

Nashville Area Aggregate Diabetes Report 2006



Produced by
**Nashville Area Diabetes Program/Tribal Epidemiology Center
Tribal Health Program Support Section
United South and Eastern Tribes, Inc. (USET)
in partnership with the
USET Tribes**

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The contributing USET Tribal Health Program Support and Tribal Epidemiology Center staff members for this years' Nashville Area Diabetes Report and its sister I/T/U specific diabetes reports include: Dianna Richter, Jim Marshall, Byron Jasper, and John Mosely Hayes.

Nashville Area Aggregate Diabetes Report, June 2006

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Executive Summary

The IHS Nashville Area consists of 27 federally recognized Tribes in the eastern United States. The United South and Eastern Tribes, Inc (USET), a federally recognized Tribal organization, is located in Nashville, Tennessee and represents 24 of these 27 Tribes. For the Nashville Area there are approximately 60,000 American Indian Alaska Natives (AI/AN) residing on or near reservations located in 12 different states (from Maine to southern Florida to eastern Texas), with another 75,000 AI/ANs residing in urban areas. USET operates an IHS contracted Area Diabetes Program which provides consultative support to 22 of the 24 Tribal programs in the Nashville Area. These 22 Tribal programs receive funding under the IHS Special Diabetes Program for Indians (SDPI).

The trends and comparisons in this baseline report describe the health status of individuals with diabetes in the Nashville Area, hence providing Tribal leaders, health administrators and clinicians with information to improve their diabetes programs, support those in the community with diabetes, and target their health care dollars. The Nashville Area Aggregate Diabetes Report has accompanying sister Diabetes Reports for each I/T/U; the aggregate report has a more in-depth introduction and methodology section to which the readers of I/T/U specific reports should refer. The data used to make this baseline report come from two different sources; data from I/T/Us participating in the IHS Diabetes Audit program and data from I/T/Us participating in the USET Diabetes Surveillance Project.

The format for the aggregate report includes:

- an Introduction Section presenting an overview of the AI/AN diabetes public health problem within the Nashville Area IHS;
- a Methods Section explaining the logic underlying the calculations, the limitations of the data, and the process of the IHS diabetes audit and USET diabetes surveillance project;
- a two part Findings Section –
 - Part 1: Diabetes Audit Results: describes comparisons between the Nashville Area audit data to the national All IHS audit data across fiscal years 2003-2005, and,
 - Part 2: USET Diabetes Surveillance Project Results: describes comparisons of the aggregate of the USET diabetes surveillance project data across fiscal years 2002-2004;
- the Recommendations Section with suggestions for consideration based upon the results presented in the findings section; and,
- Appendices that include a compendium of resources and the raw data used to create the charts presented in the findings section.

The sister Diabetes Reports for each I/T/U are bound separately. The intent is for each I/T/U to receive only their data, hence the separate document. The sister I/T/U reports are formatted similarly to the aggregate report with a few exceptions. The methods section describes additional methodological issues pertaining to the I/T/U specific report. The two part findings section reflects the use of different comparison groups:

- Part 1: I/T/U specific Diabetes Audit Results: compares the I/T/U's audit results across FY 2003-2005 and with Nashville Area 2005 and All IHS 2005 aggregate data;
- Part 2: I/T/U specific USET Diabetes Surveillance Project Results: compares the I/T/U's data to overall USET data across FY2002-2004. For the surveillance project data, All

Races state and national data are presented for comparison when available for the I/T/U reports.

The aggregate level Nashville Area AI/AN age adjusted (US Census 2000 population) diabetes prevalence rates from FY2002-2004 were stable, ranging from 13.8% to 14.3%, which was almost three times higher than the US All Races rates which ranged from 4.9% to 5.1%. Diabetes prevalence rates calculated for the I/T/U specific levels showed a wide variance, ranging from a high of 21% to a low of 7.5%. There are limitations to these prevalence estimates. First, we were unable to account for individuals with undiagnosed diabetes. Second, we lack data on diabetic AI/ANs who did not visit IHS or Tribal health facilities at least once within three-years of a particular year being studied. Nevertheless, the steady prevalence of diabetes in the Nashville Area and a rate that is nearly three times the US All Races rate reflects the existing large and disproportionate burden of diabetes in this population.

The methodology generating the data presented in our report's Findings Part 1: Diabetes Audit Results sub-section is based on the annual IHS diabetes audit process. Under this process a random sample from an I/T/U's list of active diabetic patients in sufficient number to provide an estimate within 10% of the true rate (at a 90% level of certainty). Some sites complete the audit on the total diabetic population and do not use a sample. After the data is collected at the area level, it is sent to contractor who does the initial data collection/manipulation/cleaning. Summary reports from each Area and for all IHS Areas are weighted according the size of the diabetic population attending each facility and the number of records sampled. Thus in our report, all Nashville Area and all IHS aggregate level results were adjusted, but I/T/U specific results were not.

The methodology generating the data presented in our report's Findings Part 2: USET Diabetes Surveillance Project sub-section is based on mining the facility's RPMS by way of either Q-Man search logic using diagnostic (ICD-9) and/or procedure (CPT) coding or by conducting manual chart reviews. All patients must meet the definition for user population to be included in this analysis, which means for a particular year a patient must have used an I/T/U service within the past three years and be AI/AN. Prevalence is obtained when a patient is diagnosed or a procedure is performed at any time before or during a designated year. Incidence data are obtained only if the patient is diagnosed or the procedure is performed in the same year as a designated year.

Diabetes Audit data analysis findings are summarized as follows:

- A trend reflecting an increase in the percent of patients with longer duration of diabetes disease is noted. Duration of diabetes disease will place an added burden on the Tribal health care delivery systems and resources, due to an increase in diabetic related complications, such as kidney disease, cardiovascular disease (CVD), retinopathy, and amputations.
- To help with the interpretation of the burden of diabetes on the population and health care system, it is noted that as the AI/AN population increases so may the number of diagnosed diabetic cases but not necessarily with a parallel increase in prevalence due to the expanding denominator. In such cases it is important to recognize that an absolute increase in case load or health event is important in itself, even without an increase in prevalence.
- The percent of the Nashville Area patients with ideal glycemic control ($A1c < 7$) is not improving significantly.

- Greater than 80% of our diabetic population is either overweight or obese, and the FY2003-2005 data reflect little or no improvement in body mass index (BMI). This is an added risk factor for hypertension and CVD.
- There appears to be a slight increase in the percent of patients with proteinuria, which may be due to an increase in duration of diabetes disease.
- A slight improvement in the percent of diabetic patients with good low density lipoprotein (LDL) levels (LDL<100) is noted, although there was a decrease in the percent of LDL lab screenings done.
- Audit data reflects a low number of diabetic patients routinely screened for depression. Many studies on the psychosocial aspects of chronic disease indicate that depression can affect the control of diabetes.

USET Diabetes Surveillance Project data analysis findings are summarized as follows:

- For each year, 2002-2004, age adjusted diabetes prevalence for the Nashville Area AI/AN population was nearly three times the US All Races prevalence
- Diabetes prevalence increases with age.
- Incidence of documented lower extremity amputation (LEA), end stage renal disease (ESRD), and retinal eye disease (retinopathy) is increasing. The increase in incidence may be influenced by the diabetic population increase in duration of disease (diabetes >10 years of duration).
- Surveillance data reflects a steady increase in documented CVD prevalence.
- There appears to be a need to improve data entry coding for medical diagnosis (ICD-9) and procedures (CPT) via contract health services, particularly for myocardial infarction (MI), coronary angioplasty (PTCA), and coronary artery bypass graft (CABG).

Based on the findings of this report and the observations of the Nashville Area Diabetes Consultant it is recommended that the Nashville Area I/T/Us:

- Continue the commitment from the I/T/Us for implementing the IHS Diabetes Audit program and the USET Diabetes Surveillance Project. These initiatives provide valuable tools to assess the health status and issues for the population with diabetes. I/T/Us are encouraged to continue supporting these efforts and working with USET in creating reports such as the Nashville Area Diabetes Report.
- Develop and strengthen infrastructures necessary for the IHS Diabetes Audit program and the USET Diabetes Surveillance Project including quality documentation, quality data entry and implementation of IHS Standards of Care for Type 2 Diabetes. Additionally, a team approach contributes greatly to the continuing efforts of both the audit and surveillance initiatives at the I/T/U level.
- Use the data and recommendations in the Nashville Area Diabetes Report and accompanying sister I/T/U specific diabetes reports to advocate for increased quality improvement efforts directed at diabetes treatment and prevention programs. This report helps provide a framework and baseline for local sites, USET and the NAO to measure their diabetes quality improvement efforts, and, to guide their decisions on where to target health care diabetes dollars.
- Initiate the electronic diabetic audit process. As I/T/Us continue to utilize the RPMS and DMS package, more sites should elect to use the electronic audit within RPMS system. The electronic audit process is less time consuming than a manual audit, as well as can provide more consistent data if data entry and quality is also good. It still does take time

with the set-up process, but less than a manual audit. Proper documentation, coding and data entry are vital to the use of the electronic audit.

- Though this report does not address the diabetes education process, I/T/Us are encouraged to initiate or continue efforts toward becoming recognized diabetes education programs. This recognition demonstrates that quality diabetes education services are being provided to a community. Sites can gain this recognition via the American Diabetes Association or IHS.
- Utilize the technical support of the USET Tribal Epidemiology Center staff and Area Diabetes Consultant, as well as IHS resources in the ongoing development of local diabetes programs.
- Continue to improve the quality of diabetes data that is available for analysis. Mechanisms to continue to improve and strengthen the quality of data available from RPMS and other systems should remain a top priority. Quality data is essential for these reports to reflect the current health status of individuals and to document the use of evidenced based best practice with diabetes, hence this recommendation is vital to the ongoing trending and reporting process. Data quality has improved greatly in the past years as reflected by the number of programs participating in the diabetes audit and surveillance project, the number of programs using RPMS and DMS and increased number of programs using the electronic diabetes. However, data anomalies are still present.
- Expand the assessment process to include mixed methods (qualitative and quantitative.) The present report presents an analysis of quantitative data. The addition of qualitative data (site visit observations, interviews, focus groups, etc. ...) would broaden the value of future reports for I/T/U decision makers involved in implementing their community's diabetes program.
- Use the Nashville Area Diabetes Report and accompanying sister I/T/U specific diabetes reports to assist you in your efforts to advocate for continued IHS Special Diabetes Program for Indians funding which is scheduled to end in 2008.

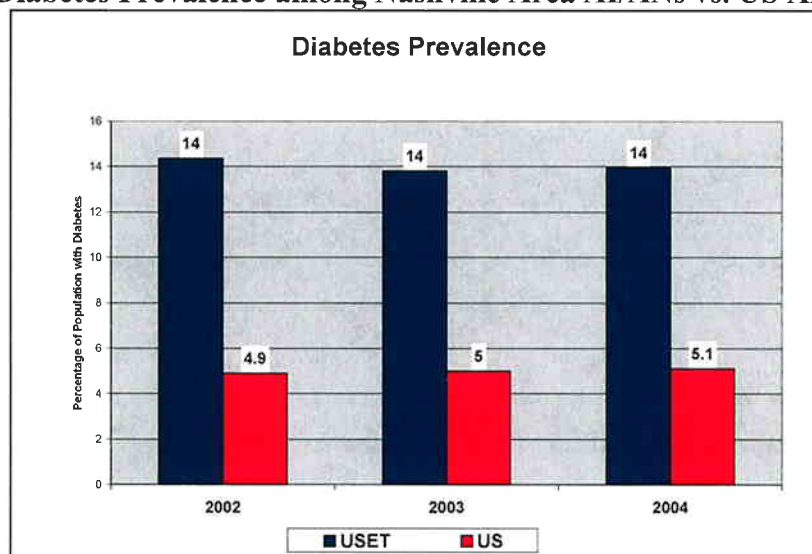
Introduction

Burden of Diabetes among American Indian/Alaskan Native (AI/AN) People

A diabetes epidemic exists within Indian country. Diabetes was rarely reported 50 years ago in AI/AN communities, however diabetes is now very predominate in those communities (Gohdes, 1995). The continuing increase in the prevalence of diabetes in AI/AN communities is well documented (Burrows, 2006). The excess burden of diabetes also continues to be evident when comparing AI/AN and the US population (Acton, 2003).

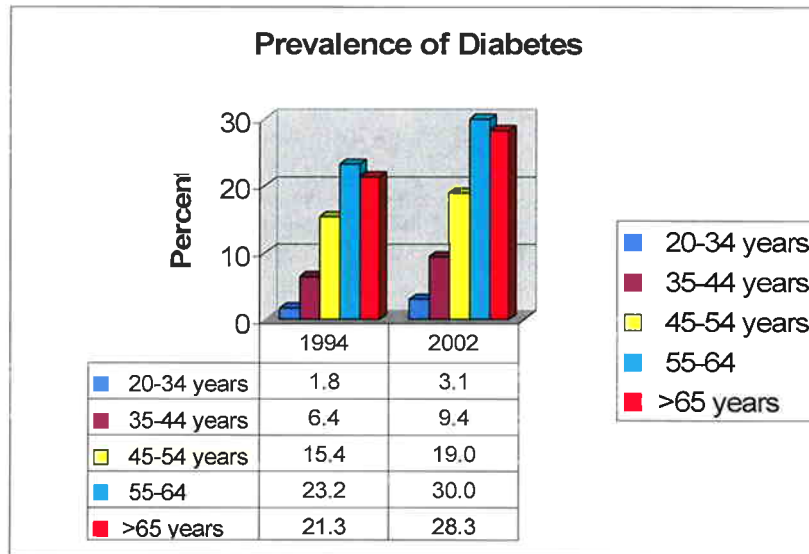
The burden of diabetes among Nashville Area AI/ANs represents a disease with major health disparities between AI/ANs and Non-Indians, as well as compared to other Areas of IHS. According to a recent presentation by a Division of Diabetes Translation, Centers for Disease Control and Prevention, health scientist (Burrows, 2006), the prevalence rate for the Nashville Area is the second highest rate of all IHS Areas in the country. In particular, the age adjusted (Census 2000 population) diabetes prevalence graph below demonstrates the level of disparity among AI/AN in the Nashville Area and US All Races. The aggregate level Nashville Area AI/AN age adjusted diabetes prevalence rates from FY2002-2004 ranged from 13.8% to 14.3% (raw data available in Appendix D), which was almost three times higher than the US All Races rates which ranged from 4.9% to 5.1%. Limitations for these reported rates should be considered; first, we were unable to account for individuals with undiagnosed diabetes and second, we lack data on diabetic AI/ANs who did not visit IHS or I/T/U facilities at least once within three-years of a particular year being studied. For I/T/U specific diabetes prevalence rates, please refer to the sister I/T/U specific diabetes reports that are meant to accompany the aggregate report.

Age Adjusted Diabetes Prevalence among Nashville Area AI/ANs vs. US All Races, 2002-04



USET diabetes prevalence is obtained using Q-Man in RPMS to search ICD-9 diagnosis codes 250.00-250.93 for Type 1 or Type 2 diabetes. The numerator is the number of people with these diagnosis codes in their record. The denominator is the user population defined as a patient using I/T/U services at least once in the last three fiscal years and classified as American Indian/Alaska Native. The USET diabetes prevalence is age-adjusted to the 2000 US Census population as is the US diabetes prevalence presented above.

Prevalence of diagnosed diabetes among adults aged ≥ 20 years in AI/ANs, by age 1994 and 2002



The age stratified prevalence of diagnosed diabetes is displayed above. Overall, the greatest increase was found in adults 45 years and older and the smallest increase was found in younger persons of less than 45 years of age (Acton et al, 2003). Source: Acton et al, MMWR vol.52/No.30 702-704, 2003; Based on IHS ambulatory patient care data.

Nashville Overview

The IHS Nashville Area Office, Nashville, Tennessee, addresses the health needs of approximately 60,000 rural and 75,000 urban Indian people in the Southern and Eastern United States, in an area spanning approximately 800,000 square miles, including Massachusetts, Rhode Island, Connecticut, Florida, New York, North Carolina, South Carolina, Mississippi, Louisiana, Alabama, Maine, and Texas. The Nashville Area includes 27 federally recognized Tribes, three urban programs, and one Tribal organization which are listed in Table 1 below. Health services are provided through a variety of delivery systems. Many Tribes operate their own health services under the authority of the Indian Self-Determination Act of 1976 (PL 93-638). There are 2 hospitals, 22 health centers, 9 health stations, 1 adolescent alcohol/substance abuse residential program, and 2 contract health only programs operated by the Tribes. In addition, there are 2 urban Indian health programs which operate under the authority of Title V of the Indian Health Care Improvement Act. IHS, Tribal, and Urban (I/T/U) health care programs may contract through their Contract Health Service (CHS) programs with private health care providers for services not offered in their direct care facilities. Demographic information including location, land area, user population, enrolled members, people diagnosed with diabetes, and the services available are shown for 23 Nashville Area Tribes in Table 2 below.

Table 1: Nashville Area I/T/Us

<u>Urban Programs:</u>	
<ul style="list-style-type: none"> American Indian Community House of New York Baltimore American Indian Center at Maryland North American Indian Center of Boston, Inc. 	<ul style="list-style-type: none"> Oneida Indian Nation Onondaga Tribe of New York Passamaquoddy Indian Township Passamaquoddy Pleasant Point Penobscot Indian Nation Poarch Band of Creek Indians Seminole Tribe of Florida Seneca Nation of New York Saint Regis Mohawk Tribe of New York Tuscarora Tribe of New York (<i>has not asked to receive IHS services</i>) Tonawanda Tribe of New York (<i>has not asked to receive IHS services</i>) Tunica-Biloxi Tribe of Louisiana Wampanoag of Gay Head
<u>Federally Recognized Tribes:</u>	
<ul style="list-style-type: none"> Alabama-Coushatta Tribe of Texas Aroostook Band of Micmac Indians Catawba Indian Nation Cayuga Indian Nation Chitimacha Tribe of Louisiana Coushatta Tribe of Louisiana Eastern Band of Cherokee Indians Houlton Band of Maliseet Indians Jena Band of Choctaw Indians Mashantucket Pequot Tribe Miccosukee Tribe of Florida Mississippi Band of Choctaw Indians Mohegan Tribe of Connecticut Narragansett Indian Tribe 	<p><u>Tribal Organization:</u></p> <ol style="list-style-type: none"> United South and Eastern Tribes, Inc.

Table 2: Demographic Information for 23 Nashville Area Tribes

Tribe	Location*	Land Area in Acres or Miles*	User Population (2005) deleted	Enrolled Tribal Members (2001) (deleted)	Patients with Diabetes♥ (2004) (deleted)	Services Available*
Alabama-Coushatta Tribe of Texas	Texas	4593.7				Ambulatory Health Care Center (Direct and Contract Health Services)
Aroostook Band of Micmac	Maine	314.24				Ambulatory Health Care Center (Direct and Contract Health Services)
Catawba Tribe of Louisiana	Louisiana	1468				Ambulatory Health Care Center (Direct and Contract Health Services)

Tribe	Location ⁺	Land Area in Acres or Miles ⁺	User Population (2005) (deleted)	Enrolled Tribal Members (2001) (deleted)	Patients with Diabetes [▼] (2004) (deleted)	Services Available ⁺
Chitimacha Tribe of Louisiana	Louisiana	943				Ambulatory Health Care Center (Direct and Contract Health Services)
Coushatta Tribe of Louisiana	Louisiana	3431				Health Center Station (Direct and Contract Health Services)
Eastern Band of Cherokee Indians	North Carolina	56000				Hospital, Health Center Station (Direct and Contract Health Services), Teen Center, Women's Wellness Center
Houlton Band of Maliseet Indians	Maine	856.94				Ambulatory Health Care Center (Direct and Contract Health Services)
Jena Band of Choctaw Indians	Louisiana	3				Contract Health Care Services and Limited Outreach Services
Mashantucket Pequot Tribal Nation	Connecticut	5973.14				Ambulatory Health Center (Direct and Contract Health Services)
Miccosukee Tribe of Florida	FLorida	81586				Ambulatory Health Center (Direct and Contract Health Services)
Mississippi Band of Choctaw Indians	Mississippi	29862				Hospital, Health Care Station (Direct and Contract Health Services)
Mohegan Tribe of Connecticut	Connecticut	542				Contract Health Care Services and Limited Outreach Services
Narragansett Indian Tribe	Rhode Island	2613				Ambulatory Health Care Center (Direct and Contract Health Services)
Oneida Indian Nation	New York	12000				Ambulatory Health Care Center (Direct and Contract Health Services)

Tribe	Location*	Land Area in Acres or Miles*	User Population (2005) (deleted)	Enrolled Tribal Members (2001) (deleted)	Patients with Diabetes♥ (2004) (deleted)	Services Available*
Passamaquoddy Tribe- Indian Township	Maine	144677				Ambulatory Health Care Center (Direct and Contract Health Services)
Passamaquoddy Tribe-Pleasant Point	Maine	140234				Ambulatory Health Care Center (Direct and Contract Health Services)
Penobscot Indian Nation	Maine	115900				Ambulatory Health Care Center (Direct and Contract Health Services)
Poarch Band of Creek Indian	Alabama	1678.07				Ambulatory Health Care Center (Direct and Contract Health Services)
Seminole Tribe of Florida	Florida	90000				Ambulatory Health Care Center (Direct and Contract Health Services)
Seneca Nation of Indians	New York	52842				Ambulatory Health Care Center (Direct and Contract Health Services)
St. Regis Mohawk Tribe	New York	15569.83				Ambulatory Health Care Center (Direct and Contract Health Services)
Tunica-Biloxi Indians of Louisiana	Louisiana	1416.22				Health Center Station (Direct and Contract Health Services)
Wampanoag Tribe of Gay Head (Aquinnah)	Massachusetts	480				Health Center Station (Direct and Contract Health Services)

Source: ♣ Data from USET tribal data information including enrolled tribal members from the Bureau of Indian Affairs 2003 publication; * Data from the IHS ♥ Data from USET Diabetes Surveillance. Data denoted as "na" identifies data not received for the 2004.

Nashville Area Diabetes Consultant Overview of I/T/U Diabetes Programs

In 1997 additional funding provided through the IHS Special Diabetes Program for Indians (SDPI) to address the AI/AN diabetes problem. All modes of prevention (primary, secondary, and tertiary) have seen increased emphasis, along with an increase in diabetes program infrastructure. The improved infrastructure includes the development of diabetes teams, an increase in participation in the diabetes audit, an improvement in data collection, the development of diabetes case registries, and an increase in diabetes education efforts.

The positive impact of having USET's Area Diabetes Consultant centralize the administration of the SDPI grant for the I/T/Us, and thereby freeing the I/T/U diabetes staff to focus more of their time on the actual implementation of diabetes treatment and prevention instead of grants management has been recognized by Tribal Leaders. For the Nashville Area, the local I/T/U Diabetes Coordinators provide the critical stability and continuity that is needed to address diabetes issues in their communities. These individuals have knowledge of their local community, as well as knowledge of diabetes care and prevention, and are very important advocates for each local community.

A significant challenge to systematically bringing quality diabetes care to all sites in the Nashville Area is the wide diversity amongst the sites both in terms of number of diabetes patients served and services offered, as well as the large distances between many of the locations. The number of patients on the different I/T/U specific diabetes registries varies greatly between sites, with some sites having fewer than 50 patients and others with more than 1000 patients. In addition, the services available at the I/T/Us vary greatly, with some only offering contract health services and others offering full service hospitals. With such vast distances separating the different facilities, the logistics of facilitating sharing of approaches between sites and visiting each site on a regular basis is difficult. Under these circumstances it is a challenge to address the needs of such a wide range of diverse diabetes programs. However, the professionalism and team work attitude amongst the Nashville Area Diabetes Coordinators and their clinical partners is very positive and moving the overall program of diabetes care and prevention forward quickly, even though the prevalence of diabetes remains high.

Methodology

This section provides a description of the logic underlying the calculations as well as data limitations. A description of the IHS Diabetes Audit program and USET Diabetes Surveillance Project is provided.

Methodology for Diabetes Prevalence Rates:

The Nashville Area diabetes prevalence rates are calculated by using Q-Man in RPMS to search for ICD-9 diagnosis codes 250.00-250.93 for Type 1 or Type 2 diabetes. The numerator is the number of people with these diagnosis codes in their record. The denominator is the user population defined as a patient using I/T/U services at least once in the last three fiscal years and classified as American Indian/Alaska Native. The presented USET diabetes prevalence rates are age-adjusted to the 2000 US Census population. The reported Nashville Area age adjusted diabetes prevalence rates have limitations. First, we were unable to account for individuals with undiagnosed diabetes. Second, we lack data on diabetic AI/ANs who did not visit IHS or tribal health facilities at least once within three-years of a particular year being studied.

Methodology for IHS Diabetes Audit program:

The IHS Diabetes Audit establishes a standardized method for assessing the diabetes care and the health status of diabetes patients within I/T/U. Using a uniform process and standardized definitions provides consistency to monitor patient care patterns over time. It allows valid comparison with other IHS, tribal and urban facilities. During the chart audit, diabetes care is compared to the *IHS Standards of Care for Patients with Type 2 Diabetes*. Sites have the option to do a manual audit or an electronic audit. Instructions for the completion of the audit are available from the web site. www.dmaudit.com

A random sample is drawn from the health facility's list of active diabetic patients in sufficient number to provide an estimate within 10% of the true rate (at a 90% level of certainty). Some sites complete the audit on the total diabetic population and do not use a sample. After the data is collected at the area level, it is sent to contractor who does the initial data collection/manipulation/cleaning. Summary reports from each Area and for all IHS Areas are weighted according the size of the diabetic population attending each facility and the number of records sampled. If all facilities participating in the Audit audited 100% of their patients with diabetes, no weighting would be necessary. Because some facilities audit a random sample or fraction of their patients with diabetes, a weighting procedure must be applied to calculate accurate estimates of audit statistics at the area and IHS level. When an estimate is calculated from a random sample, instead of an entire population, we must account for the fact that each person audited actually represents more than one person in the population, depending on how many people are audited vs. how many people have diabetes - otherwise the results may not be an accurate representation of the population from which the sample was selected. Accordingly, all Nashville Area aggregate and all IHS aggregate results were adjusted, but I/T/U specific results were not adjusted.

Data collection from the local sites varies from year-to-year; hence the Nashville Area aggregate data includes data from a varying number of Tribes each year. See Appendix A for audit data submission by year. In 2005, 20 Tribes submitted audit data, however due to an operational error

only 17 tribal sites were included in the aggregate data. In 2004, 18 Tribes submitted data and 2003, 16 Tribes submitted data.

Limitations of the diabetes audit data results include:

- The audit process reviews only individuals on the active diabetes registry. Individuals who are not actively seeking care are not included in the audit.
- Skills and degree of accuracy of the auditor for the manual audits can impact the data collection process.
- Skills and degree of accuracy of the data entry person for the manual and the electronic audits can impact the data quality.

Methodology for USET Diabetes Surveillance Project:

The USET Diabetes Surveillance Project has been collecting surveillance data from member Tribes since 2001. Several indicators were added in 2002 and the data presented includes fiscal years 2002 through 2004. Below is a list of the indicators being tracked as of FY2004:

- Diabetes Prevalence
- Lower Extremity Amputations (LEA) Prevalence
- Lower Extremity Amputations (LEA) Incidence
- End Stage Renal Disease (ESRD) Prevalence
- End Stage Renal Disease (ESRD) Incidence
- Diabetic Retinopathy Incidence
- Diabetic Retinopathy with Laser Therapy Incidence
- Cardiovascular Disease (CVD) Prevalence
- Angina Prevalence
- Myocardial Infarction (MI) Incidence
- Coronary Angioplasty (PTCA) Incidence
- Coronary Artery Bypass Graft (CABG) Incidence
- Impaired Glucose Tolerance (IGT)
- Impaired Glucose Tolerance Annual Conversion Rate

LEA Prevalence, IGT, and IGT Annual Conversion Rate will not be presented in this report due to concern over accurate reporting and data collection methods/instructions. These indicators and the methodology used to collect the data will be evaluated and appropriately updated in the coming months with input from tribal personnel, the Area Diabetes Consultant, and USET Epidemiology Center staff. The other indicators will be described in greater detail in the Findings Section.

The USET Epidemiology Center distributed instructions and report forms to tribal diabetes coordinators at the beginning of summer in 2005. A copy of the most recent instructions and report form are included in the appendix A. Last year, it was decided to move the reporting deadline to September instead of December to allow timelier reporting. As of December 2005, the USET Epidemiology Center had received reports from 18 out of 23 Tribes and the data presented is from these 18. Information on the submission of this data by year is noted in Appendix A. The instructions on the report form are for Tribes utilizing the RPMS). A program called Q-Man is used to mine RPMS for data. Some Tribes do not use RPMS and consequently collect their data from their respective systems or chart reviews. However, the same conditions for user population and calculations for numerators and denominators apply to all of the results presented.

All patients must meet the definition for user population to be included in the analysis. This means for a particular year patients must have used I/T/U services within the past three years and be American Indian/Alaska Native. The data for the indicators are obtained from this user population using ICD-9 or CPT codes that correspond to each procedure, condition, or disease indicator. Prevalence is obtained when a patient is diagnosed or a procedure is performed at any time before or during a designated year. Incidence data are obtained only if the patient is diagnosed or the procedure is performed in the same year as a designated year. Example: A patient would be counted in the ESRD Prevalence data if he/she were diagnosed three years before the report year. However, that same patient would not be counted in the ESRD Incidence data because the diagnosis did not occur in the report year. Incidence is the number of *new* cases or procedures during a particular year. Prevalence includes the new as well as past cases or procedures at a certain point in time (September 30th of each report year).

The data are entered into a database for aggregation and analysis once tribal reports are received by the USET Tribal Epidemiology Center. State and national data are presented for comparison when available. Some Tribes will not have data presented for certain years because no report was received. Many values for indicators will be zero. This means a report was received, but no procedure, condition, or event was detected for an indicator during the appropriate time period. The values are number of patients with the procedure, condition, or disease per 1000 population. Example: Diabetes Prevalence is the number of diabetics per 1000 people in the user population. ESRD Prevalence is the number of diabetics with ESRD per 1000 diabetics.

The Diabetes Surveillance Project of the USET Tribal Epidemiology Center will collaborate with the Area Diabetes Consultant, IHS, and tribal diabetes coordinators in the coming months to evaluate the indicators and procedures used to collect the data. Some indicators may be dropped, altered, or added according to the expertise of the groups involved and the most recent research. The Diabetes Surveillance Project welcomes any comments or suggestions for future reports or direction.

Limitations of the USET Diabetes Surveillance Project data include:

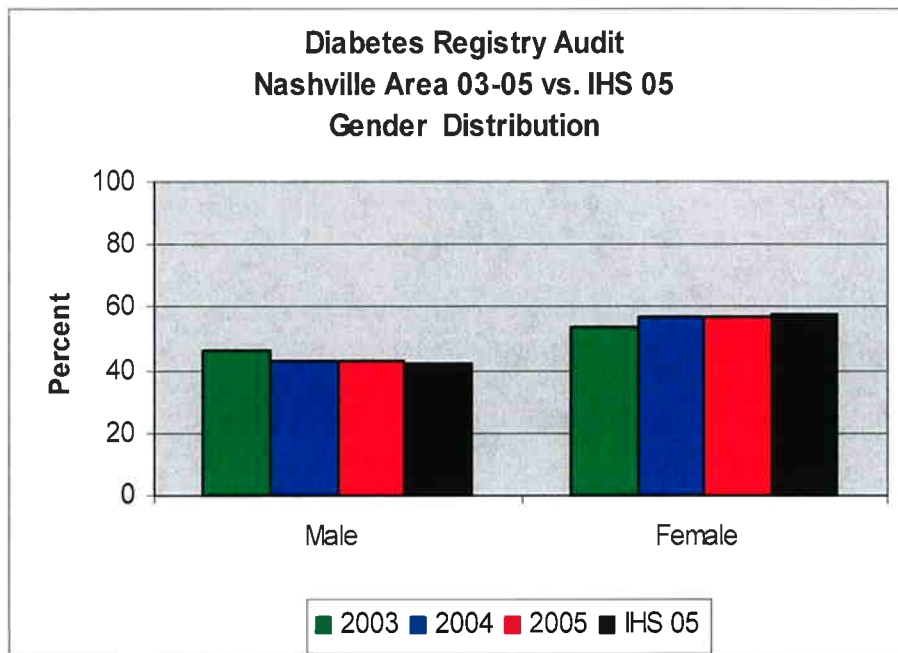
- Several of the surveillance indicators rely on data (CPT & ICD-9 code) mined from the Contract Health Service (CHS) system. Several I/T/U sites believe their CHS data entry is incomplete.
- Data entry for several of the surveillance indicators may be incomplete and therefore trend may be under reported.

Findings

Part 1: Diabetes Audit Results

The information presented in this part of the findings section of the report reflects an analysis of diabetes audit data. As explained in the methodology, data is generated from audits performed on the records of selected patients on the diabetic registries of participating I/T/Us. In this case all those that participated in the Nashville Area for each year from 2003 to 2005, compared to the IHS wide total for 2005. For the Nashville Area aggregate audit, in 2003, 4,590 patients were on the registry and of these 1042 (or 23%) had their records audited; in 2004, 5,357 patients were on the registry and 1,766 (or 33%) had their records were audited; in 2005, 5,232 patients were on the registry and 2,148 (or 41%) had their records audited. For the entire IHS aggregate audit, in 2005, 115,710 patients were on the registry and 40,627 (or 35%) had their records audited. The diabetes audits (electronic or manual) capture data for each patient record audited on numerous health variables consistent with standards of diabetes care and health status for diabetes patients. I/T/Us participating in the SDPI funds submit diabetes audit data to IHS on an annual basis. The series of graphs with accompanying interpretations presented below helps describe both diabetic health status and diabetes program status in the Nashville Area. Note that for those graphs that have dotted lines, the dotted lines indicate that the percentages shown to the left of a dotted line were calculated using denominators that did not include values from the x-axis category labels to the right of the dotted line. This was done to provide a more accurate reflection of the data.

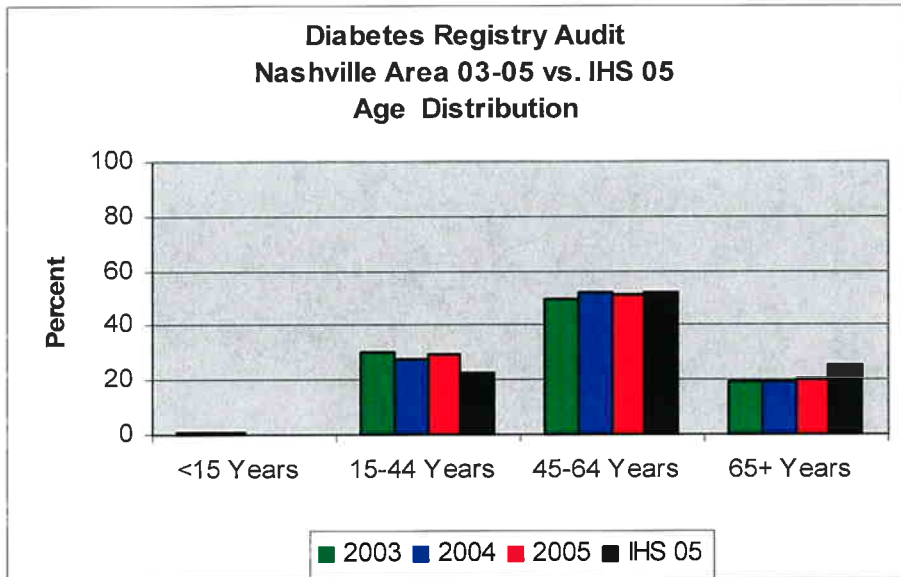
Gender



Diabetes audit data reflects a higher percent of women with diabetes. This trend may be influenced by women seeking health care services more regularly than men.

Age Distribution

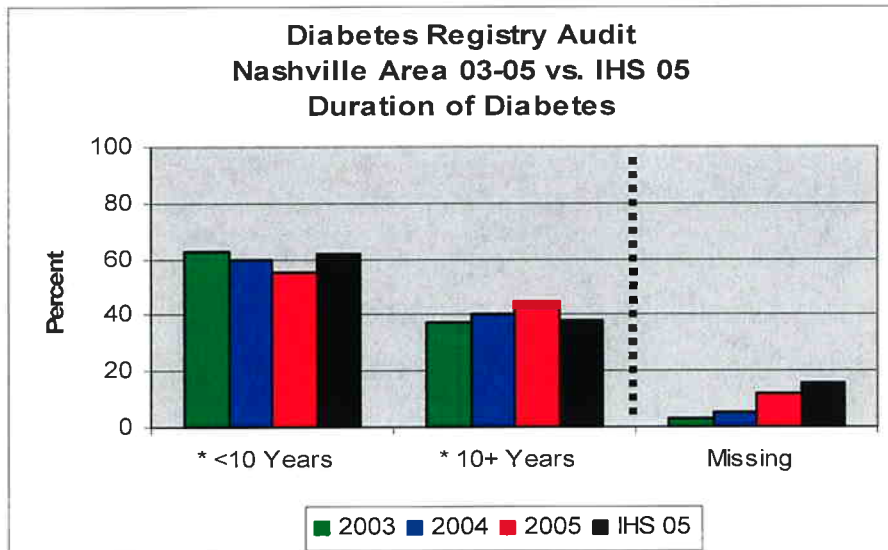
Age is a risk factor for type 2 diabetes. In the past, type 2 diabetes was diagnosed predominately in patients age 40 and older. Today, young adults (30-35) are the fastest growing group developing type 2 diabetes.



Diabetes audit data reflects that 45-64 year olds are the predominant age cohort. For 15-44 years olds the percentage of diabetics is higher than the IHS 2005 aggregate.

Duration of Diabetes

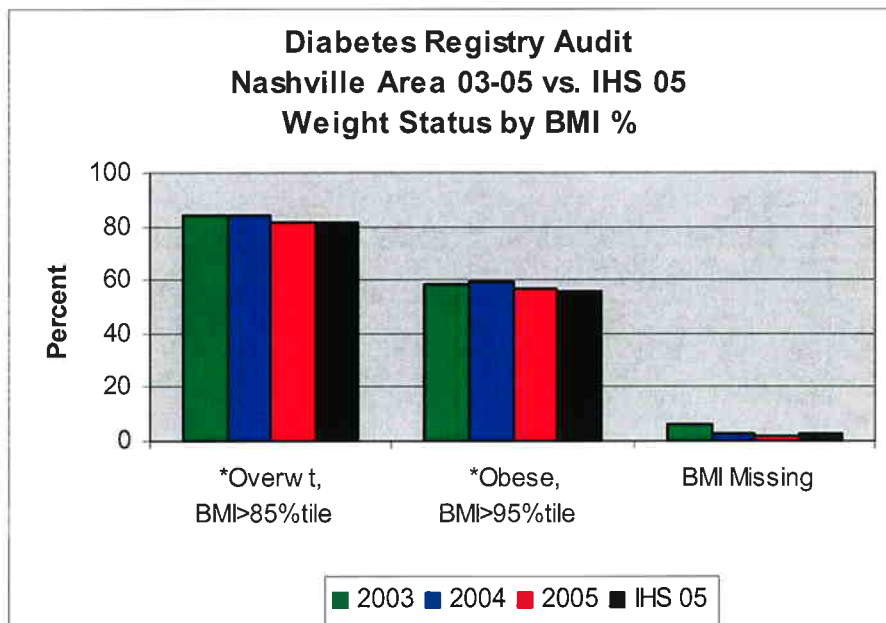
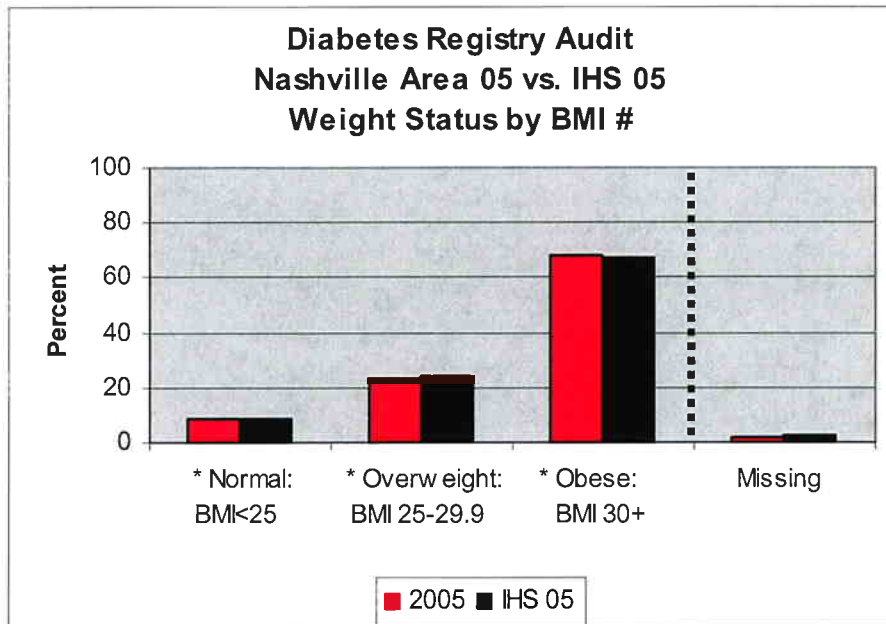
The duration of diabetes is related to complications such as kidney disease, cardiovascular disease and amputation. Intensive treatment and patient compliance with regiment of recommend care can reduce the risk of complications of diabetes.



Diabetes audit data reflects fewer patients with diabetes disease for less than 10 years, and an increase in patients with diabetes disease for greater than 10 years.

Over Weight and Obesity

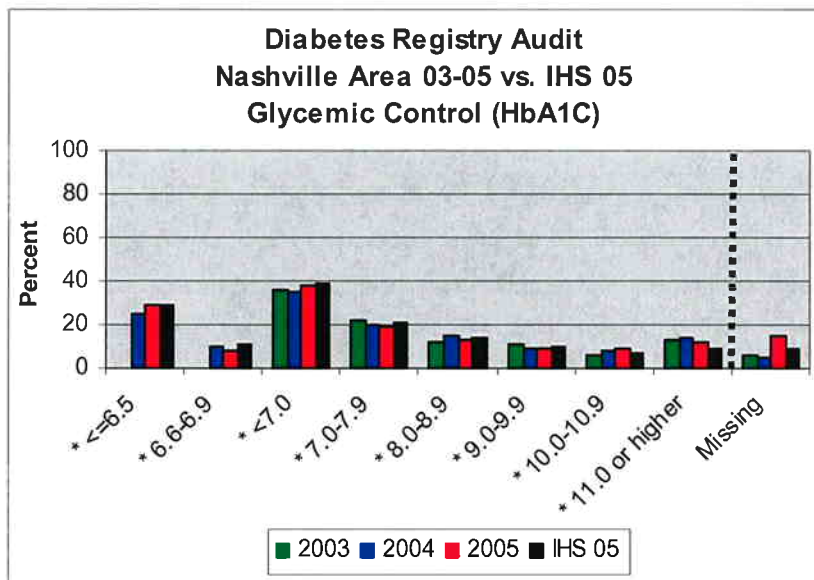
Obesity and physical inactivity are risk factors associated with the development of type 2 diabetes. The Diabetes Prevention Project (DPP) demonstrated by weight loss, low fat eating, and regular physical activity can decrease the risk of developing diabetes by 58%. The reporting of weight status changed in 2005 for the Diabetes Audit; therefore, 2 different graphs are used to demonstrate weight status by body mass index (BMI).



Diabetes audit data reflects very few diabetic patients are of normal weight. Overweight/Obesity is a risk factor for hypertension and CVD.

Glycemic Control

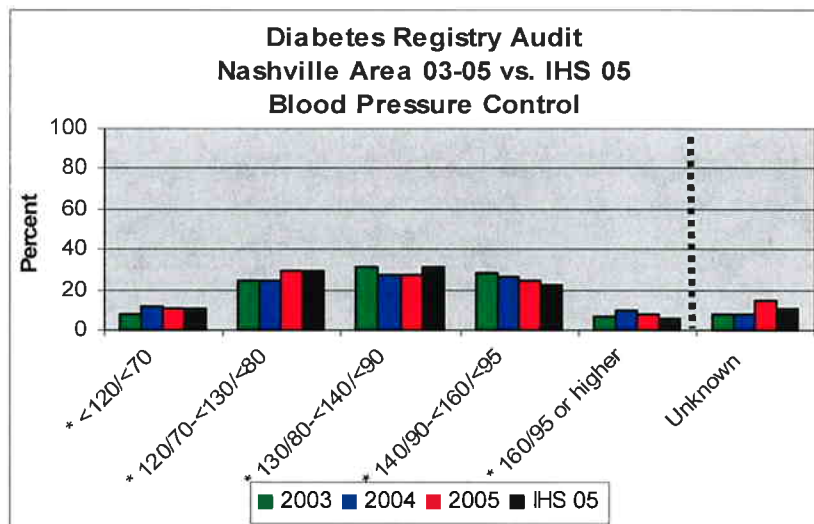
Hemoglobin A1c is used to estimate glycemic control for the previous 2-3 months. The A1c value goal is less than 7%, however some clinical groups advocate for a goal of less than 6.5%. This lab test is recommended in all patients with diabetes to monitor progress toward clinical glucose targets and facilitate decision making. At a minimum, every 3-4 months is the goal.



Diabetes audit data reflects that less than 40% of the diabetic patients have A1c values less than 7% (which is defined as ideal); however, this is not as good as the IHS 2005 aggregate.

Blood Pressure Management

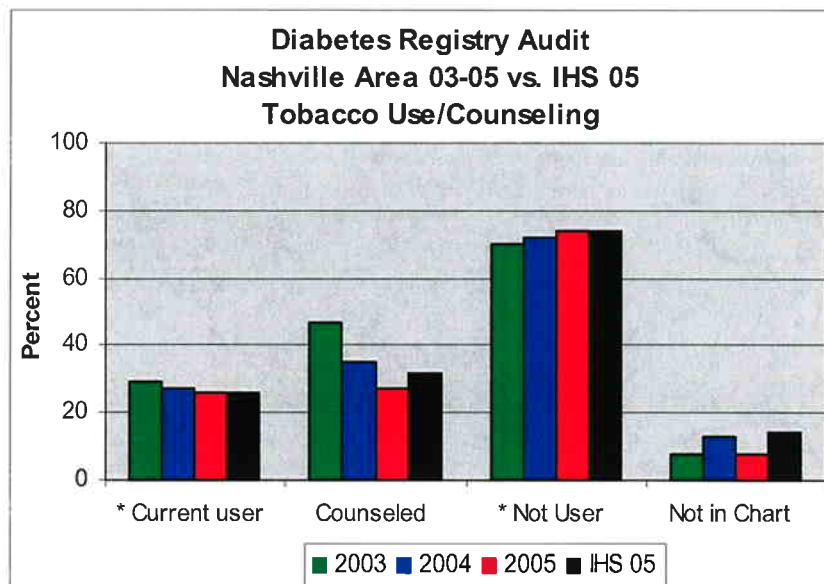
The target blood pressure (BP) for patients with diabetes is <math>< 130/80</math> mmHg with additional protection against renal disease by lowering BP to $120/70$ mmHg. High blood pressure increases the risk of heart disease and renal failure in type 2 diabetes.



Diabetes audit data reflects a slight improvement in blood pressure control.

Tobacco Use/Counseling

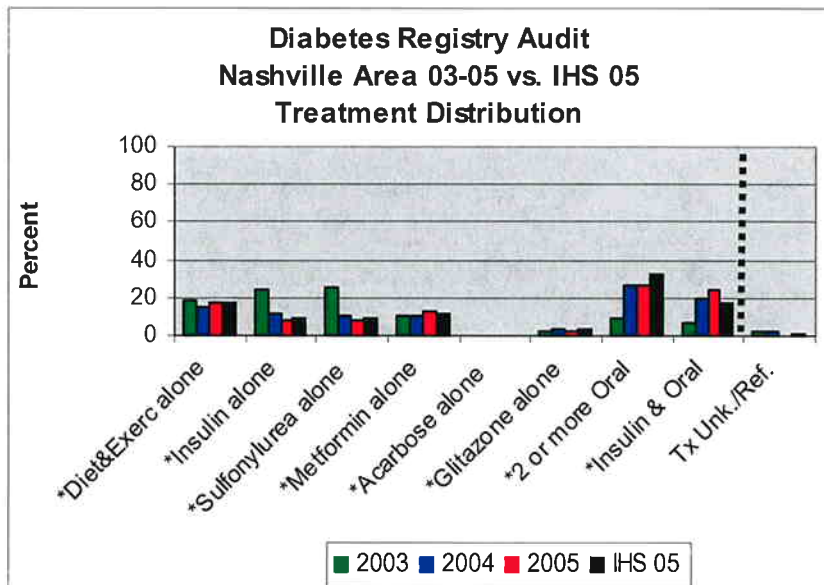
Tobacco use is the primary preventable risk factor for cardiovascular disease (the leading cause of death in diabetes).



Diabetes audit data reflects a decrease from in the percent of tobacco counseling offered to patients using tobacco.

Treatment Distribution

There is a continuing increase in the number treatment plans for individuals with diabetes. Many individuals are seeing increased benefit regarding improved glycemic control with the use of multiple diabetes drug therapy.



Diabetes audit data reflects an increase in percent of patients treated with multiple drug therapy.