



## **Making Data Count**

Measuring Diabetes and Obesity in the Indian Health System

December 18-20, 2007

IHS Division of Diabetes Treatment and Prevention

### **Tribal Epidemiology Centers Enhance Diabetes Data Quality- Diabetes Report and Instruction Guide: An Overview**

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**Session: C3c**

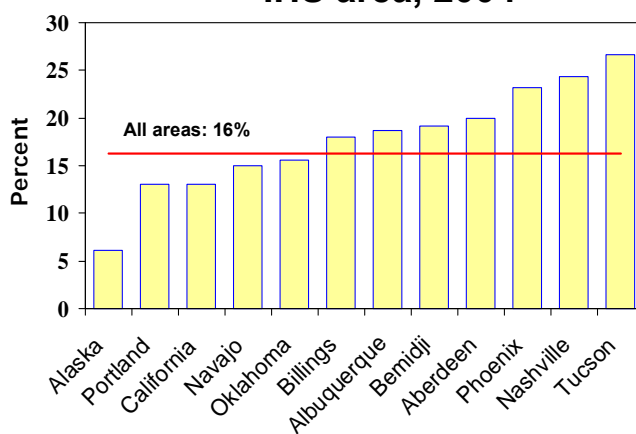
## **2007 Nashville Area Diabetes Report & Instruction Guide An Overview**

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**Tribal Health Program Support Section**  
**United South and Eastern Tribes, Inc. (USET)**

**Measuring Diabetes and Obesity Conference**  
**Sponsor: IHS Division of Diabetes Treatment & Prevention**  
**Westin La Paloma Hotel, Tucson, Arizona**  
**December 18, 2007**



### Age-adjusted\* prevalence of diagnosed diabetes among American Indian/Alaska Native adults, by IHS area, 2004



Source: 2004 IHS outpatient data  
 \*Based on the 2000 U.S. standard population.

IHS Div. of Diabetes Treatment & Prevention & CDC Div. of Diabetes Translation report: Prevalence of diagnosed diabetes among AI/ANs, 2004. Burrows (2006)

## **Presentation Objectives**

- **Provide Overview**
- **Highlight Limitations**
- **Present Select Charts**
- **Recommendations**
- **Future Enhancements & Instruction Guide**

## **Diabetes Report Purpose**

- **Provide information to:**
  - **Tribal leaders**
  - **IHS/Tribal/Urban (I/T/U) Health Officials**
- **Improve local diabetes prevention & care decision making**
- **Support IHS Budget Formulation**

## **Diabetes Report Overview**

- **Two Reports: area aggregate & 23 Tribal specific**
- **Introduction: Epidemic & Nashville Area**
- **Methods: data sources, logic, limitations**
- **Findings: prevalence & audit charts**
- **Recommendations**
- **Appendices: resources & audit data**
- **I/T/U reports limited to findings & audit data**

## **Diabetes Report Data Sources**

- **Prevalence & ischemic heart disease (IHD) rates**
  - I/T/U electronic patient management systems
  - I/T/U provided health data
- **IHS Diabetes Audit comparison charts**
  - 2003-2006 Nashville Area Diabetes Audit dataset
- **Comparison data: IHS and CDC**

## **Diabetes Prevalence User Population**

### **Denominator**

- Based on calendar year
- Alive at the end of report year
- Classified as AI/AN
- Live within the Contract Health Service Delivery Area (CHSDA = communities IHS assigns to Tribe)
- Health visit w/in 3yrs prior to last day of report year

### **Numerator**

- Met denominator criteria
- At least 1 diagnosis of DM before/during report period

## **Prevalence & IHD Calculation Limitations**

- Retrospective data for denominators
- Represents point-in-time at data extraction
- Only looks at data in system
- Documentation and data entry at site
- Different logic for comparison statistics

## **IHS Diabetes Care & Outcomes Audit (Diabetes Audit)**

- Gender, Age
- Duration
- Body Mass Index
- Glycemic Control
- Blood Pressure
- Tobacco
- Treatment Distrib.
- ACE Inhibitor Use
- Anti-Platelet Therapy
- Lipid Screen/Treatment
- Preventive Care
- Education
- Immunizations
- EKG
- TB Screening/Treatment
- Nephropathy Assessment
- Depression Screen

## **Diabetes Audit**

- IHS Standards of Care for Diabetes
- Annual medical record reviews
- Organized locally
- Random sample of registry charts
- Patients seen  $\geq 1$  time in past year
- IHS Diabetes Program instructions
- # with characteristic / total sample

# IHS Diabetes Care & Outcomes Audit (www.dmaudit.com)

## AUDIT06

*Diabetes Care and Outcomes Chart Audit for  
Quality Assurance and Quality Improvement*

**Contents**

*Preface and Quick-Start Directions* .....

1. *Introduction* .....

2. *Chart Audits for Quality Assessment & Improvement Activities* .....

3. *Manual Chart Reviews vs. Electronic (RPMIS) Reviews* .....

4. *Assessing Diabetes Audit to Meet JCAHO/AACJC Requirements* .....

5. *Sample Size Calculations* .....

6. *Chart Selection* .....

7. *Completing the Audit Form* .....

8. *Item Description (Definitions)* .....

9. *Local Option Question* .....

10. *Instructions for Data Entry* .....

11. *Closing your Data* .....

12. *Printing a Summary Report* .....

13. *Printing a Renal Preservation Report* .....

14. *Printing a Cardiovascular Disease Report* .....


15. *Printing a Means Report* .....

*Sample Audit Form* .....

*Standards of Care for Patients with Type 2 Diabetes* .....

*Technical Notes* .....

IHS Diabetes Program



### ASSESSMENT OF DIABETES CARE, FY 2006

Audit Date (mm/dd/yyyy): \_\_\_\_/\_\_\_\_/\_\_\_\_ Facility Name: \_\_\_\_\_ Area: \_\_\_\_ S.U.: \_\_\_\_ Facility: \_\_\_\_  
# of PTS in REGISTRY: \_\_\_\_\_ Does your community receive SDFP grant funds?  Yes  No  Don't know  
\_\_\_\_\_ SDFP Grant # \_\_\_\_\_

TRIBAL affiliation code: \_\_\_\_\_

COMMUNITY code: \_\_\_\_\_

REVIEWER initials: \_\_\_\_\_

CHART NUMBER: \_\_\_\_\_

Date of Birth: \_\_\_\_/\_\_\_\_/\_\_\_\_

SEX:  Male  Female

DATE of Diabetes Diagnosis: \_\_\_\_/\_\_\_\_/\_\_\_\_

DIABETES TYPE:  Type 1  
 Type 2

TOBACCO USE:  Current User  
 Not a Current User  
 Not Documented

Referred for (or provided) cessation counseling?  
 Yes  No  Refused

RIGHT: \_\_\_\_\_ No. \_\_\_\_\_

Hypertension (Di or Rx):  Yes  No

Last 3 BLOOD PRESSURES: \_\_\_\_\_ mm Hg  
\_\_\_\_\_ mm Hg  
\_\_\_\_\_ mm Hg

Examinations (in past year):  
FOOT EXAM: complete?  Yes  Refused  No  
 No

EYE EXAM (dilated/fundus):  Yes  Refused  No

DENTAL EXAM:  Yes  Refused  No

Education (in past year):  
DIET INSTRUCTION:  RD  Both  Other  
 None  Refused

EXERCISE INSTRUCTION:  Yes  Refused  No

DM Education (Other):  Yes  Refused  No

DM Therapy  
Select **all** that currently apply:  
 Diet & Exercise Alone  
 Insulin  
 Sulfonylurea (glibenclamide, glipizide, [repaglinide, nateglinide], others)  
 Metformin (Glucophage®)  
 Acarbose (Precose®) or miglitol (Glyset®)  
 Glitazone (Actos®; Avandia®)  
 Unknown/Refused

ACE Inhibitor/ARB Use  
 Yes  Refused  No

Aspirin/Antiplatelet Therapy  
 Aspirin/Antiplatelet Rx  None  
 Refused or adverse rxn

Lipid Lowering Agent  
 Statin  Other  Both  
 None  Refused or adverse rxn

Immunizations  
FLU VACCINE (past year):  Yes  Refused  No

PSYCHOLOGICAL  
 Yes  Refused  No

TI in past 10 years:  Yes  Refused  No

SB Status (PPD):  Pos  Refused  Neg  Unknown

If PPD Pos, INH Tx complete:  Yes  Refused  No  Unknown

If PPD Neg, Last PPD Date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
Date of last ECG: \_\_\_\_/\_\_\_\_/\_\_\_\_

**Laboratory Data**  
HbA1c (most recent): \_\_\_\_\_ %  
Date obtained: \_\_\_\_/\_\_\_\_/\_\_\_\_  
HbA1c (next most recent): \_\_\_\_\_ %  
Most recent serum value in the past 12 months:  
Creatinine: \_\_\_\_\_ mg/dl  
Total Cholesterol: \_\_\_\_\_ mg/dl  
HDL Cholesterol: \_\_\_\_\_ mg/dl  
LDL Cholesterol: \_\_\_\_\_ mg/dl  
Triglycerides: \_\_\_\_\_ mg/dl  
URINALYSIS or A/C RATIO:  
 Yes  Refused  No  
PROTEINURIA:  Yes (1+ or more)  No (Neg or trace)  
MICROALBUMINURIA:  
 Pos  Neg  Not tested

**Supplemental Section**  
Does pt have depression as an acute problem?  
 Yes  No  
If "No", has pt been screened for depression in the past year?  
 Yes  No  Refused  Not tested

**Local Option question:**

## Diabetes Audit Limitations

- **Audit year lacks consistency & I/T/U participation variations across years impacts comparability**
- **Only reviews those on active registry**
- **Accuracy of person performing audit and/or entering data impacts data quality**
- **Audit sample size impacts how well analysis represents health status of persons on diabetes registry**
- **Level of missing data for particular variable impacts how well analysis represents a particular aspect of diabetic health status and/or diabetes program status**

## Prevalence Analysis Overview

2006			
User Pop Diabetes Prevalence			
Total	Cases	Crude Prevalence %	Age Adjusted Prevalence %
47839	7416	15.5	20.7

2006 Area Prevalence included 23 Tribes  
Range 7.3% to 32.8%

## Audit Analysis Overview

2006		
Diabetes Audit		
Total	Sample	%
5148	2676	52.0

Area Analysis 18 Tribes, Sample Range 6.8% to 100%  
1 Tribe w/ Sample Size <10%, 4 b/w 18-56%, & 13 >88%  
9 Tribes did manual audit, 9 Tribes did electronic

## **Diabetes Audit Variables Missing Data (Table 2)**

### **40% or more:**

- Tobacco Use & Tobacco Cessation Counseling

### **20 to 39%:**

- Cholesterol, LDL, HDL, & Triglyceride Screen Results
- Number Ideal Values (HbA1c/BMI/Blood Pressure/LDL)

### **10 to 19%:**

- Duration of Diabetes, HbA1c, & Blood Pressure
- Creatinine & GFR

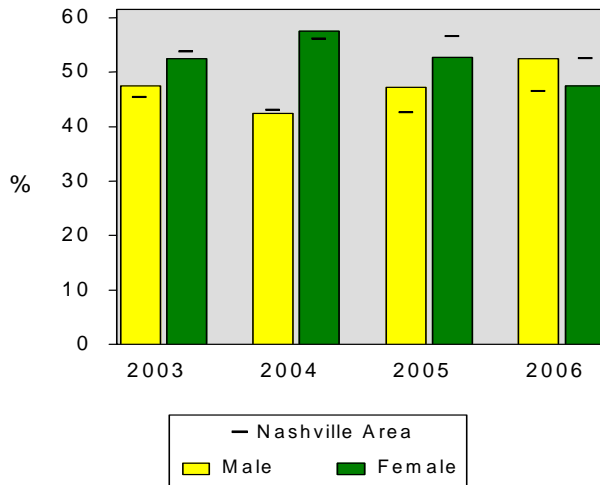
## **Diabetes Report Enhancements**

- Improved aggregate vs. Tribe comparisons
- Four years of data presented
- New Indicator: Glomerular Filtration Rate (GFR)
- Combining indicators:
  - Glycemic Control, Blood Pressure Control
  - Cholesterol Control, Weight Control
- Statistical Significance Testing:
  - Trending Over Time
  - Differences Between Aggregate & Tribe

For each test of statistical significance a  
< 5% p-value threshold used to determine if an  
observed difference true or due to chance

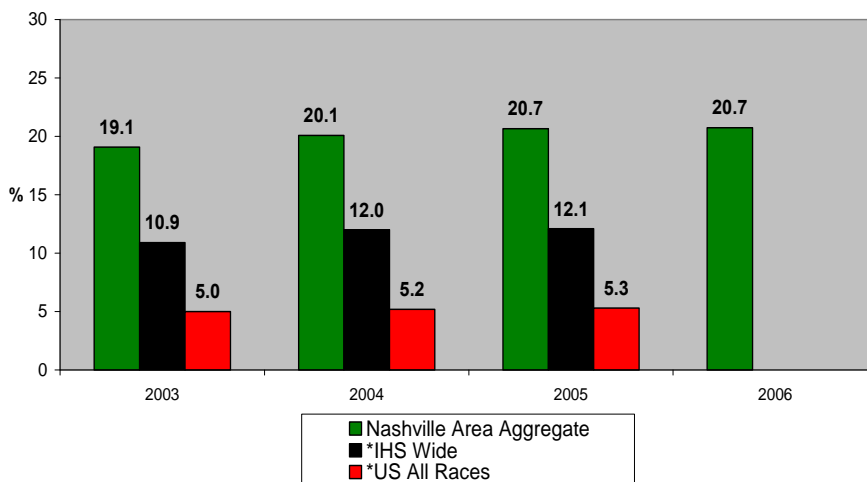
### New Method for Presenting Aggregate vs. Tribal Specific Comparisons

**Gender Distribution**  
 IHS Diabetes Care and Outcome Audit  
 Tribe X I/T/U 03-06 vs. Nashville Area 03-06

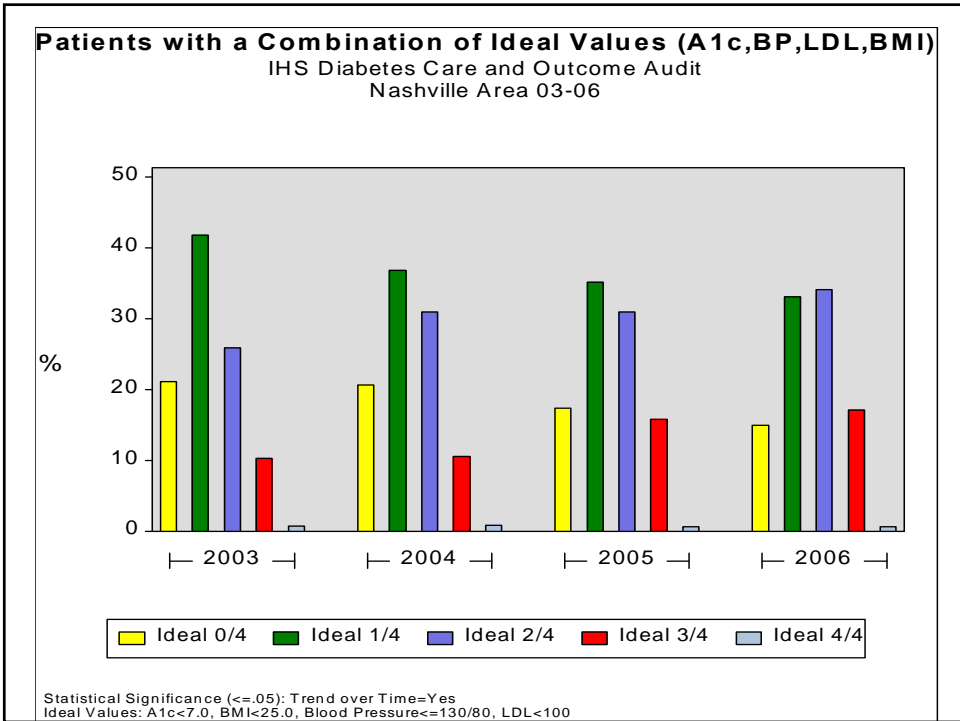
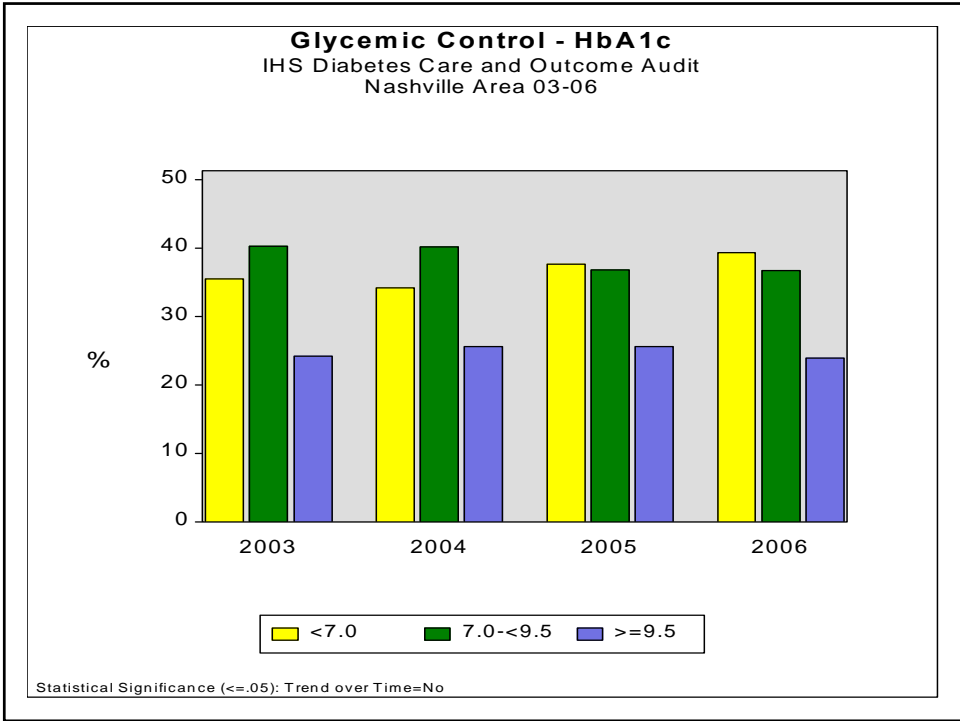


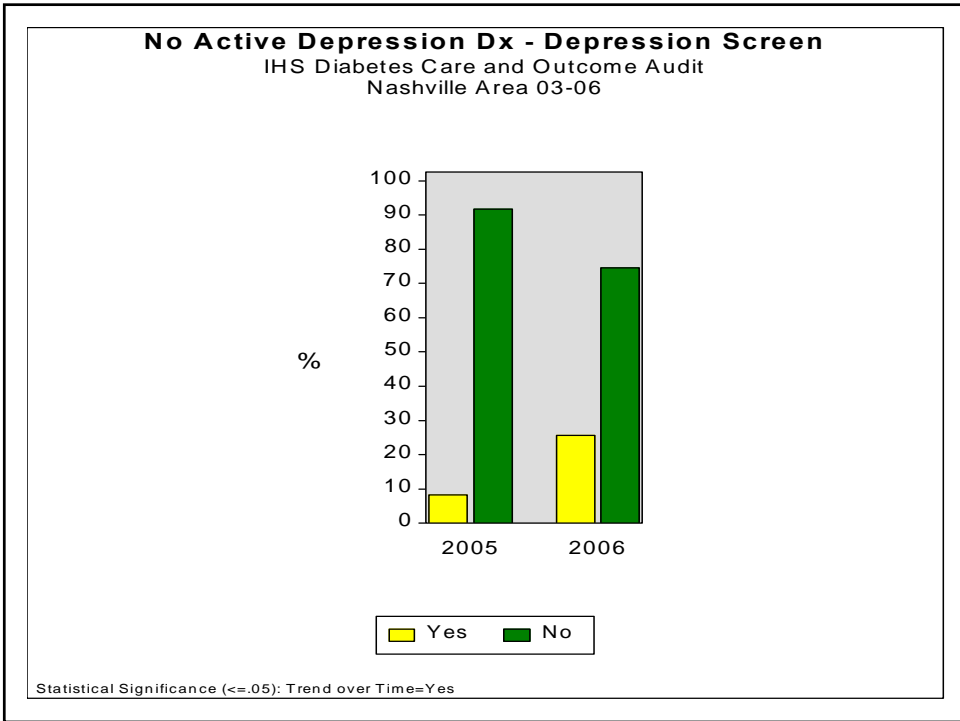
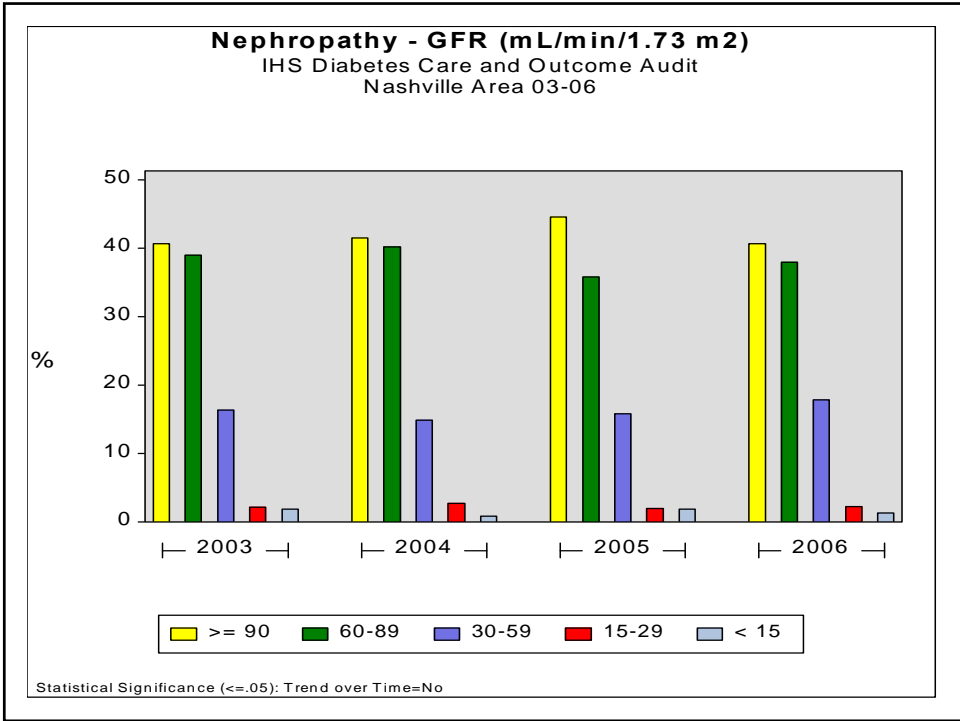
Statistical Significance (<=.05); Trend over Time=No; Difference between I/T/U & Other Nashville Area I/T/Us=No

### Age-Adjusted Diabetes Prevalence Q-MAN generated Nashville Area User Population vs. IHS Wide vs. US All Races Calendar Years 2003-2006



Sources: Nashville Area- RPMS Q-MAN generated User Population; \*IHS Wide data- IHS; \*US/State data- CDC National Diabetes Surveillance System; \* = 2006 data unavailable.  
 Notes: All rates are age-adjusted to US 2000 population. Age-adjustment allows for better comparisons in populations that may differ substantially in age demographics. Nashville Area figures are based on participating I/T/U patient management system all ages data; IHS Wide figures are based on IHS National Patient Information Reporting System all ages data. In contrast, US All Race figures are based on self-reports from persons of all ages.





## Nashville Area Diabetes Report Findings Summary

- **Area age-adjusted AI/AN diabetes prevalence:**
  - Rose from 19.1% in 2003 to 20.7% in 2006
  - Wide I/T/U variance, 2006 ranged from 7.3% to 32.8%
  - **B/w 2003-2005 Area rate on average 2 Xs > IHS Wide**
  - **B/w 2003-2005 Area rate on average 4 Xs > US All Races**
- **Area crude prevalence of IHD among AI/AN diabetics:**
  - Relatively constant 26.5% in 2003 to 25.9% in 2006
  - Wide I/T/U variance, 2006 ranged from 13.9% to 49.4%
  - On average Area rate 1.2 Xs > 2003 US All Races

## Nashville Area Diabetes Report Findings Summary (cont.)

- **Moderate increase in patients with combination of ideal values (A1c/BP/LDL/BMI)**
- **No increase in glycemic control, < 40% with A1c values < 7**
- **Few diabetic patients are of normal weight**
- **Increase in patient tobacco use**
- **In 2006, ~20% of patients need nephropathy follow-up**
- **Increase in patients with good LDL levels**
- **Increase in % patients screened for depression**

## **Diabetes Report General Recommendations**

- **Commitment to IHS Audit**
- **Develop and strengthen infrastructures for IHS audit – Calendar Year & Census**
- **Continue data quality improvement efforts**
- **Initiate electronic audit process**

## **USET Diabetes Report Enhancements & Instruction Guide**

### **“How to make report instruction guide”**

- **Incorporate IHS Wide comparison data**
- **Develop Cost Analysis Methodologies**
- **Develop Co-morbidity Analysis Methodologies**
- **Improve Diabetes Audit chart SAS Programming**
- **Excel templates: Diabetes Prev & IHD Graphs**
- **Q-MAN Query instructions for User Pop cohorts**
- **Model Power Point Report Presentations**

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# Analysis Overview

2003				2004				2005				2006			
User Pop Diabetes Prevalence				User Pop Diabetes Prevalence				User Pop Diabetes Prevalence				User Pop Diabetes Prevalence			
Total	Cases	NonAdj Prev %	Adj Prev %	Total	Cases	NonAdj Prev %	Adj Prev %	Total	Cases	NonAdj Prev %	Adj Prev %	Total	Cases	NonAdj Prev %	Adj Prev %
45825	6302	13.8	19.1	46481	6513	14.0	20.1	46463	7020	15.1	20.7	47839	7416	15.5	20.7

2006 Area Prevalence included 23 Tribes, Range 7.3% to 32.8%

Audit Level	2003			2004			2005			2006		
	Registy Total	Sample Size	%	Registy Total	Sample Size	%	Registy Total	Sample Size	%	Registy Total	Sample Size	%
Nashville Area	4590	1042	22.7	5358	1765	32.9	5232	2153	41.2	5148	2676	52.0
IHS wide	110,305	30,192	27.4	117,225	33,769	28.8	115,710	40,627	35.1	122,885	48,524	39.5

In 2006: Area Audit Analysis included 18 Tribes, Sample Range 6.8% to 100%

In 2006: 1 Tribe with Sample Size <10%, 4 between 18-56%, and 13 >88%

In 2006: # Tribes did a manual audit, # Tribes did an electronic audit

# Trending & Surveillance

