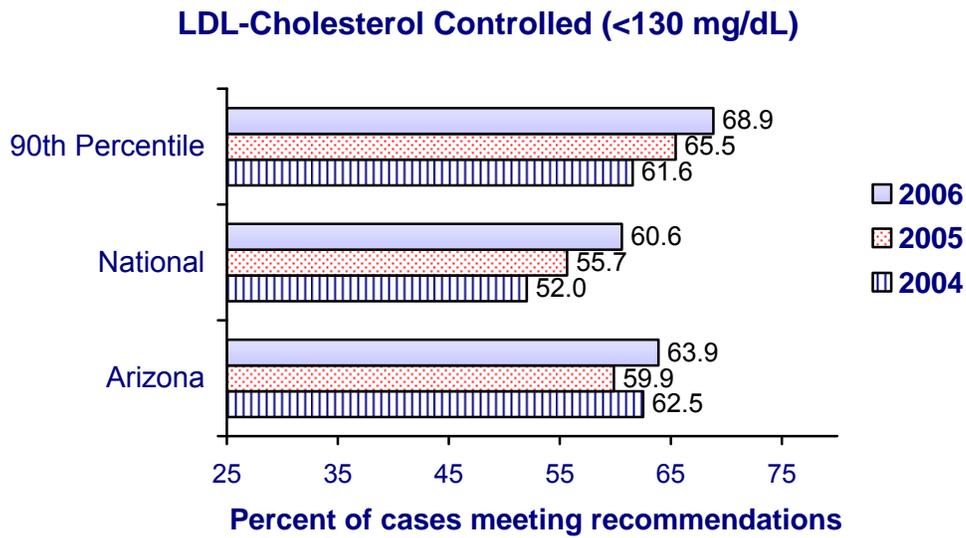
Source: Quality Compass® 2007, used with the permission of the National Committee for Quality Assurance (NCQA).

**Figure 15b. Estimated Percentage of Diabetic Patients Who LDL Cholesterol was <100 mg/dL, Arizona, U.S. and Top 10 Percent of Health Plans, 2004–2006.**



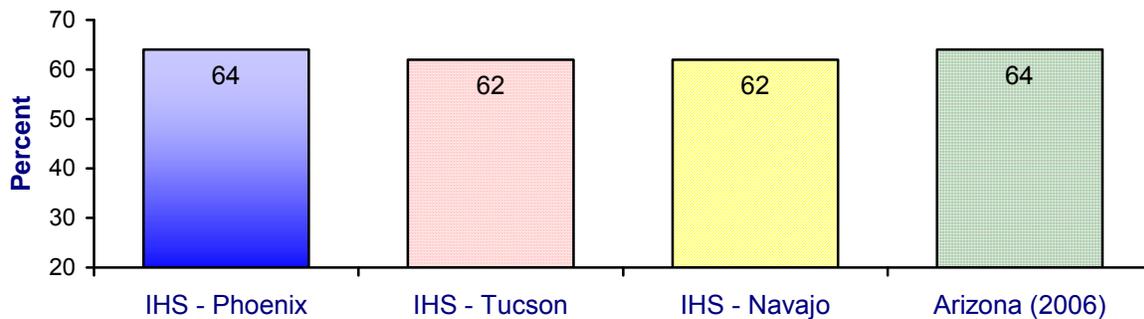
Source: Quality Compass® 2007, used with the permission of the National Committee for Quality Assurance (NCQA).

**Figure 15c. Estimated Percentage of Diabetic Patients whose LDL Cholesterol was <130 mg/dL, Arizona, U.S. and Top 10 Percent of Health Plans, 2004–2006.**



Source: *Quality Compass® 2007, used with the permission of the National Committee for Quality Assurance (NCQA).*

**Figure 15d. Estimated Percentage of Diabetic Patients whose LDL Cholesterol was <130 mg/dL, Selected Indian Health Service Sites, 2007 and Arizona, 2006.**



Source: *Indian Health Service Diabetes Audit 2007 & Quality Compass® 2007, used with the permission of the National Committee for Quality Assurance (NCQA).*

**22. Hospitalizations:**

The numerator for this indicator is defined as an inpatient discharge from the hospital that had an ICD9-CM of 250 in any of the discharge diagnosis fields in the database.

**Table 10a. Hospital Discharges for Diabetes-Related Inpatient Discharge Diagnoses, Nonfederal Facilities Only, 1992-2006.**

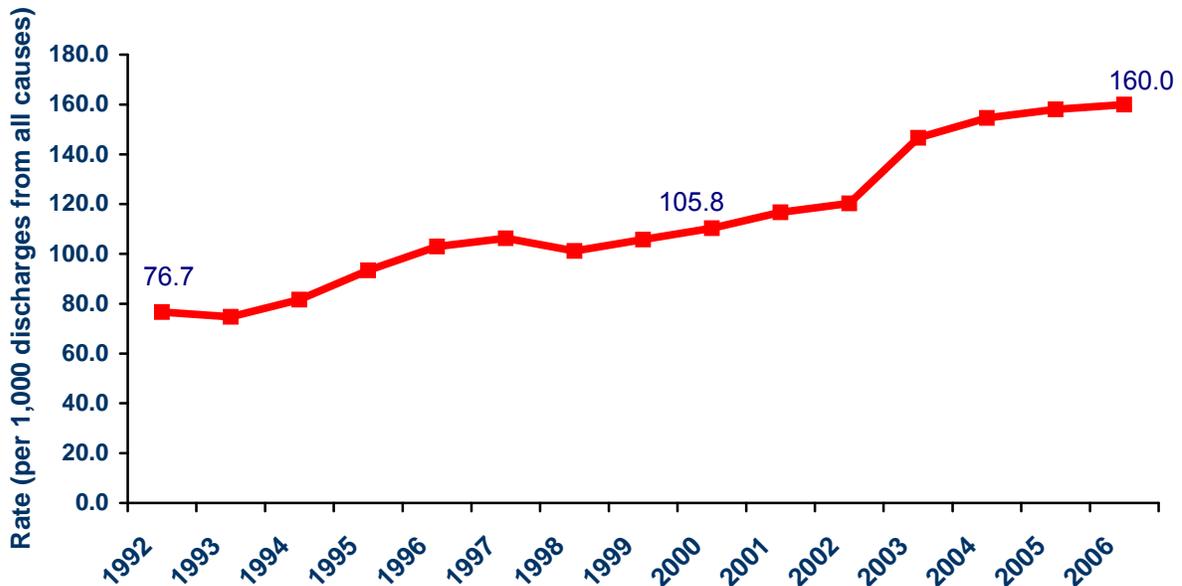
Year of Discharge	Diabetes Discharges (Number)	Diabetes Discharge Rate*	Average Length Stay (Days)^	Total Charges
1992	33,036	76.7	6.1	\$402,768,934
1993	32,758	74.8	5.8	\$429,237,924
1994	36,788	81.6	5.3	\$493,820,743
1995	44,088	93.4	5.4	\$669,148,220
1996	50,762	103.0	4.9	\$775,551,399
1997	54,848	106.3	4.7	\$881,891,382
1998	54,425	101.1	4.9	\$925,712,245
1999	59,359	105.8	4.8	\$1,065,316,017
2000	66,695	110.4	4.8	\$1,337,609,106
2001	70,278	116.7	4.8	\$1,486,475,577
2002	76,670	120.3	4.5	Not Available
2003	82,585	146.6	4.9	\$2,183,374,194
2004	92,989	154.6	4.9	\$2,748,003,084
2005	99,111	158.0	5.0	\$3,185,883,475
2006	102,827	160.0	5.1	\$3,528,216,562

Source: ADHS Hospital Discharge Database, 1992-2006.

\*Diabetes-related discharges per 1,000 discharges from all causes.

^Beginning in 2000, length-of-stay was calculated using diabetes as the first-listed diagnosis.

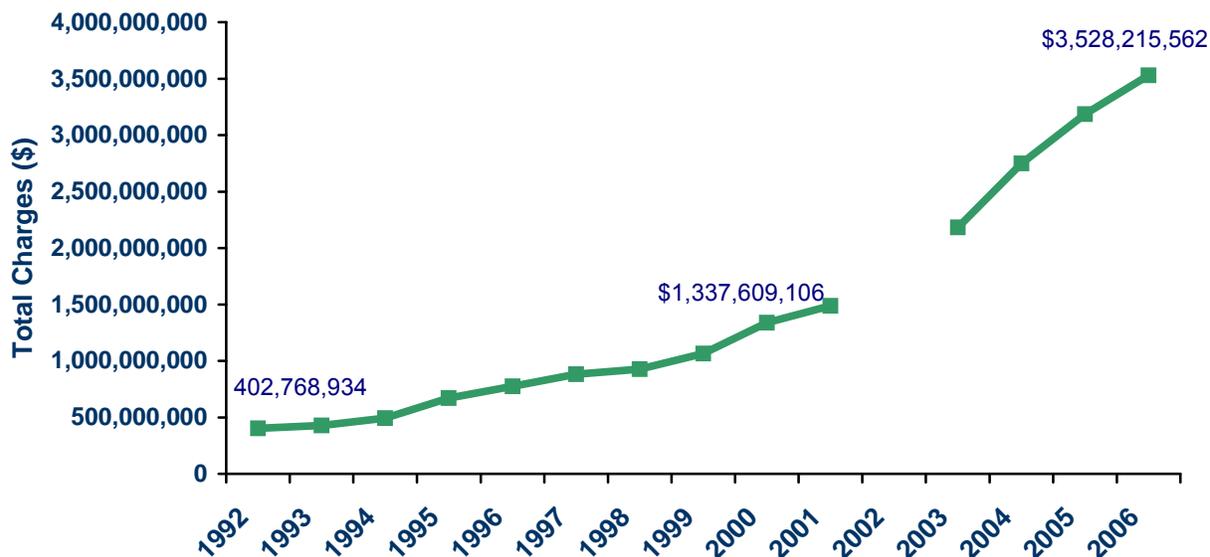
**Figure 16a. Hospital Discharges for Diabetes-Related Inpatient Discharge Diagnoses, Non-Federal Facilities, 1992-2006\*.**



Source: ADHS Hospital Discharge Database, 1992-2006.

\*Diabetes-related discharges per 1,000 discharges from all causes.

**Figure 16b. Total Charges for Diabetes-Related Inpatient Hospitalizations, Non-Federal Facilities, 1992-2006\*.**



Source: ADHS Hospital Discharge Database, 1992-2006. Data on charges from 2003 were not statistically reliable.

\*Diabetes-related discharges per 1,000 discharges from all causes.

**NOTES:**

- ❖ From 2003 – 2006, the date of admission was used to group charges by year. This may result in discrepancies in reports that use the date of discharge to group charges by year. Hospital discharge data from 2002 did not meet necessary data quality standards.
- ❖ This information is based on the calendar year.

**Table 10b. Hospital Discharges for Diabetes-Related Discharge Diagnoses from Federal Facilities for Selected Years.**

Source	Year	Number of Discharges for Diabetes	Diabetes Discharge Rate	Average Length of Stay (Days)
VA - Phoenix	2002	188	2,980	6.5
	2003	251	3,950	6.8
IHS Areas- Phoenix, Tucson, and Navajo	1996	Not Available	325	Not Available

**NOTES:**

- ❖ VA - Phoenix Area - Discharge rate computed as number of diabetes discharges per 100,000 discharges from all causes.
- ❖ IHS Area - No response was provided for the current year, but for the 1996 period, discharge rate computed as number of diabetes-related discharges per 100,000 discharges.

- 23. New Cases of End Stage Renal Disease (ESRD) in Persons with Diabetes:**  
Based on the End Stage Renal Disease (ESRD) Network #15 Data System, the incidence of ESRD and prevalence of ESRD patients on dialysis has increased (see Table 11).

**Table 11. Number of End Stage Renal Disease:**

Patients with Diabetes Diagnosis	2000	2001	2002	2003	2004	2005	2006
ESRD Incidence	916	980	956	963	1,008	985	1,055
ESRD Dialysis Prevalence	2,608	2,782	2,866	3,032	3,191	3,333	3,508
ESRD Deaths	622	680	778	694	724	733	709

Source: ESRD Network #15 Data System, 2000-2006.

- 24. Lower Extremity Amputation:**  
This indicator consists of patients with diabetes that had one or more extremity amputations during the reporting year. Lower extremity amputations include those procedures coded with the following ICD-9 diagnosis codes: 84.10-leg amputation, 84.11-toe amputation, 84.12-foot amputation, 84.13-ankle through joint amputation, 84.14-ankle through lower leg amputation, 84.15-leg below knee amputation, 84.16-knee through joint amputation, 84.17-leg above knee amputation, 84.18-leg through hip amputation, and 84.19-leg and hip amputation. Table 12 presents the hospital numbers of diabetic patients with lower extremity amputations.

**Table 12. Number of Lower Extremity Amputations Among Hospitalized Diabetic Patients.**

Source	1999	2000	2001	2002	2003	2004	2005	2006
Hospital Discharge Database (HDDDB)	824	1,176	1,126	1,201	Not Avail.	1,302	1,377	1,336
VA - Phoenix	51	43	54	48	47	Not Avail.	Not Avail.	Not Avail.

**NOTES:**

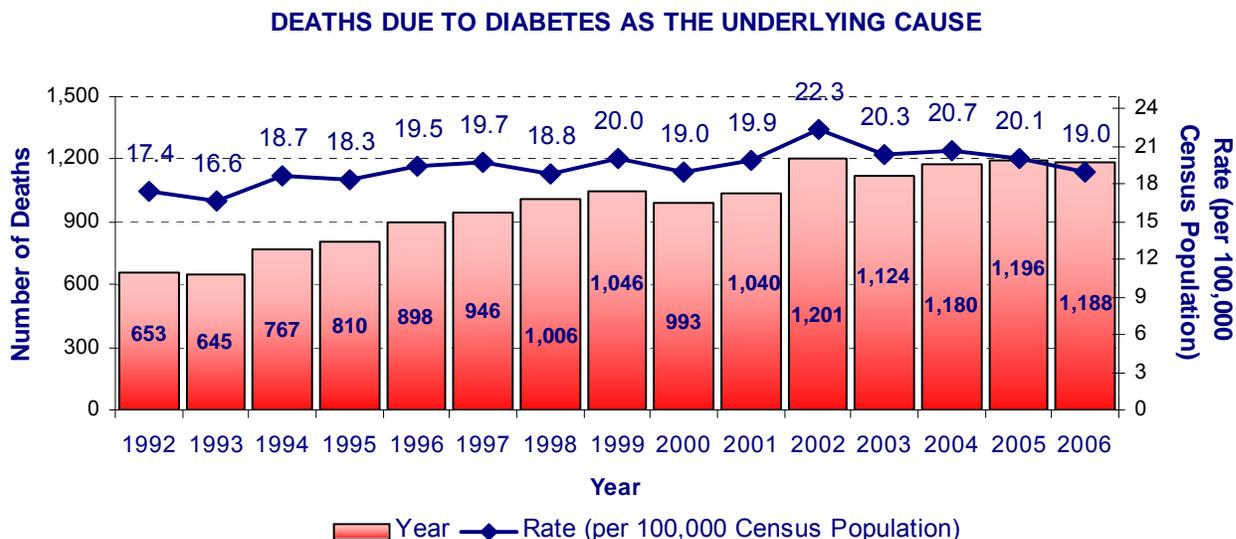
- ❖ Hospital Discharge Database - The HDDDB data is for inpatient amputations from nonfederal facilities only.
- ❖ IHS - These data are not available. Some of these amputations occur in non-IHS facilities. In older American Indian adult male populations (Veterans), diabetes care (especially amputation) for a significant number of urban and reservation dwellers may be delivered in VA Medical Centers.

## D. MORTALITY

### 25. Mortality:

This indicator is defined as the count and rate of all deaths in Arizona with a diabetes diagnosis (ICD9 code = 250.xx) listed as the underlying cause of death (see Figure 17). The deaths attributed to diabetes as the underlying cause underestimates the actual mortality burden of diabetes. According to the CDC, diabetes is three times as likely to be listed as a contributing cause of death than as the underlying cause of death. The leading underlying cause of death for deaths with diabetes listed as a contributing cause is cardiovascular disease. Approximately one third of cases of diabetes are undiagnosed. Diabetes is listed on the death certificates of only approximately half of the decedents who actually had diabetes.

**Figure 17. Deaths in Arizona with the Underlying Cause of Death Listed as ICD-9 code 250 (Diabetes, 1992-2006\*).**



Source: Arizona Health Status and Vital Statistics, 1992-2006, ADHS.

\* Rates are per 100,000 population, age-adjusted to the U.S. 2000 Census data.

## D. RESOURCES

### 26. Registries:

The registries measure is loosely defined as those managed care systems (HMOs, VA, IHS Area, CHC's) that have a registry of diabetic patients, or an ability to easily identify the patients electronically in a given practice setting. The term registry cannot readily be defined because the definition of registry may vary from entity to entity. Each source responded to this measure with a binary (yes/no) response to the question as to whether or not the entity has a registry of diabetic patients. Table 13 summarizes the organizations with diabetes registry.

**Table 13. Number of reporting organizations with diabetes registry.**

<b>Source</b>	<i>Has a Registry</i>
Community Health Centers	Some
IHS - Phoenix Area	Yes
IHS - Tucson Area	Yes
IHS – Navajo Area	Yes
Medicare Fee For Service	Yes
Medicare HMO	Yes
VA - Phoenix	No

#### **NOTES:**

- ❖ Community Health Centers - Two of the 12 community health centers currently have registries of their diabetic patients. In the future, the plan is for all of the community health centers to have their own registries of diabetic patients.
- ❖ Medicare Fee For Service - SDPS can be queried for all 250.0 ICD-9 codes which may or may not approximate the prevalence of diabetes among Medicare beneficiaries. Please note SDPS cannot be considered a complete data source. According to Health Services Advisory Group (HSAG), most plans with a case management program maintain disease registries, including for diabetes.
- ❖ Medicare HMO - According to Health Services Advisory Group (HSAG), most plans with a case management program maintain disease registries, including for diabetes.

**27. Patient Self-Management Education Including Nutrition Education:**

This is a patient-survey based measure used to determine whether or not patients with diabetes are receiving the necessary education to help them manage their disease. The proper management of diabetes relies extensively on the patients' knowledge and understanding of their disease. Therefore, patients must be properly educated in order to successfully self-manage their blood sugar levels, plan meals and exercise. Table 14 summarizes the providers' number of diabetic patients who received self-management classes.

**Table 14. Number of Diabetic Patients Who Received Self-Management Classes.**

<i>Source</i>	<b>Year of Collection</b>	<b>Diabetic Patients Completing Educational Programs</b>	<b>Total Number Of Diabetic Patients</b>	<b>Percent</b>
Community Health Centers	FY2003	460	711	64.7%
	FY2004	161	207	77.8%
IHS - Phoenix Area	FY2003	2,050	2,662	77%
	FY2007	4,090	6,596	62%
IHS -Tucson Area	FY2003	312	1,155	27%
	FY2007	704	1,193	59%
IHS - Navajo Area	FY2003	1,056	1,625	65%
	FY2007	931	1,578	59%
VA - Phoenix	2000	1,098	6,017	18.2%
	2001	1,246	7,217	17.3%
	2002	1,650	8,597	19.2%
	2003	1,869	9,660	19.3%
BRFSS	2000	Not Available	Not Available	55.0%
	2001			47.8%
	2002			55.2%
	2003			48.6%
	2004			54.8%
	2005			55.3%
	2006		57.4%	

**NOTES:**

- ❖ Community Health Centers - The type of education and the extent to which the information is provided to the patients varies from entity to entity. Patients provided a binary (yes/no) response as to whether or not they had completed a diabetes educational program.
- ❖ IHS - Phoenix Area - During this period, 63% of the patients with diabetes received formal diet education, 55.8% received exercise information, and 72% received other information such as self-testing procedures and insulin injection technique. This sum is greater than 100% because some patients received more than one type of education.
- ❖ IHS Tucson Area - The numbers are based on the IHS Diabetes Audit 2003, there were a total of 3,960 clients in their registry, of those 1,155 were audited.
- ❖ Medicare - Not Available.

**28. Standards of Care Recommendations:**

The Standards of Care are presented in Table 15.

**Table 15. Standards of Care Recommended by the American Diabetes Association.**

Indicator	Recommendations
Diabetes Self-Management Education (DSME)	People with diabetes should receive DSME according to national standards when their diabetes is diagnosed and as needed thereafter. DSME should address psychosocial issues, since emotional well-being is strongly associated with positive diabetes outcomes.
Mental Health	Preliminary assessment of psychological and social status should be included as part of the medical management of diabetes. This should include, but is not limited to, attitudes about the illness, expectations for medical management and outcomes, affect/mood, general and diabetes-related quality of life, resources (financial, social, and emotional), and psychiatric history. Screening for problems such as depression, eating disorders, and cognitive impairment is needed when adherence to the medical regimen is poor.
Physical Activity	To improve glycemic control, assist with weight maintenance, and reduce risk of CVD, at least 150 minutes per week of moderate-intensity aerobic physical activity and/or at least 90 minutes per week of vigorous aerobic exercise is recommended. In the absence of contraindications, people with type 2 diabetes should be encouraged to perform resistance exercise 3 times per week, targeting all major muscle groups.
Weight	Check at each visit. Weight loss is recommended for all overweight or obese individuals who have or are at risk for diabetes.

Glycemic Control	Self-monitoring of blood glucose (SMBG) should be carried out 3+ times daily for patients using multiple insulin injections. For patients using less frequent insulin injections, oral agents, or medical nutrition therapy alone, SMBG is useful in achieving glycemic goals.
A <sub>1</sub> C (<7)	Test quarterly if treatment changes or not meeting goals. Test at least 2 times per year if stable.
Microalbuminuria	Test yearly if urinalysis is negative for protein.
Smoking Cessation	Advise ALL patients not to smoke. Include smoking cessation counseling and other forms of treatment as a routine component of diabetes care.
Dilated Eye Exam	People with diabetes should receive a dilated eye exam annually. Optimal glycemic and blood pressure control can substantially reduce the risk and progression of diabetic retinopathy.
Neuropathy	All patients should be screened for distal symmetric polyneuropathy (DPN) at diagnosis and at least annually thereafter, using simple clinical tests.
Blood pressure = <130/80 mm/Hg	Test at each regular diabetes visit.
Comprehensive Foot Exam	People with diabetes should have a comprehensive foot examination and foot self-care education annually to identify risk factors predictive of ulcers and amputations.
Lipid Profile	Test yearly (less frequent if normal). (LDL ≤ 100 mg/dl      HDL ≥ 40 mg/dl      Triglycerides ≤ 150 mg/dl)
Aspirin Therapy	Use aspirin therapy (75-162 mg/day) as secondary prevention in those with a history of CVD. Use as a primary prevention strategy in those with type 1 or type 2 diabetes at increased cardiovascular risk.
Immunizations	Annually provide an influenza vaccine to all diabetic patients older than 6 months of age. Provide at least one lifetime pneumococcal vaccine for adults with diabetes.

Source: *Standards of Medical Care in Diabetes – 2007. (January 2007). Diabetes Care 30 (Supplement 1): S14-S41.*

## F. DISCUSSION

### 29. Important Issues Not Addressed:

Several measures were identified but have been omitted due to the lack of reasonably comparable data to support their inclusion. These measures are as follows:

- i) Elementary and Middle School-Aged Children Who were Overweight
- ii) Use of ACE inhibitors
- iii) Aspirin Therapy

It is recommended that these items be evaluated in the future. It will be necessary to determine the best way to identify and collect the data needed to support each measure.

### 30. Limitations and Procedures:

#### Arizona Department of Health Services' (ADHS) Bureau of Vital Statistics-

- Births, deaths, and fetal deaths from original documents filed with the ADHS and from transcripts of original certificates affecting Arizona residents currently living in other states.
- Death records/certificates of Arizonans who have died outside the U.S. are *not* included.
- Cost Reporting and Discharge Data Review collect information about both hospital inpatient discharges and emergency room visits.
- The Bureau of Public Health Statistics requires short-stay nonfederal hospitals to submit uniformly to ADHS every six months. This excludes patient information from federal, territorial, or other small hospitals/hospices (e.g. Indian Health Service).
- Population Denominators are projections from Arizona Department of Economic Security (DES) <http://www.workforce.az.gov/>.

Information from: <http://www.azdhs.gov/plan/index.htm>

#### CDC Behavioral Risk Factor Surveillance System (BRFSS)-

- BRFSS is on an on-going data collection system for adult health-related behaviors of non-institutionalized residents ages 18 and older. A standardized questionnaire (~75 questions) is used. Questions determined by the state BRFSS coordinator and CDC.
- Only one adult per household is interviewed. Participants are not compensated.
- Random sampling telephone survey, using disproportionate stratified sampling, random digit dialing, and a Computer Assisted Telephone Interviewing (CATI) system.
- Sample size of 4,700 over a 12-month period surveyed (sample size 95 percent confidence interval of  $\pm 3$  percent). Potential to represent 96.3 percent of all households with telephones in Arizona (DES, 2000).
- Monthly data files sent to the Arizona BRFSS program and reports are prepared. Data is weighted based on Arizona population demographics, including number of adults and telephone lines in the household, cluster size, stratum size and age/race/sex distribution of the general population.

Information from: <http://www.cdc.gov/brfss> and <http://www.azdhs.gov/plan/brfs/>

#### CDC Youth Risk Behavior Surveillance System (YRBSS) –

- Every two years since 1991, students (grades 9-12) have been selected from a representative

sample of high schools in a state to take self-reported paper and pencil questionnaires.

- These questionnaires are administered to determine the prevalence of risk factors and behaviors: unintentional injuries and violence, tobacco use, alcohol and other drug use, sexual behaviors, unhealthy dietary behaviors and physical inactivity.
- A limitation is that it is a self-reported questionnaire so under or over-reporting of behaviors cannot be determined.
- Data represents only those who attend a high school. (About 6% of those aged 16 -17 not enrolled in a high school are not represented.) Not all 50 states participate in the survey, skewing nationwide estimates.
- Survey takes 10 minutes for the facilitator to distribute and to read the directions. It takes 35 minutes for the students to take.
- Arizona meets the three YRBSS weighting criteria: surveys with a scientifically drawn sample, appropriate documentation, and an overall response rate of at least 60%. Data are weighted to adjust for school and student non-responses and to make the data representative of the population of students from which the sample was drawn. Generally, data are weighted based on student sex, grade, and race/ethnicity.

Information from: <http://apps.nccd.cdc.gov/yrbss/>

# GLOSSARY

ACE Inhibitors	Angiotensin-Converting Enzyme Inhibitors (Blood Pressure Lowering Medicines).
BRFSS	Behavioral Risk Factor Surveillance System,
CDC	Centers for Disease Control and Prevention.
CDE	Certified Diabetes Educator (“Gold Standard”).
CHS	Contract Health Services.
Denominator	Number of total diabetic population who were served through the agency.
FACCT	Foundation for Accountability - a consortium of healthcare organizations, professional groups and governmental agencies.
FFS	Fee for Service.
HEDIS®	Health plan Employer Data Information Set - a product of the National Committee on Quality Assurance. The source for data contained in this publication is Quality Compass® 2007 and is used with the permission of the National Committee for Quality Assurance (NCQA). Any analysis, interpretation, or conclusion based on these data is solely that of the authors, and NCQA specifically disclaims responsibility for any such analysis, interpretation, or conclusion. Quality Compass is a registered trademark of NCQA.
HSAG	Health Services Advisory Group (Arizona Medicare Quality Improvement Organization).
IHS	Indian Health Service, U.S. Department of Health and Human Services. There are 12 IHS Area Offices nationwide serving American Indian and Alaska Native population.
Phoenix Area IHS	Provides services to tribes in Arizona (EXCEPT Pascua Yaqui, Tohono O’odham Nation and Navajo Nation), Nevada and part of Utah (Approx. 46 federally recognized tribes).
Tucson Area IHS	Provides services to Tohono O’odham Nation and Pascua Yaqui Tribe of Arizona.
Navajo Area IHS	Provides services to the Navajo Nation in Arizona, New Mexico and Utah.
ITCA, Inc.	Consists of 20 member tribes in Arizona, and serves and collaborates with all tribes in Arizona, Nevada and Utah.
ITCA Epidemiology Center	The Epidemiology Center was established by the U.S. Department of Health and Human Services through the Indian Health Service in 1996.
Numerator	Number of diabetic patients who experienced a specific health event.
SDPS	Standard Data Processing System.
VAMC	Veterans Affairs Medical Center.
YRBSS	Youth Risk Behavior Surveillance System.

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