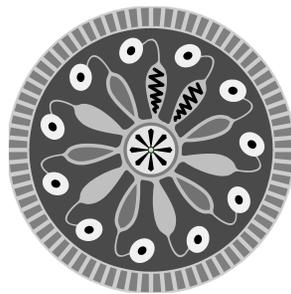


AUDIT 2016

Instructions

IHS Diabetes Care and Outcomes Audit
for Quality Assessment and Improvement

IHS Division of Diabetes Treatment and Prevention



January 2016



Indian Health Service
Division of Diabetes Treatment and Prevention
<http://www.ihs.gov/MedicalPrograms/Diabetes/>

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Preface

Welcome to Audit 2016!

If you have not previously participated in an Indian Health Service (IHS) Diabetes Audit, **please take time to read these instructions carefully before beginning** your Audit activities.

Even if you are already familiar with the annual Diabetes Audit process, there are some changes for 2016. Below is a brief summary of this year's changes and Quick Start Directions with a concise review of the steps for conducting either an electronic or a manual Audit.

What's New in Audit 2016?

New items: None

Deleted items:

1. Chart number

Modified items/report elements:

1. Only month and year of birth are collected instead of full date of birth.
2. Comorbid Conditions section and items were added to the Audit Report.
3. Reporting categories for some lab tests were changed.
4. Combined Outcomes Measure changed to: Patients age ≥ 40 meeting ALL of the following criteria: A1C <8.0 , Statin prescribed, and mean BP $<140/<90$.
5. Other changes made to labels and formatting on form and in report.

Due Date for Audit 2016

Data must be submitted via the WebAudit and locked no later than March 15, 2016.

Quick Start Directions

For Electronic Audits

Using the IHS Resource and Patient Management System (RPMS):

1. Select **Diabetes Management System** (menu item “**DMS**”).
2. Select **Diabetes QA Audit Menu** (menu item “**DA**”).
3. Select **2016 Diabetes Program Audit** (menu item “**DM16**”). The program will check on the taxonomies needed to support the 2016 Audit.
4. Select **Run 2016 Diabetes Program Audit** (menu item “**DM16**”).
5. Enter the Audit Date (this is the **ending date** of the Audit period). The date for the 2016 Annual Audit submitted to IHS Division of Diabetes is **12/31/2015**.
6. Select the type of sample (choices include individual patients, a search template of patients, or members of a CMS Register).
7. Decide which patients to include in your Audit, using the following options:
 - a. You can limit the Audit to a particular provider or a particular community (select “No” for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
 - b. You can include only Indian/Alaska Native patients, only Non-Indian/Alaska Native patients, or all patients (select “1” to include only Indian/Alaska Native patients for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
 - c. You can include or exclude pregnant patients in the Audit (select “E” to exclude pregnant patients for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
 - d. You can include all or a random sample of the patients selected so far (select “A” to include all patients for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
 - e. You can include or exclude DEMO patients (select “E” to exclude DEMO patients from the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
8. Note the total number of patients to be included in the export file. This number can be entered in the WebAudit using the Facility Information Tool.
9. Select an output: Choice 2 (Create Audit Export File) creates a delimited text file that can be uploaded to the WebAudit and is also readable in Microsoft Excel.
10. Access the WebAudit and enter the facility information. See p. 11.
11. Obtain the newly created Audit Export File and upload it to the WebAudit. See p.11.
12. Clean and edit the data as necessary. See Section 7, p.16.
13. Review the Audit Report and, if desired, other reports. See Section 8, p.16.
14. Once all data has been submitted and all cleaning/editing is complete, “lock” the data for the facility. See Section 9, p.17.

Using NextGen, i2iTracks or other non-RPMS medical record software:

1. Consult appropriate local personnel to create an electronic Audit data file.
2. Follow steps 10-14 above.

For Manual Audits

1. From a listing of diabetes patients at your facility that meet the inclusion and exclusion criteria, randomly select the appropriate number of charts to review. See Section 6, p.12.
- 2. Review the 2016 Audit form, definitions, and criteria with all chart reviewers.**
3. Review and complete an Audit 2016 paper form for each chart selected. **Be sure to complete all relevant items.**
4. Access the WebAudit and enter the facility information. See Section 6, p.15.
5. Enter the data from each paper Audit form into the WebAudit. See Section 6, p.15.
6. Clean and edit the data as necessary. See Section 7, p.16.
7. Review the Audit Report and, if desired, other reports. See Section 8, p.16.
8. Once all data has been entered and cleaning/editing is complete, “lock” the data for the facility. See Section 9, p.17.

1. Introduction

The Indian Health Service (IHS) Diabetes Care and Outcomes Audit (“the Audit”) is a process for assessing diabetes care and health outcomes for American Indians and Alaska Native people with diagnosed diabetes. IHS, Tribal, and Urban (I/T/U) health care facilities nationwide participate in this process each year by auditing medical records for their patients with diabetes.

Assessing the care and health of patients with diabetes on a regular basis allows health care facilities to see the strengths and weaknesses of the diabetes care they are providing. By carefully reviewing the results of their Audits, facilities can identify areas for improvement and implement strategies to work towards the goal of providing all diabetes patients with the highest quality of care, as outlined in the *IHS Standards of Care and Clinical Practice Recommendations: Type 2 Diabetes* (<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=soc>).

To perform an Audit, data for patients with diabetes are collected at the local clinic or hospital by one of two methods:

- **Electronic Audit or e-Audit:** Extraction of data from an electronic medical record system into a data file, usually via the IHS Resource and Patient Management System (RPMS). The electronic data file is then uploaded into a central database via the WebAudit Upload Data tool.
- **Manual Audit:** Manual chart review, where one physically examines the medical record and uses the information to complete a paper Audit form. Data from the Audit forms are then entered into a central database via the WebAudit Data Entry tool.

The IHS Division of Diabetes Treatment and Prevention recommends annual or more frequent medical record review of your patients with diabetes to monitor care patterns and changes over time at your facility. Generally, active diabetes patients receiving the majority of their primary care at the facility are eligible to be included in the Audit. For electronic Audits, all eligible patients should be included. For those performing a manual Audit, instructions for sample size calculations, selecting charts, and standard definitions for each item are outlined in this document.

Once a year, facilities submit their Audit data to the IHS Division of Diabetes for centralized processing and analysis, referred to as the Annual Diabetes Audit. The data are aggregated and used to generate reports with nationwide information for IHS leadership, Congress, and other Federal agencies. Using a uniform process and standardized definitions provides consistency and allows valid comparison of each facility's results with other IHS, Tribal, and Urban facilities.

2. Chart Audits for Quality Assessment and Improvement Activities

For any facility to provide quality diabetes care, ongoing self-assessment and improvement activities are necessary. A number of techniques or methods to pursue improvement may be employed, including those used by the IHS Improving Patient Care (IPC) initiative (http://www.ihs.gov/ipc/index.cfm?module=dsp_ipc_models_improve).

Facilities are encouraged to review their Audit reports in a team setting, establish priorities together, and develop an action plan with a timetable for re-evaluation.

3. Identifying Patients to Audit: Inclusions and Exclusions

A critical task in performing the Audit is determining which diabetes patients to include.

First, identify patients who meet **all** of the following criteria:

1. Have a diagnosis of diabetes mellitus.
2. Are American Indian or Alaska Native.
3. Have **at least one visit** to any of the following clinics during the Audit period:
 - a. General (01)
 - b. Diabetic (06)
 - c. Internal Medicine (13)
 - d. Pediatric (20)
 - e. Family Practice (28)
 - f. Chronic Disease (50)
 - g. Endocrinology (69)

Then, exclude patients who:

1. Received the majority of their primary care outside your facility during the Audit period.
2. Are currently on dialysis AND received the majority of their primary care at the dialysis unit during the Audit period.
3. Have died before the end of the Audit period.
4. Are women who were pregnant during any part of the Audit period.
5. Have pre-diabetes (impaired fasting glucose [IFG] or impaired glucose tolerance [IGT] only).
6. Have moved – permanently or temporarily.

4. Manual Chart Review vs. Electronic (RPMS) Auditing

Information on diabetes care elements and outcome measures may be collected in one of two ways: either by extracting data from an electronic medical record system into a data file using the RPMS Diabetes Management System (DMS) application (an “electronic Audit” or “e-Audit”) or by physically reviewing medical charts and completing paper forms (a “manual Audit”). Medical records systems other than RPMS may also be able to extract Audit data for an e-Audit.

Table 1 provides a comparison of manual vs. electronic Audits.

Table 1. Key Characteristics of Manual vs. Electronic Audits

Task or Characteristic	Manual	Electronic
Diabetes registry review and update	Yes	Yes
Chart review	Yes	No
Form completion	Yes	No
Data entry	Yes	No
Taxonomy review and update	No	Yes
Human judgment dependent	Yes	No
Computer system dependent	No	Yes
Instructions	Section 6 (p.12)	Section 5 (p.9)

There are pros and cons to both manual and electronic Audits.

Manual:

1. More time consuming.
2. Requires human judgment.
3. Not subject to limitations of electronic medical record systems.

Electronic:

1. Accuracy is subject to proper documentation, coding, and data entry in the electronic health record, Patient Care Component (PCC), or Electronic Health Record (EHR) for RPMS.
2. Requires time and attention for initial set up, including understanding of taxonomies for RPMS/DMS.
3. Less time consuming, once initial set up is complete.
4. May require troubleshooting, including manual review of selected charts, if results are very different from what is observed or expected or if potential errors are found.
5. Independent of human judgment.

The IHS Division of Diabetes encourages the use of electronic Audits whenever feasible.

Facilities wishing to transition from a manual to an electronic Audit must *initially* run simultaneous manual and e-audits to compare the results. In theory, these results should be quite similar, if not identical. If the results for any of the Audit elements are significantly different, the reason needs to be found and addressed. Once the differences are resolved, electronic auditing can then be used as the primary source of Audit data.

Instructions for performing an electronic Audit can be found in Section 5 (p.9). Section 6 contains instructions for performing a manual Audit (p.12).

5. Performing an Electronic Audit

RPMS and certain other electronic medical record systems are capable of extracting Audit data from their databases into a data file which can be uploaded to the WebAudit.

The sections that follow give a brief, step-by-step synopsis of the Audit process using the RPMS Diabetes Management System (DMS). More detailed information is available in the DMS User's Manual, and the Addendum to User Manual (Version 2.0 Patch 9). Links to both of these documents are available at:

<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesAuditRPMSDMSInfo>

In order to use the DMS application, you need to have the proper access keys. Otherwise, the necessary menu items will not show up on your screen. Contact your local RPMS site manager if you need assistance in acquiring the necessary menu and security keys.

a. Creating a Data File Using RPMS DMS

Before creating an Audit data file, be sure that:

- Taxonomies of Medications, Lab Tests, Health Factors, and Education Topics are present, accurate, and complete.
- The diabetes register is up-to-date or you have created a template of the diabetes patients at your facility that meet the Audit inclusion/exclusion criteria (p.7).

To create an Audit data file:

1. Go to the Diabetes Management System (DMS) menu and select: "**Diabetes QA Audit Menu (DA)**".
2. Select the most recent Audit year, which is the 2016 Diabetes Program Audit (**DM16**). Select "**DM16**" again to proceed. Note: If "DM16" is not on your menu, then the necessary DMS patch has not yet been installed. Ask your RPMS site manager to install this patch: BDM v2.0 patch 9.
4. Enter the date of the Audit, which is the ENDING date of the Audit period. For the annual Audit submitted to the IHS Division of Diabetes via the WebAudit, use the prior calendar year as the Audit period (January 1–December 31, 2015), so the Audit date is **12/31/2015**.
5. Select the type of Audit sample. Choices include individual patients, a template of patients created elsewhere (from Q-Man, for instance), or members of a register, such as the IHS DIABETES register.
6. Decide which patients to include in your Audit, using the following options:
 - a. You can limit the Audit to a particular provider or a particular community (select "No" for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).

- b. You can include only Indian/Alaska Native patients, only Non-Indian/Alaska Native patients, or all patients (select “1” to include only Indian/Alaska Native patients for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
 - c. You can include or exclude pregnant patients in the Audit (select “E” to exclude pregnant patients for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
 - d. You can include all or a random sample of the patients selected so far (select “A” to include all patients for the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
 - e. You can include or exclude DEMO patients (select “E” to exclude DEMO patients from the 2016 Annual Audit data submitted to the IHS Division of Diabetes).
7. Note the total number of patients to be included in the data file. This number can be entered in the WebAudit using the Facility Information Tool.
 8. Choose an output option. To create a data file, choose option 2 “Create Audit Export file”. Other available outputs include individual patient Audit reports, a cumulative Audit report, both individual and cumulative Audit reports, or an SDPI Key Measures Report.
 9. You will be asked to provide a name (3-20 characters) for the data file. It is recommended that the name not include any spaces; underscores can be used instead. For example, you might type: FacilityName_Audit2016.
 10. The program will ask if everything is OK to proceed; enter Y//Yes.
 11. You will be asked if you want to queue this request. It is recommended that you enter Y//Yes.
 12. A data file with the name provided in step 9 above will be created.

The newly created file will be placed in the same directory that the data export globals are placed. You will probably need the RPMS site manager or other IT professional to help retrieve the file and forward it to you. Keep track of where you put it! You might want to make a new folder called “Audit Files” on your desktop or in My Documents, and save the file there. This is the file that you will upload to the WebAudit.

Please remember that electronic files containing patient data are confidential and need to be handled accordingly.

b. Creating a Data File Using an Electronic Medical Record System Other Than RPMS DMS

Because all electronic medical record systems have different structures and functionality, any facility using one of these systems to conduct an electronic Audit should review the Audit 2016 data file format and RPMS DMS Audit 2016 logic before proceeding. Documentation with details for the format and logic can be obtained from the IHS Division of Diabetes Audit team on request (see Section 10).

c. Uploading the Data File to the WebAudit

Now that you have a data file, you need to upload it into the WebAudit for data cleaning and report generation using the steps below.

For further information about the WebAudit, including frequently-asked questions (FAQs), visit the IHS Division of Diabetes website:

<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesAudit>

To upload a data file:

1. Request and activate a WebAudit account if you do not already have one.
2. Log in to the WebAudit.
3. Select “Enter Facility Info” from the left hand menu or from the Main Menu select “Diabetes WebAudit Facility Administration” then “Enter Facility Information”.
4. Enter the number of active patients in your diabetes registry that meet the inclusion and exclusion criteria in Section 3 (p.7).
5. Click the “Save” button.
6. Select “Upload Data” from the left hand menu or from the Main Menu select “Diabetes WebAudit” then “Upload Data”.
7. Select an Audit Type. For the annual Audit submitted to the IHS Division of Diabetes, you will select “Annual Audit”. For all other Audits, select “Interim Audit”.
8. Individuals with access to multiple facilities will need to select a Facility.
9. Select the electronic health record system that was used to create your data file.
10. Click on the “Browse” button and navigate to the data file, then click on “Open”.
11. When the data file has been selected, click on the “Upload File” button.
12. If the upload of the data file is successful, you will receive a message on the screen telling you that the file was successfully uploaded.
13. If the upload is unsuccessful, you will receive an on-screen message telling you that the file upload attempt was unsuccessful, with a brief description of the problem.
14. Once the file has been successfully uploaded, proceed with checking the data quality (see Section 7, p.16) and generating reports (see Section 8 on p.16).

6. Performing a Manual Chart Audit

a. Sample Size Determination

For manual auditors, the time requirements of the chart review process generally make it impractical to review all active diabetes patients. Instead, a random sample of records may be selected for review. The number of charts needed depends on the number of diabetes patients at your facility that meet the criteria for inclusion in the Audit.

Table 2 (Sample Sizes) on the following pages lists the minimum number of charts you will need to review to be reasonably sure (90% confident) that a 10% difference noted from a previous or subsequent Audit is a real change and not just due to chance. If, for example, your facility has 1000 active patients with diabetes, you will need to audit at least 63 charts.

b. Sample Size Calculation Details

The Audit sample sizes in Table 2. Sample Sizes were calculated using the following method:

$$\text{Sample size} = n / (1 + (n / \text{population})) \text{ where } n = Z * Z(P(1-P) / D * D)$$

Sample size = size of sample randomly selected from the population of active diabetes patients.

Population = number of diabetes patients that meet the criteria for inclusion in the Audit.

P = true proportion of Audit element in the population (since this is not known exactly, it is taken as 50% (i.e., 0.5) as the most conservative value)

D = (Maximum) difference between sample mean and population mean (Table 2. Sample Sizes lists *within ± 10%* and *within ± 5%*, which corresponds to a D value of 0.1 and .05, respectively)

Z = area under normal curve corresponding to the desired confidence level:

Confidence	Z
.90	1.645
.95	1.960
.99	2.575

Reference: Kish (1995)

Table 2. Sample Sizes

Population (# of eligible DM Patients)	90% Certainty Within 10% (Recommended)	90% Certainty Within 5%	95% Certainty Within 10%	95% Certainty Within 5%
<30	all	all	all	all
30	21	27	23	28
40	25	35	28	36
50	29	42	33	44
60	32	49	37	52
70	34	56	40	59
80	37	62	44	66
90	39	68	46	73
100	40	73	49	79
110	42	78	51	86
120	43	83	53	91
130	44	88	55	97
140	46	92	57	103
150	47	96	59	108
160	48	101	60	113
170	48	104	61	118
180	49	108	63	123
190	50	112	64	127
200	51	115	65	132
220	52	121	67	140
240	53	127	69	148
260	54	133	70	155
280	54	138	72	162
300	55	142	73	168
320	56	147	74	175
340	56	151	75	180
360	57	154	76	186
380	57	158	77	191
400	58	161	77	196
420	58	165	78	201
440	59	168	79	205
460	59	170	79	209
480	59	173	80	213
500	60	176	81	217
525	60	179	81	222
550	60	181	82	226
575	61	184	82	230

Population (# of eligible DM Patients)	90% Certainty Within 10% (Recommended)	90% Certainty Within 5%	95% Certainty Within 10%	95% Certainty Within 5%
600	61	186	83	234
650	61	191	84	241
700	62	195	84	248
800	62	202	86	260
900	62	208	87	269
1000	63	213	88	278
2000	65	238	92	322
3000	66	248	93	341

c. Chart Selection

Charts should be selected using a systematic random sampling technique, as follows:

- a. Prepare a list of the diabetes patients at your facility that meet the inclusion and exclusion criteria in Section 3 (p.7) of these instructions.
- b. Determine your sample size using Table 2.
- c. Divide the number of patients on your list from step a by the sample size determined in step b to get the sampling interval, called k.
- d. Randomly select the first chart to audit from the first k records.
- e. Select every kth chart after that one on the list.

Example: Suppose you need to select 69 charts from a list of 1000 patients. Divide 1000 by 69, to get k=14.4, which is rounded down to 14. So you must select one chart out of every 14. Use any method of random chance to determine which one of the first 14 patients on the list should be selected. For example, you could number 14 pieces of paper with 1 through 14 and have someone draw one. If the number is 5, select the fifth patient on the list and then every 14th patient after that (19, 33, 47, etc.). Pull the medical chart for each of the selected patients.

Note that it is important to track down charts for all selected patients to minimize bias in your sample.

d. Completing the Audit Form

Manual auditors may obtain a 2016 Audit form from the IHS Division of Diabetes website: <http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesAuditResources>

Using Appendix A (p. 18) that describes each of the Audit data elements, review the medical chart for each selected patient to obtain the necessary information. If you cannot find a result in the chart, then for the purposes of the Audit, apply the old dictum: *"If it is not documented, it did not happen."*

Finally, please remember that all medical records and completed Audit forms are confidential documents and need to be handled with discretion for personal health information. When not working with charts and forms, do not leave them unattended.

e. Instructions for WebAudit Data Entry

Data entry is done via the internet-based WebAudit. To access the WebAudit you must use a computer that can connect to the internet and has a web browser, such as Internet Explorer.

For further information about the WebAudit, including frequently-asked questions (FAQs), visit the IHS Division of Diabetes website:

<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesAudit>

To complete data entry:

1. Request and activate a WebAudit account if you do not already have one.
2. Log in to the WebAudit.
3. Select “Enter Facility Info” from the left hand menu or from the Main Menu select “Diabetes WebAudit Facility Administration” then “Enter Facility Information”.
4. Enter the number of patients in your diabetes registry that meet the inclusion and exclusion criteria in Section 3 (p.7).
5. Click the “Save” button.
6. Select “Data Entry” from the left hand menu or from the Main Menu select “Diabetes WebAudit” then “Data Entry”.
7. Individuals with access to multiple facilities will need to select a Facility.
8. Select an Audit Type. For the annual Audit submitted to the Division of Diabetes, you will select “Annual Audit”. For all other Audits, select “Interim Audit”.
9. Following the on-screen instructions, enter the data from each paper Audit form, taking care to complete every item. To expedite data entry, use the keyboard as much as possible, including:
 - a. Use the <Tab> key to move to the next field.
 - b. Use <Shift><Tab> to move to the previous field.
 - c. Use the number keys to enter responses from selection lists (e.g., type the number "1" for Sex=1: Male).
10. When all fields have been entered, click on the “**Save**” button at the bottom of the data entry screen. A blank data entry screen will appear, unless there are errors for the record just entered.

Note: If your data entry session gets interrupted for more than 20 minutes and you do not click on the “Save” button, you will be logged off and will lose the current record’s unsaved data.

11. Once all of the Audit forms have been entered, perform a quality check on the data (see Section 7, p.16) and run and review an Audit Report (see Section 8, p.16). When all editing and corrections have been completed and no further additions or changes need to be made, the data may be “locked” (see Section 9, p.17).

7. Data Cleaning

It is possible that errors may be present in your Audit data, whether you entered the data manually or uploaded a data file. The WebAudit has a tool for checking your data for many different errors.

To use the data checking tool, go to the WebAudit, click the “Data Quality Check” link in the left hand menu or the Data Processing menu and follow the on-screen directions to create a report of Potential Data Errors. The errors will be listed in a table, with a brief explanation of each one. Keep in mind that some potential errors may not be true errors; they could be extreme but nevertheless accurate values (such as a person weighing over 500 lbs.).

To correct an error, click on the 'Edit' icon in the leftmost column of the errors table, which will take you to a screen showing all of the data for the affected record. Make the necessary correction(s) and then click on the "Save" button at the bottom of the screen.

If a potential error turns out to contain an accurate value, consider adding a comment to that effect using the “Add Comment” link in the rightmost column of the errors table.

8. Generating Reports and Graphs

The WebAudit produces several reports, including the Audit Report, Renal Preservation Report, Cardiovascular Disease Risk Report, Means Report, and SDPI Key Measures Report. Graphs are also available via the WebAudit, including Trends and Means graphs.

All of the reports and graphs may be generated from data that was either manually entered or uploaded from an Audit data file. Current and previous years’ reports are available for any year with data submitted.

To generate a report:

- a. Select “Audit Reports” from the left hand menu or from the Main Menu select “Reports” then “Audit Reports”.
- b. Select an Audit Type. For the annual Audit submitted to the IHS Division of Diabetes, you will select “Annual Audit”. For all other Audits, select “Interim Audit”.
- c. Select the desired year.
- d. Select the desired report(s) and click on “View Report(s)”.
- e. The requested report(s) will appear on the screen. You may need to scroll down the page to view the entire report(s).
- f. To print or save the report to your computer, click on the “Download PDF Version” link at the top of the report, on the right side. The report will open as a PDF document. Use your browser’s print and save options.

To generate graphs:

- a. Select “Trends Graphs” or “Means Graphs” from the left hand menu or from the Main Menu select “Reports” then select one of the graph types.
- b. Select an Audit Type. For the annual Audit submitted to the IHS Division of Diabetes, you will select “Annual Audit”. For all other Audits, select “Interim Audit”.
- c. Click on “Create Report” button.

- d. When the report is ready, a button will appear on the screen that says “Open Report in Excel”; click on this button. The Excel report file will open to the “Graphs” tab. Select the “Data” tab to see the results in table format.
- e. You can save, print, or edit the graphs using the Excel menus and options.

Carefully reviewing the results in the Audit Report and graphs is another good way to check for potential errors in your Audit data. In particular, very low (close to 0) or very high (close to 100) percentages may indicate problems with the data, as can big changes in results from the previous year. If any such problems are found, review your data forms and charts or check your taxonomies. Contact your Area Diabetes Consultant or the Audit team if you are unable to resolve the problem(s).

9. Finalizing (“Locking”) Data

When the data has been cleaned and corrected and are as complete and accurate as possible, the data can be “locked”. Once the data are locked, no further additions or changes are allowed, so **data should not be locked until you are confident that no further modifications are necessary**. The locking process also submits the data to the IHS Division of Diabetes.

To lock the data:

- a. Log in to the WebAudit.
- b. Select “Lock Facility Data” from the left hand menu or from the Main Menu select “Facility Administration” then “Lock Facility Data”.
- c. Follow the instructions on the screen.

10. Resources/Links

IHS Division of Diabetes Audit Website – Form, Instructions, WebAudit access and other information:
<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesAudit>

IHS Standards of Care and Clinical Practice Recommendations: Type 2 Diabetes:
<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=soc>

RPMS Diabetes Management System Addendum to User Manual; Version 2.0 Patch 9
<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesAuditRPMSDMSInfo>

Area Diabetes Consultant Contact Information
<http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=peopleADCDirectory>

Contact the IHS Division of Diabetes Audit Team: ddtpwebauditadmins@ihs.gov

11. References

Kish, Leslie. *Survey Sampling*. Wiley-Interscience, 1995. Print.

Appendix A: 2016 Diabetes Audit Data Element Descriptions

DEMOGRAPHIC DATA

Audit Period Ending Date: Ending date of the one-year (365 day) Audit period as mm/dd/yyyy. **Use 12/31/2015 for the annual Audit submitted to the IHS Division of Diabetes in 2016.**

FACILITY NAME: Facility's name or abbreviation. This is for confirmation purposes only, since the WebAudit will automatically supply and display the name.

REVIEWER: Initials of the person doing the medical chart review (maximum of three letters).

STATE of Residence: The two-character postal abbreviation for the State in which the patient resides. If the patient lives outside of the United States (e.g., in Canada), leave blank.

Month and Year of Birth (Required): Patient's month (2 digits) and year (4 digits) of birth.

SEX (Required): Patient's gender.

- (1) Male
- (2) Female
- (3) Unknown

DATE of Diabetes Diagnosis: Date the patient was first diagnosed with diabetes. If only the year is known, enter the middle of that year (i.e., "07/01/<year>"). If only the month and year are known, enter the middle day of that month (i.e., 15). Leave blank if year or entire date is unknown.

DM TYPE: Patient's diabetes type. If uncertain, mark as (2) Type 2. Keep in mind that not all insulin-using patients have Type 1 Diabetes – in fact, most of them have Type 2 Diabetes.

- (1) Type 1 (also referred to as IDDM, juvenile-onset diabetes)
- (2) Type 2 (also referred to as NIDDM, adult-onset diabetes)

TOBACCO USE:

Screened for tobacco use during Audit period: Was patient screened for tobacco use as documented in the health summary, problem list, or flow sheet?

- (1) Yes
- (2) No

Tobacco use status: Patient's most recent documented status of tobacco use (cigarettes, chewing tobacco, snuff, etc.) taken from the health summary, problem list, or flow sheet.

- (1) Current user of tobacco
- (2) Not a current user of tobacco
- (3) Tobacco use not documented

Cessation counseling received during Audit period? Did patient receive tobacco cessation counseling or referral for counseling during the Audit period? This item should only be completed if patient's tobacco use status is "Current user."

- (1) Yes
- (2) No

VITAL STATISTICS

HEIGHT: Patient's height in inches or in feet and inches. Fractional parts of an inch may be entered in decimal form with up to two decimal places (for example, 63 and ½ inches = 63.5, 71 and ¾ inches = 71.75).

Last WEIGHT In Audit Period: Patient's weight in pounds as a number with no decimal places.

HTN (documented diagnosis): Does patient have diagnosed hypertension as documented by problem list diagnosis or three visits with a diagnosis of hypertension ever?

- (1) Yes
- (2) No

Last three BLOOD PRESSURES (BPs): Patient's last blood pressures **obtained in a non-ER setting during the Audit period**, up to a maximum of three obtained on different days. If there are multiple blood pressure readings recorded on the same day, choose the latest one. Mean BP will be automatically calculated using the last three readings if three are available, otherwise the last two are used.

EXAMINATIONS

FOOT EXAM: Did patient have a comprehensive foot exam during the Audit period that included evaluation of sensation and vascular status?

- (1) Yes
- (2) No

EYE EXAM: Did patient have an eye exam during the Audit period that included a dilated eye exam or retinal imaging?

- (1) Yes
- (2) No

DENTAL EXAM: Did patient have a dental exam conducted by a dental professional during the Audit period that included examination of the gingiva and mucosal surfaces? It is possible that dental records may be kept separate from the medical records at your facility and will need to be located for review.

- (1) Yes
- (2) No

EDUCATION

NUTRITION INSTRUCTION: Nutrition or diet instruction provided to patient during the Audit period, according to provider type.

- (1) RD=Registered dietitian only
- (2) Other=Non-RD provider only
- (3) Both=Both RD and non-RD
- (4) None=No nutrition or diet instruction documented

PHYSICAL ACTIVITY INSTRUCTION: Did patient receive physical activity or exercise instruction during the Audit period?

- (1) Yes
- (2) No

DM EDUCATION (Other): Other than diet or exercise, did patient receive education during the Audit period on any topic(s) related to diabetes?

- (1) Yes
- (2) No

MENTAL HEALTH

DEPRESSION an active problem: Does patient have depression documented as an active problem or as a purpose of visit during the Audit period?

- (1) Yes
- (2) No

SCREENED for depression during Audit period: Was patient screened for depression during the Audit period using a Zung, Beck or similar depression screening scale, or was it otherwise documented that patient was assessed for possible depression? This item should only be completed if patient does not have depression as an active problem.

- (1) Yes
- (2) No

TREATMENT

DM THERAPY: Patient's prescribed diabetes medications as of the Audit period end date. Select item 1 OR all that apply for items 2-13. During WebAudit data entry or editing, selected items will appear as 1:Yes and those not selected as 2:No.

RPMS electronic Audit notes:

- Only diabetes medications prescribed in the six months prior to the Audit period end date are included.
- If no diabetes medications are found, then the Diet & Exercise Alone item is marked as 1:Yes by default.

- (1) Diet & Exercise *Alone*. If this item is selected during WebAudit data entry, all other DM Therapy choices will be automatically marked as 2:No.
- (2) Insulin (all forms, including insulin aspart (*NovoLog*), lispro (*Humalog*), glargine (*Lantus*))
- (3) Sulfonylurea, including the following:
 - Glyburide (*DiaBeta, Micronase, Glynase*)
 - Glipizide (*Glucotrol, Glucotrol XL*)
 - Glimepiride (*Amaryl*)
- (4) Glinide (sulfonylurea-like meds), including the following:
 - Repaglinide (*Prandin*)
 - Nateglinide (*Starlix*)
- (5) Metformin (*Glucophage, generic*)
 - For combination medications such as *Avandamet* (rosiglitazone + metformin), *Glucovance* (glyburide + metformin), and *Actoplus Met* (pioglitazone + metformin), be sure to mark 1:Yes for both components.
- (6) Acarbose (*Precose*) or miglitol (*Glyset*)
- (7) TZD ("Glitazones"), including pioglitazone (*Actos*) or rosiglitazone (*Avandia*)
- (8) GLP-1 med (*Byetta, Bydureon, Victoza, Tanzeum, Trulicity*)
- (9) DPP4 inhibitor (*Januvia, Onglyza, Tradjenta, Nessina*)
- (10) Amylin analog (pramlintide, *Symlin*)
- (11) Bromocriptine (*Cycloset*)
- (12) Colesevelam (*Welchol*)
- (13) SGLT-2 inhibitor (*Invokana, Farxiga, Jardiance*)

ACE INHIBITOR/ARB: Was patient prescribed ace inhibitor or angiotensin II receptor blocker (ARB) medication as of the Audit period end date?

- (1) Yes
- (2) No

If unsure, check with your pharmacist regarding the ACE inhibitors and ARBs used at your facility. Examples of ACE inhibitor drugs include:

Benazepril (<i>Lotensin</i>)	Fosinopril (<i>Monopril</i>)	Ramipril (<i>Altace</i>)
Captopril (<i>Captoten</i>)	Lisinopril (<i>Prinivil, Zestril</i>)	Perindopril (<i>Aceon</i>)
Enalapril (<i>Vasotec</i>)	Moexipril (<i>Univasc</i>)	Quinapril (<i>Accupril</i>)

Examples of ARBs include:

Candesartan (<i>Atacand</i>)	Irbesartan (<i>Avapro</i>)	Eprosartan (<i>Teveten</i>)
Losartan (<i>Cozaar</i>)	Telmisartan (<i>Micardis</i>)	Valsartan (<i>Diovan</i>)

RPMS electronic Audit note: Only medications prescribed in the six months prior to the Audit period end date are included.

ASPIRIN/ANTIPLATELET/ANTICOAGULANT Therapy: Was patient prescribed aspirin or other antiplatelet/anticoagulant therapy as of the Audit period end date?

- (1) Yes
- (2) No

Examples of other antiplatelet and anticoagulant medications include: warfarin (*Coumadin*), clopidogrel (*Plavix*), ticlopidine (*Ticlid*), dabigatran (*Pradaxa*), rivaroxaban (*Xarelto*), and apixaban (*Eliquis*).

RPMS electronic Audit note: Prescribed medications in the twelve months prior to the Audit period end date are included.

STATIN Therapy: Was patient prescribed statin therapy as of the Audit period end date?

- (1) Yes
- (2) No
- (3) Allergy/intolerance/contraindication

RPMS electronic Audit note: Prescribed medications in the six months prior to the Audit period end date are included.

TUBERCULOSIS (TB) TESTING

TB Test done: Patient's most recent TB test that has a valid result.

- (1) Skin test (PPD)
- (2) Blood test (QFT-G, T SPOT-TB)
- (3) Unknown/not offered

TB Test result: Result of most recent TB test. Answer only if TB Test Done is (1) or (2).

- (1) Positive=Last skin or blood test result was positive for TB or patient has known history of TB
- (2) Negative=Last skin or blood test result was negative
- (3) Unknown

If TB test result Positive, INH tx complete: Does patient have documentation of at least 6 months of prophylactic isoniazid (INH) or at least 12 months of multiple drug therapy documented for active TB?

- (1) Yes
- (2) No
- (3) Unknown

If TB test result Negative, test date: Date of most recent negative TB test as mm/dd/yyyy.

CVD

Cardiovascular disease (CVD) diagnosed: Does patient have a known diagnosis consistent with CVD? This includes coronary artery disease (CAD), hypertensive heart disease, heart failure, cardiomyopathy, heart dysrhythmias, valvular heart disease, stroke, and/or peripheral vascular disease. See Appendix B on p.25 for additional details.

- (1) Yes
- (2) No

IMMUNIZATIONS

Influenza vaccine during Audit period: Did patient receive an influenza vaccine during the Audit period?

- (1) Yes
- (2) No
- (3) Refused, if vaccine offered but documented refusal noted on medical record

Pneumococcal vaccine ever: Has patient ever received pneumococcal vaccine? For Audit purposes, administration of a single dose of either the 13-valent (PCV13) or 23-valent (PPSV23) vaccine meets the criteria for this element.

- (1) Yes
- (2) No
- (3) Refused, if vaccine offered but documented refusal noted on medical record

Td, Tdap, or DT in past 10 years: Has patient received tetanus and diphtheria immunization in the past 10 years?

- (1) Yes
- (2) No
- (3) Refused, if vaccine offered but documented refusal noted on medical record

Tdap ever: Has patient ever received tetanus, diphtheria, and pertussis immunization?

- (1) Yes
- (2) No
- (3) Refused, if vaccine offered but documented refusal noted on medical record

HEPATITIS B 3 dose series complete (ever): Has patient ever received the complete hepatitis B 3 dose series?

- (1) Yes
- (2) No
- (3) Refused, if vaccine offered but documented refusal noted on medical record
- (4) Immune

LABORATORY DATA

A1C (%): Most recent A1C value during the Audit period. When entering the result, omit any “>” or “<” signs (for example, enter >14 as 14). Leave blank if test not done during the Audit period.

A1C Date obtained: Date A1C was drawn as mm/dd/yyyy.

Serum Creatinine (mg/dl): Most recent serum creatinine value during the Audit period. Leave blank if test not done during the Audit period.

eGFR value (mL/min/1.73 m²): Most recent estimated GFR during the Audit period. Leave blank if result not documented during Audit period. May be left blank for patients <18 years of age.

Total Cholesterol, HDL Cholesterol, LDL Cholesterol, Triglycerides (mg/dl): Most recent value during the Audit period. Leave blank if test not done during the Audit period.

URINE PROTEIN TESTING

Quantitative Urine albumin:creatinine ratio (UACR) performed: Did patient have a quantitative UACR test with a valid result during the Audit period?

- (1) Yes
- (2) No

Quantitative UACR value (mg/dl): Most recent value during the Audit period. If the result came back as too low to detect (may have a < symbol in front), enter the value 5.

LOCAL OPTION QUESTIONS (Optional)

Facilities can formulate their own supplemental Audit question(s), if desired. These may be used to analyze an additional aspect of diabetes care that may be of special interest or to group patients by their primary provider or clinic.

There are two optional local option questions: a numbered item with responses 1-9 and a text field.

For manual Audits, these questions may be printed on the reverse side of the Audit form, or may appear separately. For data entry, “Local Option” fields appear near the bottom of the WebAudit data entry screen.

For electronic Audits, responses for these questions can be entered via the DMS Patient Management option. See the RPMS Diabetes Management System Addendum to User Manual; (Version 2.0 Patch 9) for more information.

Appendix B: Cardiovascular Disease Diagnoses and Associated ICD-9 Codes

Note: The codes listed below do not include all possible CVD diagnoses, but do include risk factors for atherosclerotic event.

1. 393 – 398: **Chronic Rheumatic Heart Disease**
 - 393 Chronic rheumatic pericarditis
 - 394.x Diseases of mitral valve
 - 395.x Diseases of aortic valve
 - 396.x Diseases of mitral and aortic valves
 - 397.x Diseases of other endocardial structures
 - 398.xx Other rheumatic heart disease

2. 402: **Hypertensive Heart Disease**
 - 402.0x Malignant
 - 402.1x Benign
 - 403.9x Unspecified

3. 410.0 - 414.9: **Ischemic heart disease**
 - 410.xx Acute myocardial infarction
 - 411.xx Other acute and subacute ischemic heart disease
 - 412 Old myocardial infarction
 - 413.x Angina pectoris
 - 414.xx Other forms of chronic ischemic heart disease

4. 415.1: **Pulmonary embolism and infarction**
 - 415.11 Iatrogenic pulmonary embolism and infarction
 - 415.12 Septic pulmonary embolism
 - 415.13 Saddle embolus of pulmonary artery
 - 415.19 Other

5. 424.0 - 424.99: **Other diseases of endocardium:**
 - 424.0 Mitral valve disorders
 - 424.1 Aortic valve disorders
 - 424.2 Tricuspid valve disorders
 - 424.3 Pulmonary valve disorders
 - 424.9x Endocarditis, valve unspecified

6. 425: **Cardiomyopathy**
 - 425.0 Endomyocardial fibrosis
 - 425.1x Hypertrophic cardiomyopathy
 - 425.2 Obscure cardiomyopathy of Africa
 - 425.3 Endocardial fibroelastosis
 - 425.4 Other primary cardiomyopathies
 - 425.5 Alcoholic cardiomyopathy
 - 425.7 Nutritional and metabolic cardiomyopathy
 - 425.8 Cardiomyopathy in other diseases classified elsewhere
 - 425.9 Secondary cardiomyopathy, unspecified

7. **426: Conduction disorders**

- 426.0 Atrioventricular block, complete
- 426.1x Atrioventricular block, other and unspecified
- 426.2 Left bundle branch hemiblock
- 426.3 Other left bundle branch block
- 426.4 Right bundle branch block
- 426.5x Bundle branch block, other and unspecified
- 426.6 Other heart block
- 426.7 Anomalous Atrioventricular excitation
- 426.8x Other specified conduction disorders
- 426.9 Conduction disorder, unspecified

8. **427.0 - 427.9: Cardiac dysrhythmias**

- 427.0 Paroxysmal supraventricular tachycardia
- 427.1 Paroxysmal ventricular tachycardia
- 427.2 Paroxysmal tachycardia, unspecified
- 427.3x Atrial fibrillation and flutter
- 427.4x Ventricular fibrillation and flutter
- 427.5 Cardiac arrest
- 427.6x Premature beats
- 427.8x Other specified cardiac dysrhythmias
- 427.9 Cardiac dysrhythmia, unspecified

9. **428.0 - 428.9: Heart failure**

- 428.0 Congestive heart failure, unspecified
- 428.1 Left heart failure
- 428.2x Systolic heart failure
- 428.3x Diastolic heart failure
- 428.4x Combined systolic and diastolic heart failure
- 428.9 Heart failure, unspecified

10. **429.2: Cardiovascular disease, unspecified**

Includes "arteriosclerotic cardiovascular disease (ASCVD), cardiovascular arteriosclerosis, cardiovascular degeneration, disease or sclerosis with mention of arteriosclerosis.

11. **433.0 - 434.91: Occlusion and stenosis of precerebral arteries (433.xx)**

Includes embolism, narrowing, obstruction or thrombosis of basilar, carotid, and vertebral arteries.

Occlusion of cerebral arteries (434.xx)

Includes thrombosis, embolism, or occlusion, unspecified.

12. **440.1 - 440.29: Atherosclerosis**

- 440.1 Of renal artery
- 440.2x Of native arteries of the extremities

13. 440.4: **Chronic total occlusion of artery of the extremities**
14. 443.2x: **Other arterial dissection**
15. 443.8x: **Other specified peripheral vascular diseases**
16. 443.9: **Peripheral vascular disease, unspecified**
17. 444.xx: **Arterial embolism and thrombosis**
18. 445.xx: **Atheroembolism**
19. 451.1x: **Phlebitis and thrombophlebitis of deep vessels of lower extremities**
20. V45.01: **Cardiac pacemaker**
21. V45.81 : **Aortocoronary bypass status (postprocedural state)**
V45.82: **Percutaneous transluminal coronary angioplasty status**

If no diagnosis is found then the patient's record is searched for any of the following documented procedures, ever. If found, patient is assumed to have CVD.

- A. **CABG Procedure:** V POV V45.81; V CPT: 33510-33514, 33516-33519, 33521-33523, 33533-33536, HCPCS: S2205-S2209; V Procedure: 36.1* or 36.2*.
- B. **PCI Procedure:** V POV: V45.82; V CPT: 92980, 92982, 92995; HCPCS: G0290; V Procedure: 00.66, 36.01 (old code), 36.02 (old code), 36.05, (old code), 36.06-36.07.