Indian Health Service
Diabetes Care and Outcomes Audit

Audit 2019
Instructions

January 2019

Table of Contents

Preface

Welcome to Audit 2019!

If you have not previously participated in an Indian Health Service (IHS) Diabetes Audit, **please 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 2019. Below are a brief summary of this year's changes and Quick Start Directions along with a concise review of the steps for conducting either an electronic or a manual Audit.

What's New in Audit 2019?

New items: There is one new item for which data are collected and reported.

1. Lower extremity amputation (ever), any type (e.g., toe, partial foot, above or below knee)

Deleted items: None

Modified items/report elements:

1. Hepatitis B immunization: There is now a 2 dose vaccination, in addition to the 3 dose vaccination.

2. Audit Report: Several new sections were added - Hypertension, Cardiovascular Disease, Retinopathy, Lower Extremity Amputation, and Hepatitis C.

3. Audit Report: The reporting categories for the Blood Pressure section were changed. Also, a new reporting item was added: If age≥60 years, <150/<90.

4. Audit Report: In the Tobacco and Nicotine Use section, a new item was added: Current user of tobacco and/or ENDS.

5. Audit Report: Changes were made in determining the count of comorbid conditions, including which conditions are considered.

6. Audit Report: A list of abbreviations was added for reference.

7. Other minor changes were made to labels and formatting on the Audit form and in the Audit Report.

Due Date for Audit 2019

Data must be submitted via the WebAudit and locked **no later than March 15, 2019.**

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 **Audit Setup** (menu item "**AS**").

3. Select **Check Taxonomies for the 2019 DM Audit** (menu item "**TC19**") and review the output.

4. If necessary, select **Update/Review Taxonomies for 2019 DM Audit** (menu item "**TU19**") to update taxonomies.

5. Select **2019 Data Quality Check Report** (menu item "**DQC**") and review the output. Correct data and taxonomies, as necessary.

6. Return to the DMS Main Menu, and select **Audit Reporting** (menu item "**AR**").

7. Select **2019 Diabetes Audit** (menu item "**DM19**").

8. Enter the Audit Date (this is the **ending date** of the one-year Audit period). The date for the 2019 Annual Audit submitted to IHS Division of Diabetes is **12/31/2018**.

9. Select the template or register that includes all of the eligible patients for your Annual Audit.

10. Decide which of the eligible 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 2019 Annual Audit*).

    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 2019 Annual Audit*).

    c. You can include or exclude pregnant patients in the Audit (select "E" to exclude pregnant patients for the 2019 Annual Audit).

    d. You can include all or a random sample of the patients selected so far (*select "A" to include all patients for the 2019 Annual Audit*).

11. Select option 2 to create an Audit Export File that can be uploaded into the WebAudit. This file is in delimited text format. Note the total number of patients to be included in the file; this number will be entered into the WebAudit using the Facility Information Tool.

12. Enter a name for the file that will be created.

13. Select "E" to exclude DEMO patients from the 2019 Annual Audit.

14. Access the WebAudit and enter the facility information. See Section 5, p. 11.

15. Obtain the Audit Export File and upload it to the WebAudit. See Section 5, p.11.

16. Clean and edit the data, as necessary. See Section 7, p.16.

17. Review the Audit Report and, if desired, other reports. See Section 8, p.16.

18. Once all data has been submitted and all cleaning/editing is complete, "lock" the data for the facility. See Section 9, p.17.

Using medical record software other than RPMS (e.g., NextGen, Cerner):

1. Consult appropriate local personnel to create an electronic Audit data file in the format specified for Audit 2019.

2. Follow steps 11-17 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.11.

2. Review the 2019 Audit form and instructions with all chart reviewers.

3. Review and complete an Audit 2019 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. Check 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 checking/editing is complete, "lock" the data for the facility. See Section 9, p.17.

Section 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 Indian 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 Diabetes Standards of Care and Clinical Practice Resources[1]*.

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 completed 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 patients with diabetes to monitor care patterns and changes over time at a 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 the results for their Area and IHS overall.

Section 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[2].

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

---

[1]https://www.ihs.gov/diabetes/clinician-resources/soc/
[2]https://www.ihs.gov/ipc/

Section 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 one-year 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 during the Audit period outside of your facility.

2. Are currently on dialysis AND received the majority of their primary care during the Audit period at the dialysis unit.

3. Have died before the end of the Audit period.

4. 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.

Section 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 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.11	Section 5, p.9

There are pros and cons to both manual and electronic Audits. In particular,

Manual:

1. Accuracy is subject to proper documentation in the paper chart.
2. Requires more time.
3. Not subject to limitations of electronic medical record systems.

Electronic:

1. Accuracy is subject to proper documentation, coding, and data entry in RPMS or other health record system.
2. Requires time and attention for initial set up, including understanding of taxonomies for RPMS/DMS.
3. Requires less time, 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.

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. These results should be 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.

Your facility should decide what type of Audit to conduct for the current year. Once you have done that, then read the instructions for electronic Audits in Section 5, p.9, or manual Audits in Section 6, p.11.

Section 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 Audit and User Manuals. Links to both of these documents are available on the [Audit webpage with RPMS Resources](https://www.ihs.gov/diabetes/audit/audit-rpms-dms-information/).[3]

In order to use the DMS application, you need to have the proper access keys. Otherwise, the necessary menu items will not be available to you. 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:

1. Review the following taxonomies and update as needed to ensure that they are present, accurate, and complete: Medications, Lab Tests, Health Factors, and Education Topics.

2. Prepare a list of patients that meet the Audit inclusion/exclusion criteria (Section 3, p.7). This can be done in a number of ways, including:

    a. Review and update the diabetes register, as needed, so that it includes only eligible patients or some way to identify eligible patients (e.g., by status).

    b. Create a template of the diabetes patients at your facility that meet the Audit criteria.

3. Run and review the DMS Data Quality Check Report and fix all possible errors. This report will list potential errors in the data extracted for your Audit - the same errors checked for by the WebAudit Data Quality Check. In addition, the DMS version of the report includes patient identifiers, which the WebAudit version does not.

To create an Audit data file:

1. In the Diabetes Management System (DMS) menu, select: "**AR**" for **Audit Reporting**.

2. Select "**DM19**" for **2019 Diabetes Audit**. Note: If "DM19" is not on your menu, then the DMS patch for Audit 2019 has not yet been installed. Ask your RPMS site manager to install BDM Version 2.0 Patch 12.

3. Enter Audit Date, which is the ENDING date of the one-year Audit period. For the Annual Audit submitted to the IHS Division of Diabetes via the WebAudit, enter **12/31/2018** to use the prior calendar year as the Audit period (January 1–December 31, 2018).

4. Select the template or register that includes all of the eligible patients for your Annual Audit.

5. Select patients with a particular status, if necessary.

---

[3]https://www.ihs.gov/diabetes/audit/audit-rpms-dms-information/

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 2019 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 2019 Annual Audit)*.

   c. You can include or exclude pregnant patients in the Audit (select "E" to exclude pregnant patients for the 2019 Annual Audit).

   d. You can include all or a random sample of the patients selected so far (*select "A" to include all patients for the 2019 Annual Audit*).

7. Select option 2 to create an Audit Export File that can be uploaded into the WebAudit. This file is in delimited text format. Note the total number of patients to be included in the file; this number will be entered into the WebAudit using the Facility Information Tool.

8. 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 use: MyFacilityName_AnnualAudit2019.

9. The program will ask if everything is OK to proceed; enter Y//Yes.

10. Select "E" to exclude DEMO patients from the 2019 Annual Audit.

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 7 above will be created.

The file created will be saved in the directory noted on the screen. 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 the file name and 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 2019 data file format and DMS Audit 2019 logic before proceeding. Documentation with details for the data file and logic can be obtained from the IHS Division of Diabetes Audit team on request (see Section 10, p. 18).

c. Uploading the Data File to the WebAudit

After creating a data file, you need to upload it into the WebAudit for data cleaning and report generation.

For further information about the WebAudit, including frequently asked questions (FAQs), visit the IHS Division of Diabetes [Audit website](https://www.ihs.gov/diabetes/audit/)[4].

To upload a data file:

1. Request a WebAudit account if you do not already have one.

2. Log in to the WebAudit.

3. Select "Facility Administration" from the main or left hand menu. Then select "Enter Facility Information".

4. Enter the number of patients that meet the inclusion and exclusion criteria in Section 3, p.7.

5. Click on the "Submit" button.

6. Select "Data Processing" from the left hand menu, then select "Upload Data".

7. Select an Audit Type. For the Annual Audit submitted to the IHS Division of Diabetes, select "Annual Audit". For all other Audits, select "Interim Audit". Click on the "Go" button.

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 your data file, then click on the "Open" button.

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 to that effect.

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, if you have not already done so in DMS (see Section 7, p.16), and generating reports (see Section 8, p.16).

Section 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. As such, 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 (see Section 3, p.7).

---

[4](https://www.ihs.gov/diabetes/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. For example, if your facility has 1000 eligible 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:

Sample size = n/(1+(n/population)) where n = Z*Z(P(1-P)/D*D)

Sample size = size of sample to be randomly selected from the population of eligible 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

Population (# of eligible DM Patients)	90% Certainty Within 10% (Recommended)	90% Certainty Within 5%	95% Certainty Within 10%	95% Certainty Within 5%
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
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
4000	67	253	94	350
5000	67	257	94	357
6000	67	259	95	361
7000	67	261	95	364

c. Chart Selection

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

i. 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.

ii. Determine your sample size using Table 2 above.

iii. Divide the number of patients on your list from step i above by the sample size determined in step ii above to get the sampling interval, called k.

iv. Randomly select the first chart to audit from the first k records.

v. Select every k[th] 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: It is important to track down charts for all selected patients to minimize bias in your sample.

d. *Completing the Audit Form*

The 2019 Audit form is available on the IHS Division of Diabetes [Audit resources webpage](https://www.ihs.gov/diabetes/audit/audit-resources/)[5].

Using Appendix A, p. 19, which describes 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 visit the IHS Division of Diabetes [Audit website](4)[4].

To complete data entry:

1. Request a WebAudit account, if you do not already have one.
2. Log in to the WebAudit.
3. Select "Facility Administration" from the left hand or main menu, then select "Enter Facility Information".
4. Enter the number of patients that meet the inclusion and exclusion criteria in Section 3, p.7.
5. Click the "Submit" button.
6. Select "Data Processing" from the left hand menu, then select "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". Click on the "Go" button.
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).

---

[5]https://www.ihs.gov/diabetes/audit/audit-resources/

10. When all data on a form have been entered, click on the "Save" button at the bottom of the screen. If there are any errors, they will be noted on the screen. Otherwise, a blank data entry screen will appear.

> 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). After that, 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).

Section 7. Data Cleaning

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

To use the data checking tool, go to the WebAudit, select "Data Processing" from the left hand menu, then select "Data Quality Check." 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 selected 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" button in the rightmost column of the errors table.

Note that if you already used the DMS Data Quality Check report to identify potential errors and corrected as many as possible in RPMS, the WebAudit Data Quality Check report should only include those that you were not able to correct in RPMS, if any.

Section 8. Generating Reports and Graphs

The WebAudit produces several reports, including the Audit 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 uploaded or manually entered. Current and previous years' reports are available for any year with data submitted.

To generate a report:

a. Select "Reports" from the left hand menu or main menu, then select "Audit Reports".
b. Select an Audit Type. For the Annual Audit, you will select "Annual Audit". For all other Audits, select "Interim Audit". Click on the "Go" button.
c. Select the desired year, then click on the "Go" button.
d. Select the desired report(s) and click on the "View Report(s)" button.
e. The selected 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 "Reports" from the left hand menu or main menu, then select "Trends Graphs" or "Means Graphs".

b. Select an Audit Type. For the Annual Audit, you will select "Annual Audit". For all other Audits, select "Interim Audit" then click on the "Go" button.

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 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 medical records and taxonomies (if performing an electronic Audit) or your data forms and medical charts (if performing a manual Audit). Contact your Area Diabetes Consultant or the Audit team if you are unable to resolve any problems.

Section 9. Finalizing ("Locking") Data

When the data has been cleaned and corrected and are as complete and accurate as possible, it can be "locked". Once locked, no further additions or changes are allowed, so data should not be locked until you are confident that no further edits are necessary. Locking also submits the data to the IHS Division of Diabetes.

To lock the data:

a. Log in to the WebAudit.
b. Select "Facility Administration" from the left hand or main menu select then "Lock Facility Data".
c. Follow the instructions on the screen.

Section 10. Resources/Links

IHS Division of Diabetes Audit Website – Form, Instructions, WebAudit access, and other information
https://www.ihs.gov/diabetes/audit/

IHS Diabetes Standards of Care and Clinical Practice Resources
https://www.ihs.gov/diabetes/clinician-resources/soc/

RPMS Diabetes Management System manuals
Link on this webpage: https://www.ihs.gov/diabetes/audit/audit-rpms-dms-information/

Area Diabetes Consultant Contact Information
https://www.ihs.gov/diabetes/about-us/area-diabetes-consultants-adc/

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

Section 11. References

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

Appendix A: 2019 Diabetes Audit Data Element Descriptions

Audit Period Ending Date: Ending date of the one-year (365 day) Audit period as mm/dd/yyyy. **Use 12/31/2018 for the Annual Audit submitted to the IHS Division of Diabetes in 2019.**

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: 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
> (2) Type 2

Tobacco/Nicotine 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 (most recent): 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
> (2) Not a current user
> (3) Not documented

Tobacco 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

Electronic Nicotine Delivery Systems (ENDS)

Screened for ENDS use (during Audit period): Was patient screened for ENDS use? In RPMS, this would be documented in the health factors.

    (1) Yes
    (2) No

ENDS use status (most recent): Patient's most recent documented status of ENDS use. In RPMS, this would be documented in the health factors.

    (1) Current user (documented as a current or cessation ENDS user)
    (2) Not a current user (documented as a previous ENDS user or never used ENDS)
    (3) Not documented

Vital Statistics

Height (last ever): Patient's last ever documented 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).

Weight (last in Audit Period): Patient's weight in pounds as a number with no decimal places.

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

    (1) Yes
    (2) No

Blood pressure (last 3 during Audit period): 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. For reporting purposes, mean BP will be calculated using the last two or three readings. If only one reading is available, it is used in place of mean BP.

Examinations (during Audit period)

Foot (comprehensive or "complete"): Did patient have a comprehensive ("complete") foot exam during the Audit period that included evaluation of sensation and vascular status?

    (1) Yes
    (2) No

For additional information about foot exams, see the IHS Standards of Care[6] and foot care treatment algorithm[7].

---

[6] https://www.ihs.gov/diabetes/clinician-resources/soc/foot-care1/
[7] https://www.ihs.gov/diabetes/includes/themes/newihstheme/display_objects/documents/algorithms/DM_algorithm_Foot_Care_508c.pdf

Eye (dilated or retinal imaging): Did patient have an eye exam during the Audit period that included a dilated eye exam or retinal imaging?

    (1) Yes
    (2) No

For additional information about eye exams, see the [IHS Standards of Care](https://www.ihs.gov/diabetes/clinician-resources/soc/eye-care1/)[8]

Dental: 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

For additional information about dental exams, see the [IHS Standards of Care](https://www.ihs.gov/diabetes/clinician-resources/soc/oral-care1/)[9]

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 the Patient Health Questionnaire (PHQ), 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

Education (during Audit period)

For additional information about education, visit the [IHS Patient Education Protocols and Codes webpage](https://www.ihs.gov/forproviders/patiented/)[10].

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

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

---

[8] https://www.ihs.gov/diabetes/clinician-resources/soc/eye-care1/
[9] https://www.ihs.gov/diabetes/clinician-resources/soc/oral-care1/
[10] https://www.ihs.gov/forproviders/patiented/

Physical Activity: Did patient receive physical activity or exercise education during the Audit period?

> (1) Yes
> (2) No

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

> (1) Yes
> (2) No

Diabetes Therapy

Select **all** prescribed (as of the end of the Audit period):

> (1) None of the following [Note that if this item is selected during WebAudit data entry, all other Diabetes Therapy choices will be automatically marked as 2:No.]
>
> (2) Insulin [all forms, including insulin aspart (*NovoLog*), lispro (*Humalog*), glargine (*Lantus*), degludec (*Tresiba*), others]
>
> (3) Metformin (Glucophage, others)
>
> > 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.
>
> (4) Sulfonylurea, including:
> > Glyburide (*DiaBeta, Micronase, Glynase*)
> > Glipizide (*Glucotrol, Glucotrol XL*)
> > Glimepiride (*Amaryl*)
>
> (5) DPP4 inhibitor, including:
> > Sitagliptin (*Januvia*)
> > Saxagliptin (*Onglyza*)
> > Linagliptin (*Tradjenta*)
> > Alogliptin (*Nessina*)
>
> (6) GLP-1 agonist, including:
> > Exenatide (*Byetta, Bydureon*)
> > Liraglutide (*Victoria*)
> > Albiglutide (*Tanzeum*)
> > Dluaglutide (*Trulicity*)
> > Lixisenatide (*Adlyxin*),
> > Semaglutide (*Ozempic*)
>
> (7) SGLT-2 inhibitor, including:
> > Canagliflozin (*Invokana*)
> > Dapagliflozin (*Farxiga*)
> > Empagliflozin (*Jardiance*)
> > Ertugliflozin (*Steglatro*)
>
> (8) Pioglitazone (Actos) or rosiglitazone (Avandia)
>
> (9) Acarbose (Precose) or miglitol (Glyset)

(10) Repaglinide (Prandin) or Nateglinide (Starlix)

(11) Amylin analog (Symlin)

(12) Bromocriptine (Cycloset)

(13) Colesevelam (Welchol)

If you are unsure about any of the medications that are used at your facility, check with your pharmacist.

RPMS electronic Audit notes:

- Only diabetes medications that are active (have been filled or refilled) in the six months prior to the Audit period end date are included.

- If none of the listed diabetes medications are found, then the item "None of the following" is marked as 1:Yes by default.

ACE Inhibitor or ARB

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

(1) Yes
(2) No

Commonly prescribed medications include:

ACE Inhibitors: Lisinopril (Prinivil, Zestril), Enalapril (Vasotec, Epaned), Fosinopril (Monopril), Ramipril (Altace), Benazepril (Lotensin)

ARBs: Losartan (Cozaar), Telmisartan (Micardis), Irbesartan (Avapro), Olmesartan (Benicar), Valsartan (Diovan, Prexxartan)

RPMS electronic Audit note: Only diabetes medications that are active (have been filled or refilled) in the six months prior to the Audit period end date are included.

Aspirin or Other Antiplatelet/Anticoagulant Therapy

Was patient prescribed aspirin or other antiplatelet/anticoagulant therapy as of the end of the Audit period?

(1) Yes
(2) No

Commonly prescribed medications include:

Anticoagulants: Warfarin (Coumadin), Rivaroxaban (Xarelto), Apixaban (Eliquis), Dabigatran (Pradaxa)

Antiplatelets: Clopidogrel (Plavix), Ticagrelor (Brilinta), Prasugrel (Effient), Cilostazol (Pletal)

RPMS electronic Audit note: Only diabetes medications that are active (have been filled or refilled) in the six months prior to the Audit period end date are included.

Statin Therapy

Was patient prescribed statin therapy as of the end of the Audit period?

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

Examples include: atorvastatin (*Lipitor*), fluvastatin (*Lescol, Lescol XL*), lovastatin (*Mevacor, Altoprev*), pravastatin (*Pravachol*), rosuvastatin (*Crestor*), simvastatin (*Zocor*), pitavastatin (*Livalo*).

RPMS electronic Audit note: Only diabetes medications that are active (have been filled or refilled) in the six months prior to the Audit period end date are included.

Cardiovascular Disease (CVD)

Diagnosed (ever): 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 the RPMS/DMS Taxonomy listing on the [Audit resources webpage](#)[5] for additional details.

    (1) Yes
    (2) No

Tuberculosis (TB)

TB test done (ever): Patient's most recent TB test that has a valid result.

    (1) Skin test (PPD)
    (2) Blood test (QFT-GIT, T-SPOT)
    (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 result <u>positive</u>, isoniazid treatment 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 result <u>negative</u>, test date: Date of most recent negative TB test as mm/dd/yyyy.

Hepatitis C (HCV)

HCV diagnosed (ever): Does patient have a known diagnosis consistent with hepatitis C?

    (1) Yes
    (2) No

Screened for HCV at least once (ever):

    (1) Yes
    (2) No

For additional informational about HCV, see the IHS Standards of Care[11]

Retinopathy

Diagnosed (ever): Does patient have a known diagnosis of retinopathy? See the RPMS/DMS Taxonomy listing on the Audit resources webpage[5] for additional details.

    (1) Yes
    (2) No

For additional information about retinopathy, see the IHS Standards of Care[8]

Amputation

Lower extremity (ever), any type (e.g., toe, partial foot, above or below knee):

    (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

---

[11]https://www.ihs.gov/diabetes/clinician-resources/soc/hepc-screening/

Td, Tdap, DTaP, 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 complete series (ever): Has patient ever received a complete 3-dose series or 2-dose series depending on vaccine type? Note: 3 dose series includes: Engerix-B®, Recombivax HB®, and Twinrix® vaccines and 2 dose series includes: Heplisav-B® vaccine.

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

Laboratory Data (most recent result during Audit period)

A1C (%): Most recent 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 most recent A1C was drawn as mm/dd/yyyy.

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.

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

eGFR (mL/min/1.73 m^2)**:** 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.

Quantitative Urine Albumin:Creatinine ratio (UACR) value (mg/g): 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 Questions (Optional)

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

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

For manual Audits, these questions may be printed on the second page of the Audit form. For entry into the WebAudit, "Local Option" fields appear near the bottom of the data entry screen.

For electronic Audits, responses for these questions can be entered via the DMS Patient Management option. See the DMS User Manual for more information.