

The IHS Diabetes Care and Outcomes Audit: 2023 Results

Karen Sheff, MS

Richard Arakaki, MD

IHS Division of Diabetes Treatment and Prevention

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Today's topics

1. Audit overview and process
2. Annual Audit 2023 results
3. Questions

Abbreviations

- **ADC** = [Area Diabetes Consultant](#)
- **AI/AN** = American Indian/Alaska Native
- **Audit** = [IHS Diabetes Care and Outcomes Audit](#)
- **BP** = **Best Practice** = [SDPI Diabetes Best Practice](#)
- **DDTP** = [IHS Division of Diabetes Treatment and Prevention](#)
- **DMS** = [RPMS Diabetes Management System](#)
- **EMR** = Electronic Medical Record (RPMS or other)
- **GPRA** = [Government Performance and Results Act](#)
- **IHS** = [Indian Health Service](#)
- **I/T/U** = IHS, Tribal, and Urban
- **OIT** = [IHS Office of Information Technology](#)
- **RPMS** = [IHS Resource and Patient Management System](#)
- **SDPI** = [Special Diabetes Program for Indians](#)



Audit Overview and Process



What is the Audit?

- A process for assessing diabetes care and health outcomes for American Indian and Alaska Native (AI/AN) people with diagnosed diabetes.
- Annual data collection and reporting by I/T/U facilities
 - Timeframe: previous calendar year (e.g., Audit 2023 is for Jan 1-Dec 31, 2022)
 - Data submission: February-March
 - Data review and cleaning, report preparation: April-July
 - Final results: ~fall (distributed following approval from IHS)

Why Audit?

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 Resources for Clinicians and Educators](#).

- **For participating facilities:** Results provide important feedback about medical care and education for diabetes patients.
- **National and Area Audit reports:** Provide summaries of key outcomes that assess overall care and health status of AI/AN diabetes patients.


IHS Diabetes Standards of Care and Resources for Clinicians and Educators


[Standards of Care](#) [Algorithms](#) [Diabetes Education Lesson Plans](#) [Diabetes Educator Tools](#) [Kidney Health](#)


Diabetes Standards of Care and Resources for Clinicians and Educators


The Diabetes Standards of Care and Resources for Clinicians and Educators are intended to provide guidance to clinicians and educators as they care for American Indian and Alaska Native people who have or are at risk for type 2 diabetes. Use the [Recommendations At-a-Glance](#) as a quick reference. For each diabetes care topic, click on the link below to find regularly-updated recommendations, useful clinical tools and resources, and patient education materials.


Diabetes Care Topics by Group


Prevention, Diagnosis, & Management


Diabetes-Related Conditions


Education & Nutrition


Immunizations & Screenings


Pregnancy/Youth/Elders


Social & Behavioral Health


All Diabetes Care Topics

[Alcohol and Other Substance Use](#) [Foot Care](#) [Older Adults and Patients with Multiple Comorbidities](#)
[Aspirin and Other Antiplatelet Therapy](#) [Glycemic Control: Assessment](#)

<https://www.ihs.gov/diabetes/clinician-resources/soc/>

Annual Audit Goals

- Collect the best possible data. Audit team provides:
 - Materials and guidance to ensure statistical integrity
 - Training and technical assistance
- Make results available to participating facilities. Audit team provides:
 - Annual summary report for each year
 - Trends over time (graphs)

Annual Audit Process (1)

1. Preparation (Audit team)

- a. Determine changes to data items and reports based on new science and revised standards.
- b. Update materials with these changes.

2. Update software

- a. RPMS: OIT and DDTP
- b. Other EMRs: Facility and/or system dependent

3. Collect data (Facilities)

- a. Identify eligible patients with diabetes (all or a random sample).
- b. Gather data for these patients by one of two methods.
 - i. Electronic Audit: Extract data from an EMR in specified format.
 - ii. Manual Audit: Review charts and complete paper forms.

Annual Audit Process (2)

- 4. Submit data to DDTP and review (round 1 - Facilities)**
 - a. Via secure web-based system (WebAudit) hosted on IHS servers for centralized processing and storage.
 - b. Review using tools in WebAudit and/or RPMS. Make corrections, as needed.
- 5. Review data round 2 (Area Diabetes Consultants)**
 - a. Use WebAudit data quality tools and reports.
 - b. Work with facilities to make corrections, as necessary.
- 6. Review data round 3 (DDTP)**
 - a. Program and review additional data quality reports.
 - b. Make corrections, as necessary.
- 7. Access and review final facility reports (All)**
- 8. Prepare Area and Overall summary reports (DDTP)**

Audit assesses >40 outcomes, including:

Process: Exams, education, immunizations, medications

Clinical measures: Blood pressure, height, weight, lab results (A1c, lipids)

Complications: CVD, CKD, retinopathy, TB

Note

-Most are for 12-month Audit period, but some look back longer or shorter.

-There are changes (almost) every year!

IHS Diabetes Care and Outcomes Audit, 2024

NOTE: It is highly recommended that you review the [Audit 2024 instructions](#) prior to conducting an Audit.

Audit Period Ending Date: 12/31/2023

Facility Name: _____

Reviewer initials: _____

State of residence: _____

Month/Year of Birth: / /

Birth Sex: ☐ Male

☐ Female

☐ Unknown

Date of Diabetes Diagnosis: / /

DM Type: ☐ Type 1

☐ Type 2

Tobacco/Nicotine Use (during Audit Period)

Tobacco

Screened for tobacco use:

☐ Yes

☐ No

Tobacco user:

☐ Yes

☐ No

Tobacco cessation counseling:

☐ Yes

☐ No

Electronic Nicotine Delivery System (ENDS) use:

☐ Yes

☐ No

*ENDS include: vapes, vaporizers, e-cigarettes or e-cigs

Vital Statistics

Height (last ever): ft

Weight (last in Audit period): lb

Hypertension (documented during Audit Period):

☐ Yes

☐ No

Blood pressure (last 3 during Audit Period):

 / mmHg

 / mmHg

 / mmHg

Version: 7/24/2023

Examinations (during Audit period)

Foot (comprehensive or "complete", including evaluation of sensation and vascular status):

☐ Yes

☐ No

Eye (dilated exam or retinal imaging):

☐ Yes

☐ No

Dental:

☐ Yes

☐ No

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ACE Inhibitor or ARB

Prescribed (as of the end of the Audit period):

☐ Yes

☐ No

Commonly prescribed medications include:

ACE inhibitors: benazepril, captopril, enalapril, lisinopril, fosinopril, remipril

ARBs: candesartan, irbesartan, losartan, olmesartan, telmisartan, valsartan

Aspirin or Other Antiplatelet/Anticoagulant Therapy

Prescribed (as of the end of the Audit period):

☐ Yes

☐ No

Commonly prescribed medications include:

Aspirin, clopidogrel, prasugrel, ticagrelor, dipyridamol, warfarin, dabigatran, rivaroxaban, apixaban (Eliquis), edoxaban (Savvay), enoxaparin (Lovenox), heparin, fondaparinux (Arixtra), bivalirudin (Altiromin)

Statins

Prescribed (as of the end of the Audit period):

☐ Yes

☐ No

☐ Allergy/intolerance/contraindication

Commonly prescribed medications include: atorvastatin, fluvastatin, lovastatin, pitavastatin, pravastatin, rosuvastatin, simvastatin

Cardiovascular Disease (CVD)

Diagnosed (ever):

☐ Yes

☐ No

Tuberculosis (TB)

TB diagnosis (latent or active) documented (ever):

☐ Yes

☐ No

TB test done (most recent):

☐ Skin test (PPD)

☐ Blood test (QFT-GIT, T-SPOT)

☐ No test documented

TB test result:

☐ Positive

☐ Negative

☐ No result documented

If TB diagnosed and/or test result positive, treatment initiated (e.g., isoniazid, rifampin, rifapentine, others):

☐ Yes

☐ No

☐ Unknown

If TB result negative, test date:

Date: / /

Hepatitis C (HCV)

HCV diagnosed (ever):

☐ Yes

☐ No

If not diagnosed with HCV, screened at least once (ever):

☐ Yes

☐ No

Retinopathy

Diagnosed (ever):

☐ Yes

☐ No

Amputation

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

☐ Yes

☐ No

Immunizations

Influenza vaccine (during Audit period):

☐ Yes

☐ No

Pneumococcal [PCV15, PCV20, or PPV23] (ever):

☐ Yes

☐ No

Td, Tdap, DTaP, or DT (in past 10 years):

☐ Yes

☐ No

Tdap (ever):

☐ Yes

☐ No

Hepatitis B complete series (ever):

☐ Yes

☐ No

☐ Immune

Shingrix/recombinant zoster vaccine (RZV) complete series (ever):

☐ Yes

☐ No

Laboratory Data (most recent result during Audit period)

A1C: %

A1C Date obtained: / /

Total Cholesterol: mg/dL

HDL Cholesterol: mg/dL

LDL Cholesterol: mg/dL

Triglycerides: mg/dL

Serum Creatinine: mg/dL

eGFR: mL/min/1.73 m²

UACR: mg/g (Quantitative urine albumin-to-creatinine ratio)

Local Questions (Optional)

Select one:

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

☐ 8

Text:

How are results provided via the WebAudit?

Output=reports
and graphs

Input=data file or
paper forms

Audit2024DemoData_N5.txt - Notepad

File Edit Format View Help

```
AUDITDATE^FACILITYNA^REVIEWER^STATE^MOB^YOB^SEX^DODX^DMTTYPE^TOBSCREEN^TOBACCOUSE^TOBCOUNSEL^ENDSSCREEN^ENDSUSE^FE  
12/31/2022^DEMOMDATA^KLS^NM^6^1963^2^1/19/2012^2^1^2^ ^1^2^5^3.78^171^1^127^80^126^81^105^62^1^1^1^2^1^2^1^1^2^2^1  
12/31/2022^DEMOMDATA^KLS^NM^3^1953^1^11/3/1995^2^1^2^ ^1^2^5^0.91^133^1^153^88^134^64^151^77^1^1^1^2^1^2^1^1^2^1^1  
12/31/2022^DEMOMDATA^KLS^NM^5^1964^2^3/1/1985^2^1^2^ ^1^2^5^4^180^1^123^73^136^97^128^84^1^1^2^2^1^4^1^1^2^1^1^2^1^1  
12/31/2022^DEMOMDATA^KLS^NM^3^1957^1^6/10/2011^2^1^2^ ^1^2^5^0.63^160^1^147^74^138^81^157^71^1^1^1^2^1^2^1^1^2^1^1
```



Diabetes WebAudit



Facility Administration

Enter facility information and lock data.



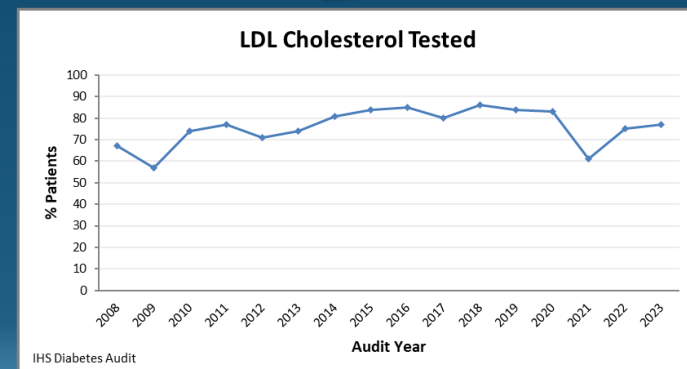
Data Processing

Submit (entry or upload), view, download, and check data.



Reports

Generate reports and graphs.



Report Details

(Sample Data and Sections)

	# of Patients (Numerator)	# Considered (Denominator)	Percent	Area Percent	IHS Percent
Gender					
Male	305	647	47%		
Female	342	647	53%		
Age					
< 20 years	2	647	0%		
20-44 years	110	647	17%		
45-64 years	278	647	43%		
≥ 65 years	257	647	40%		
Diabetes Type					
Type 1	8	647	1%		
Type 2	639	647	99%		
Duration of Diabetes					
< 1 year	20	647	3%		
< 10 years	255	647	39%		
≥ 10 years	375	647	58%		
Diagnosis date not recorded	17	647	3%		

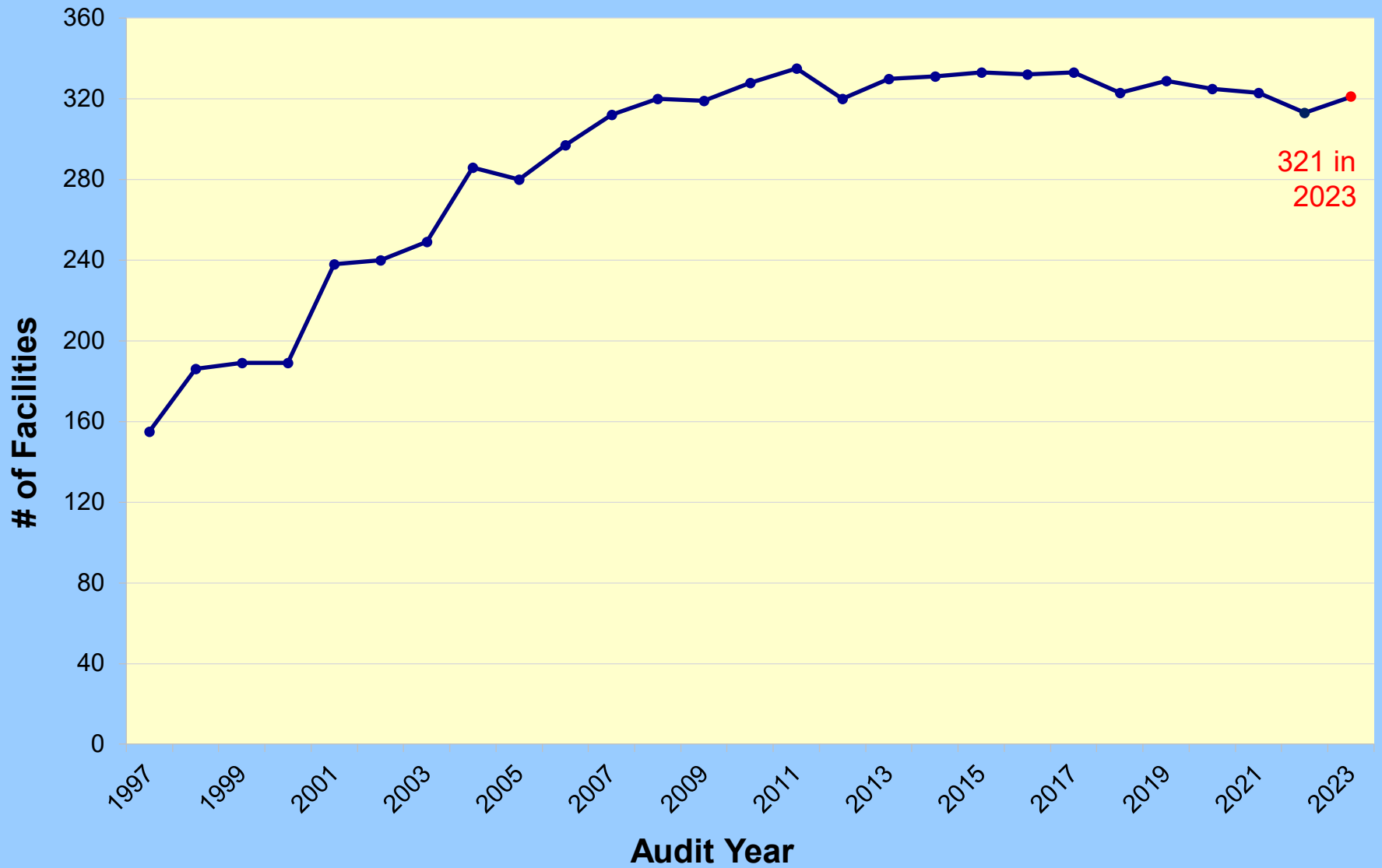
Audit History

- Timeline
 - 1980s: First local Audits conducted.
 - 1997: DDTP created a centralized database with data from all 12 IHS Areas.
 - 2008: WebAudit launched.
- “Non-RPMS” Electronic Audits
 - 2011: n=13
 - 2023: n=73

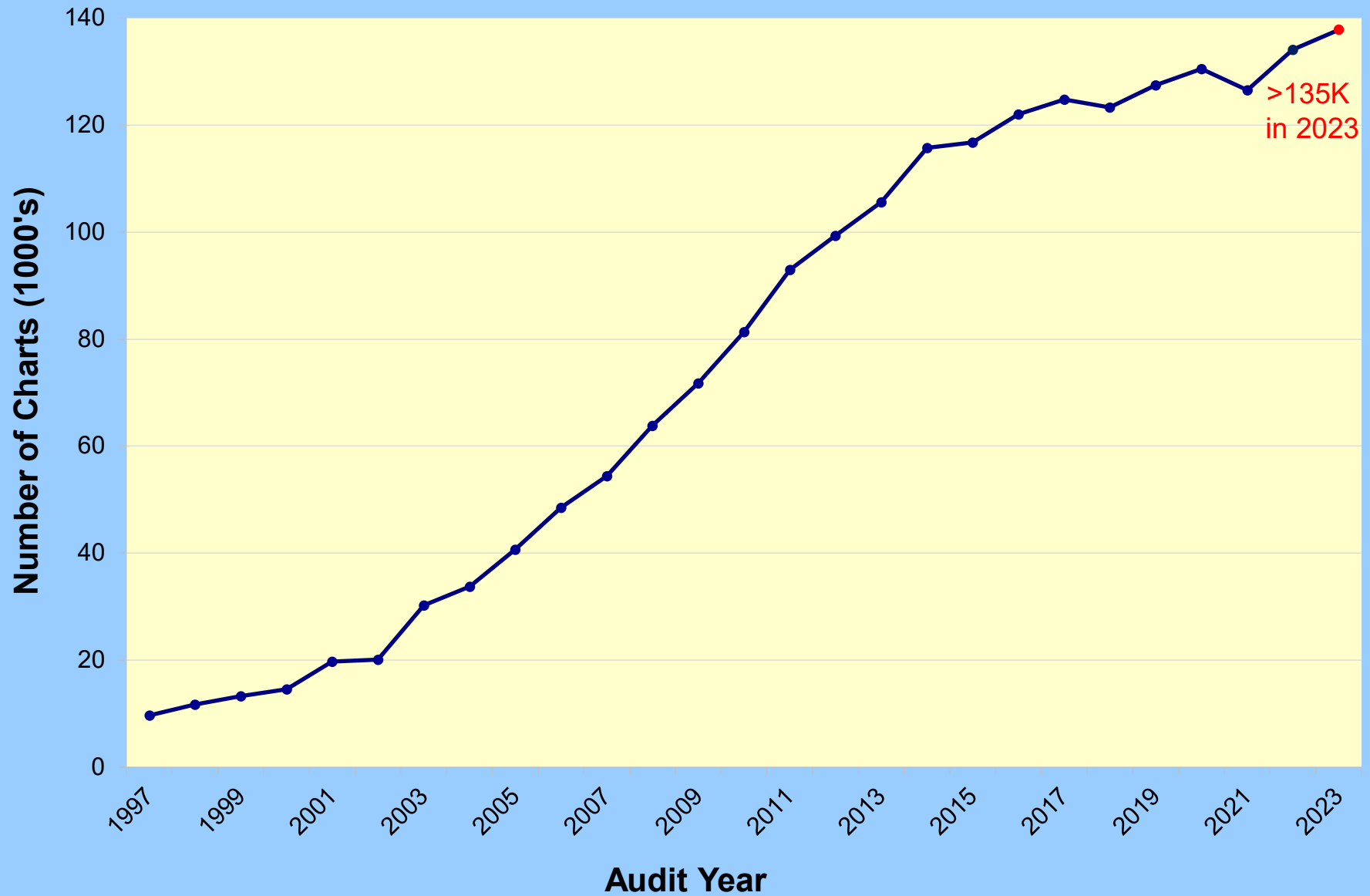
Audit vs. GPRA

	Diabetes Audit	Government Performance and Results Act (GPRA)
Purpose	Assess health care and outcomes for AI/AN people with diabetes	Demonstrate that IHS is using funds effectively toward meeting its mission.
# of diabetes measures	>40	5
Who does it	I/T/U facilities associated with an SDPI grant (required) and others (optional)	-IHS and Urban facilities (required) -Tribal facilities (optional)
Who is in it	AI/AN people with diabetes	Patients from participating facilities as defined for each measure
Data source	I/T/U facilities gather and submit data to DDTP	IHS National Data Warehouse
More information	Audit website	GPRA website

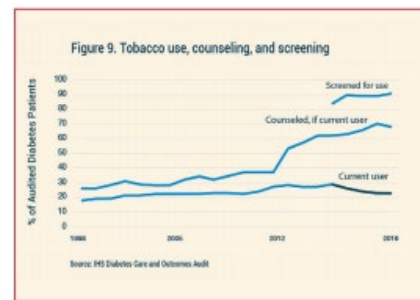
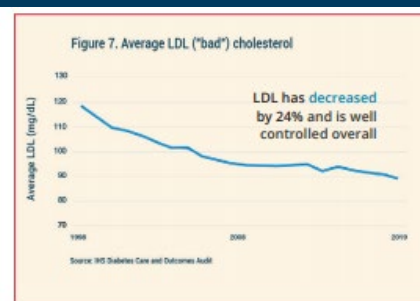
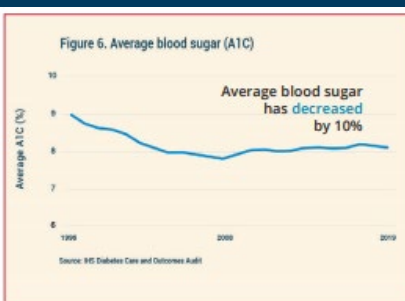
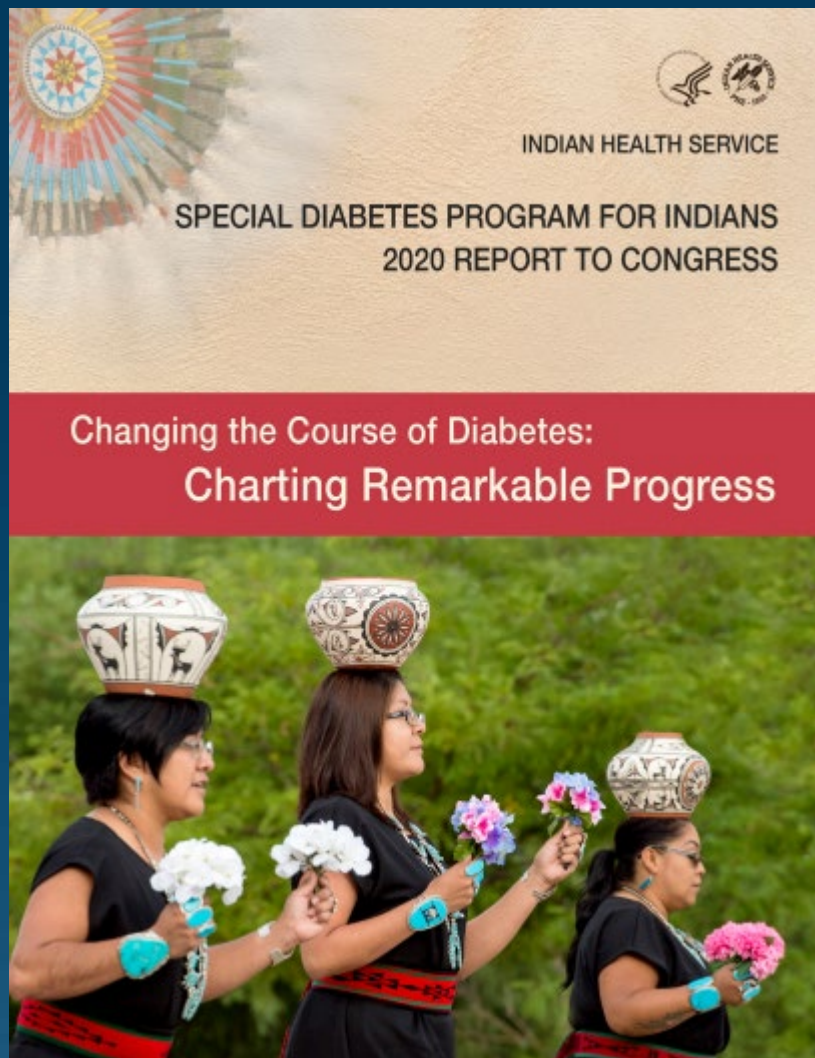
Number of Reporting Facilities



Number of Charts Audited

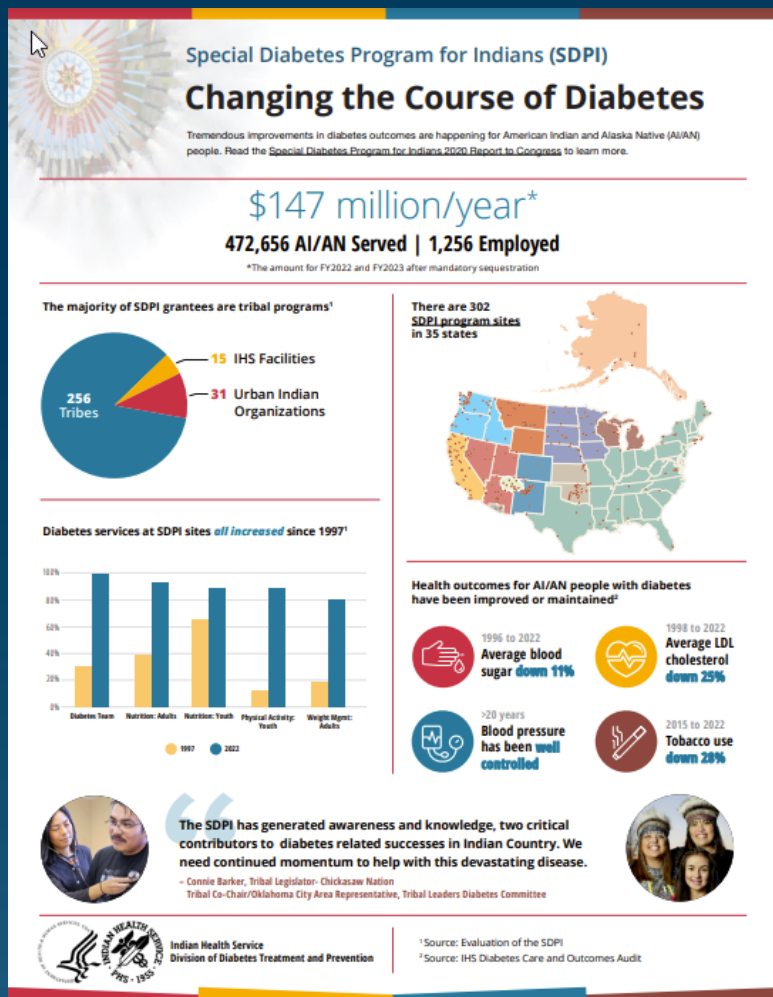


How are national Audit results used? (1)

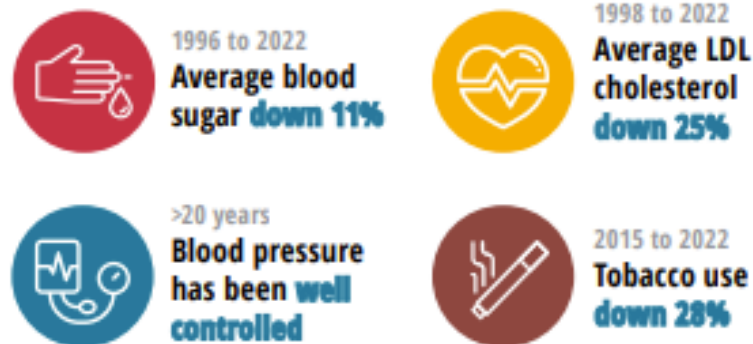


<https://www.ihs.gov/sdpi/reports-to-congress/>

How are national Audit results used? (2)



Health outcomes for AI/AN people with diabetes have been improved or maintained²



<https://www.ihs.gov/sdpi/fact-sheets/>

Audit 2023 Results

Participation: Sites participating, charts reviewed

Process: Screenings, exams, education, immunizations

Clinical measures: Blood pressure, lab results (A1C, lipids)

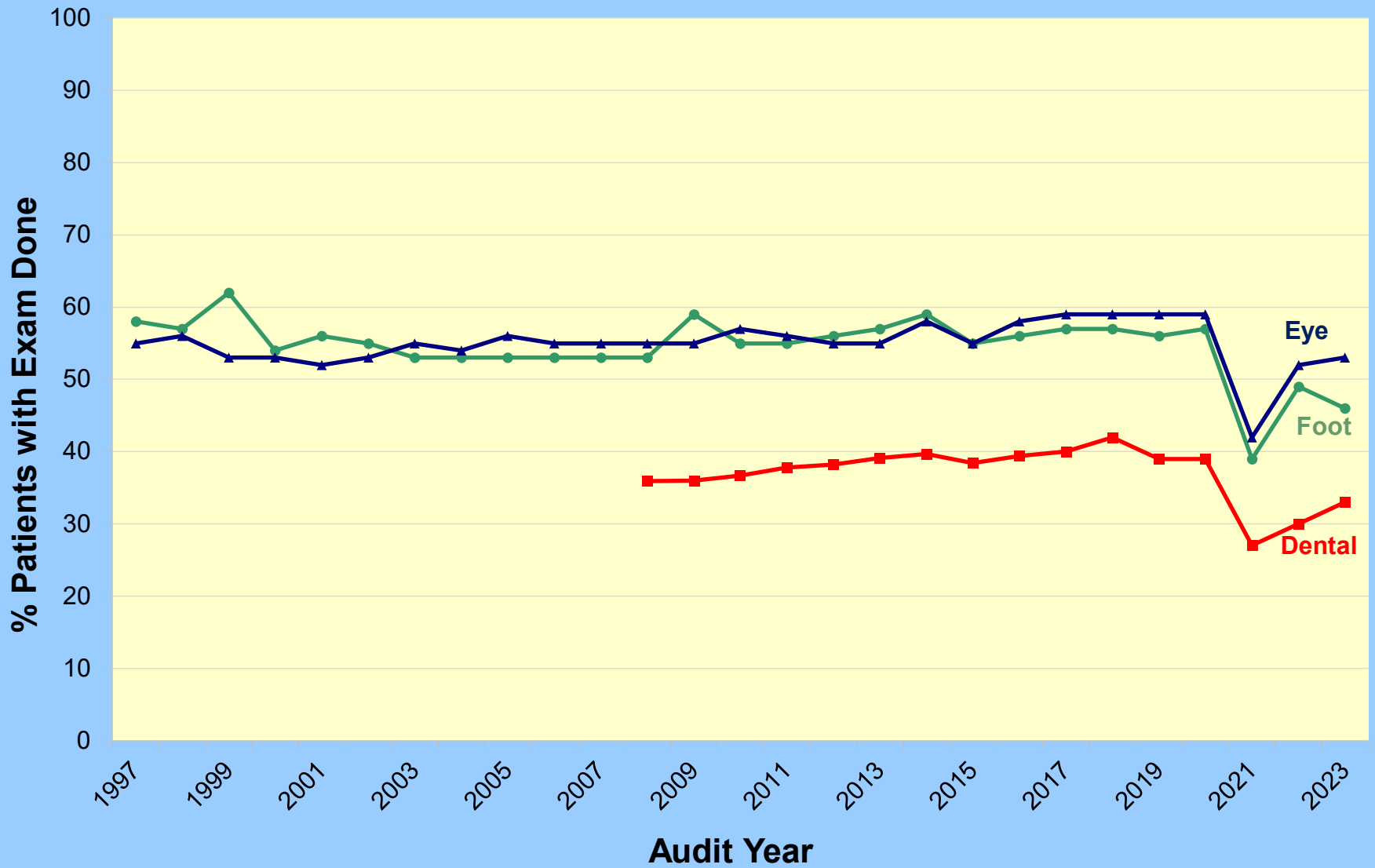
Complications: CVD, CKD, retinopathy, LEA

How can we use them?

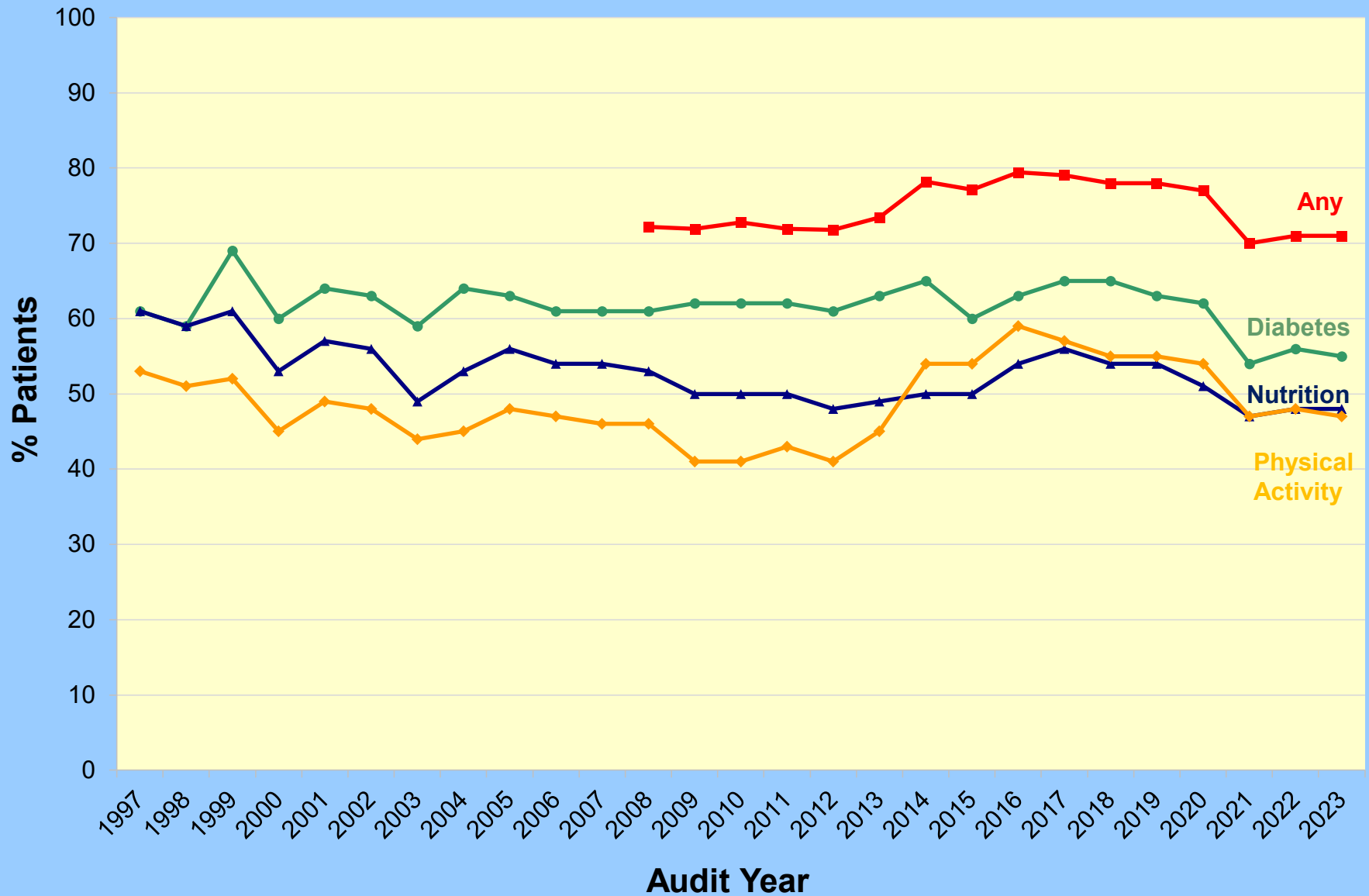
Process Outcomes



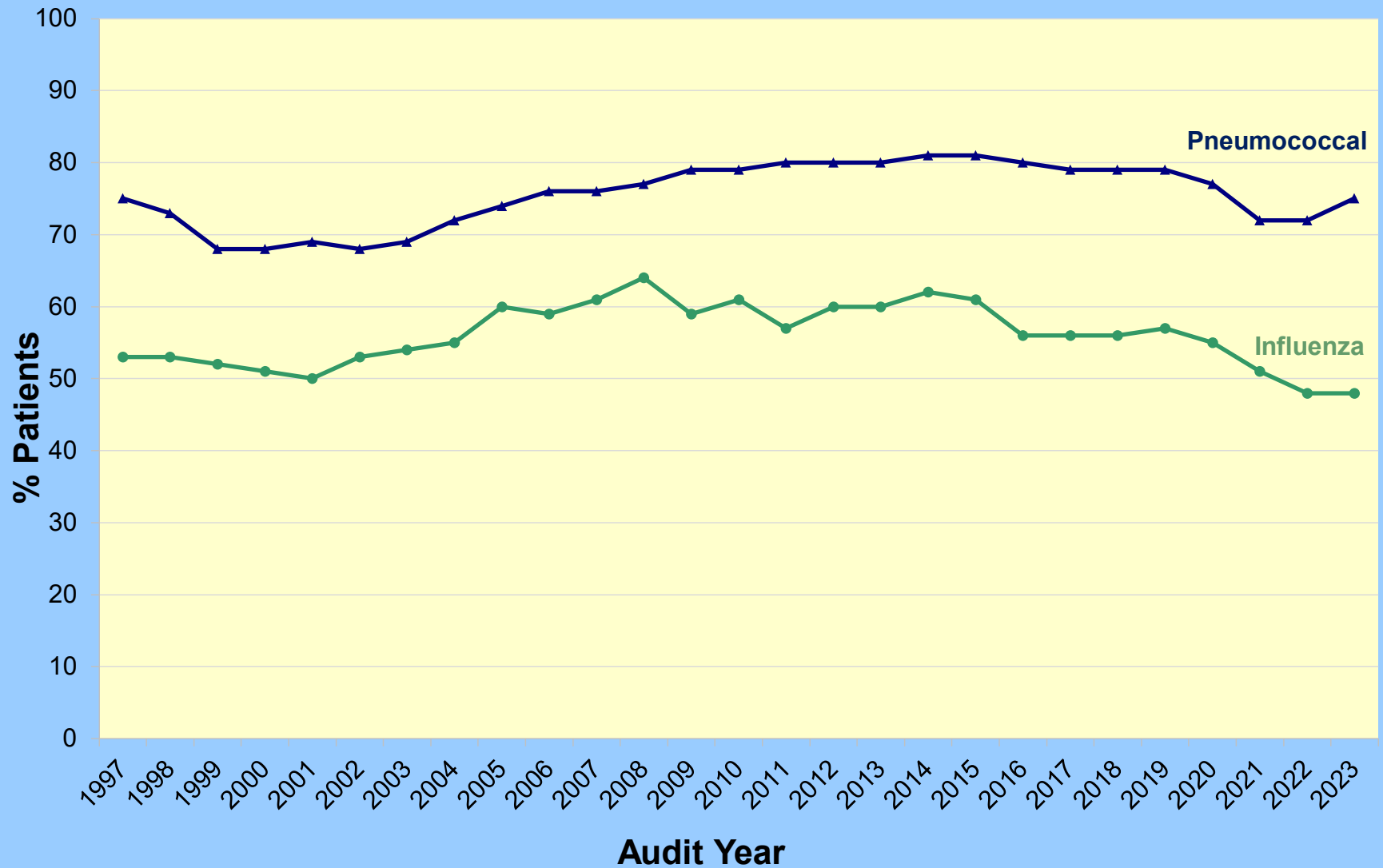
Exams



Patient Education

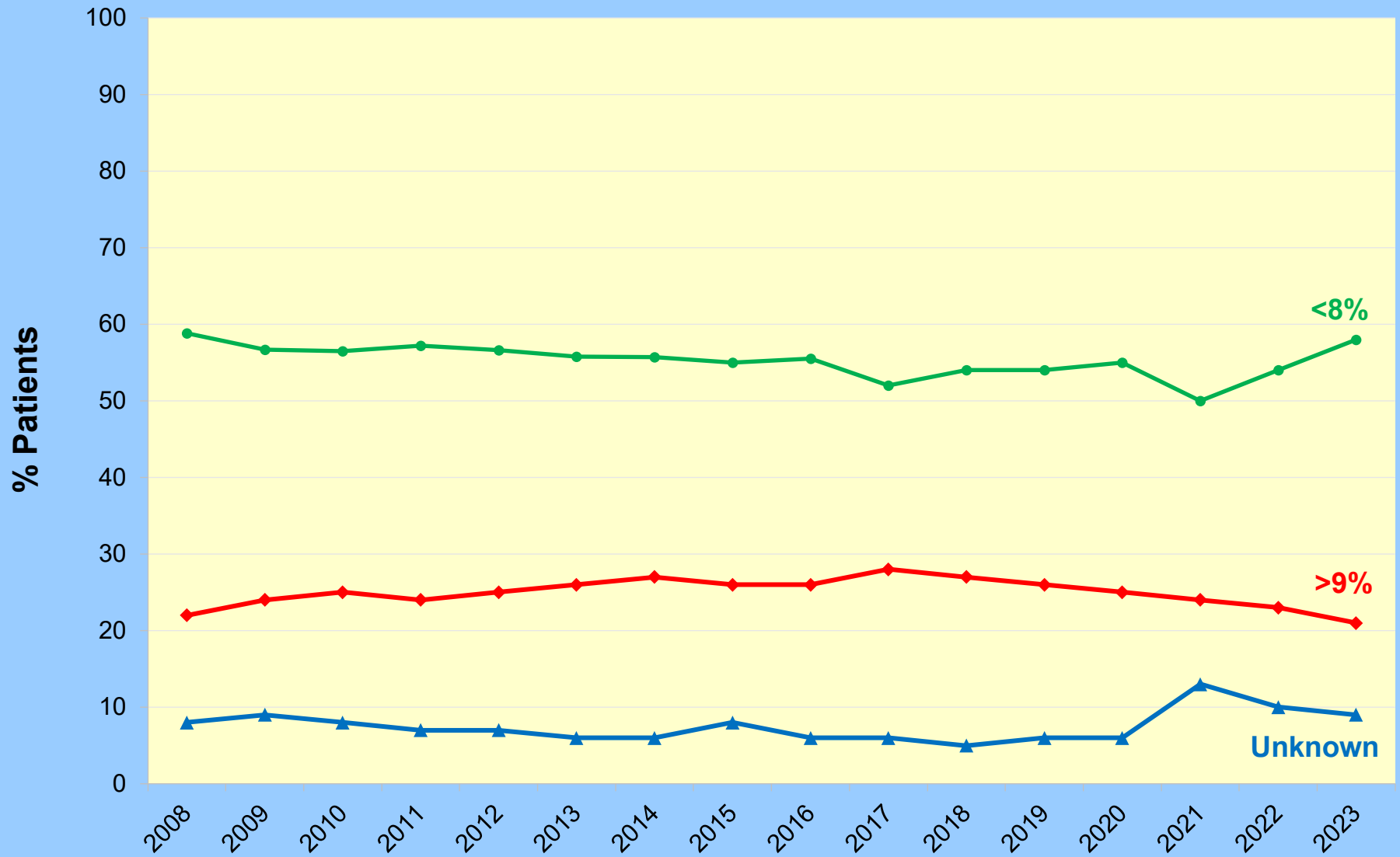


Immunizations

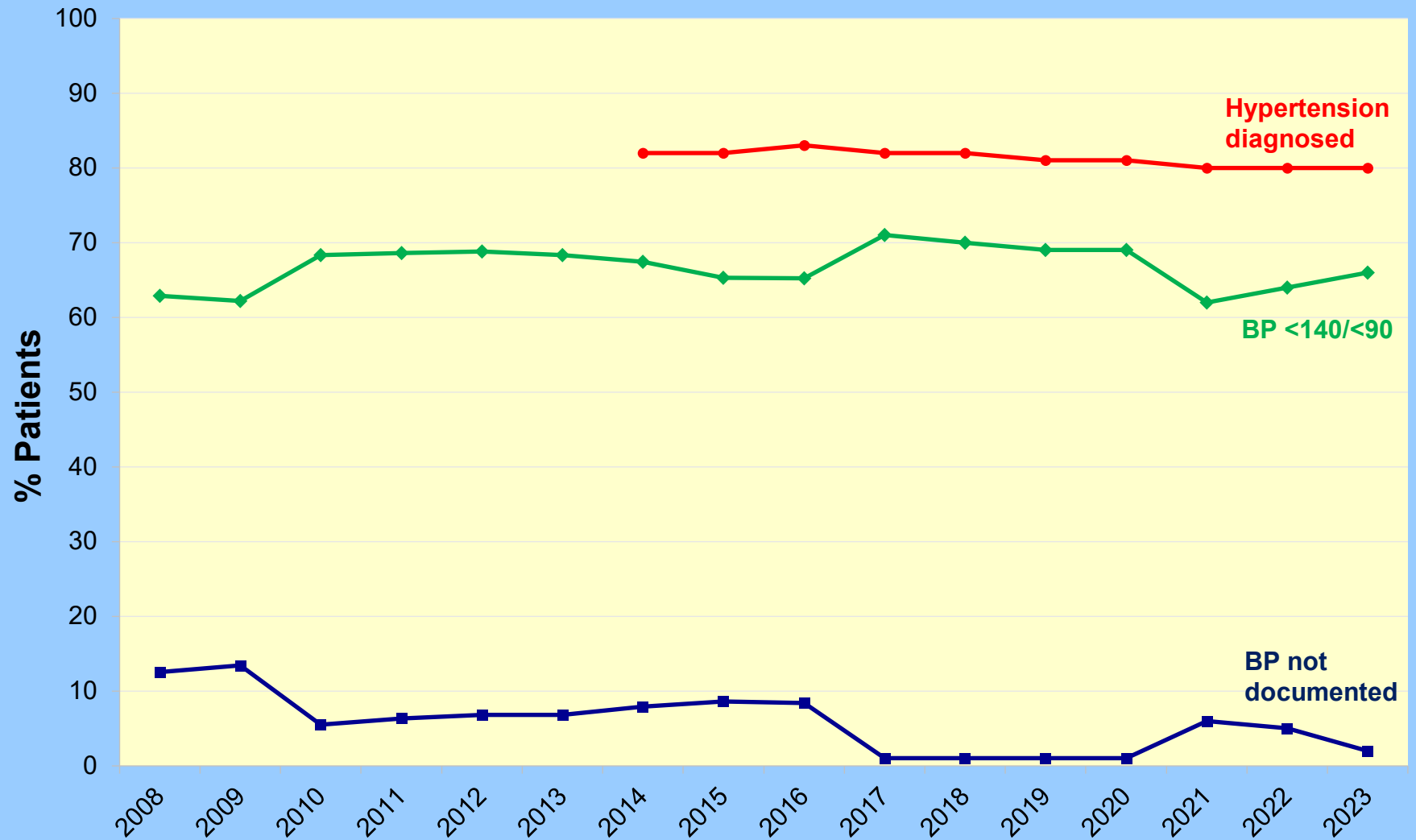


Clinical Measures

Blood Sugar Control (A1C)



Blood Pressure Control* (<140/<90 mmHg)

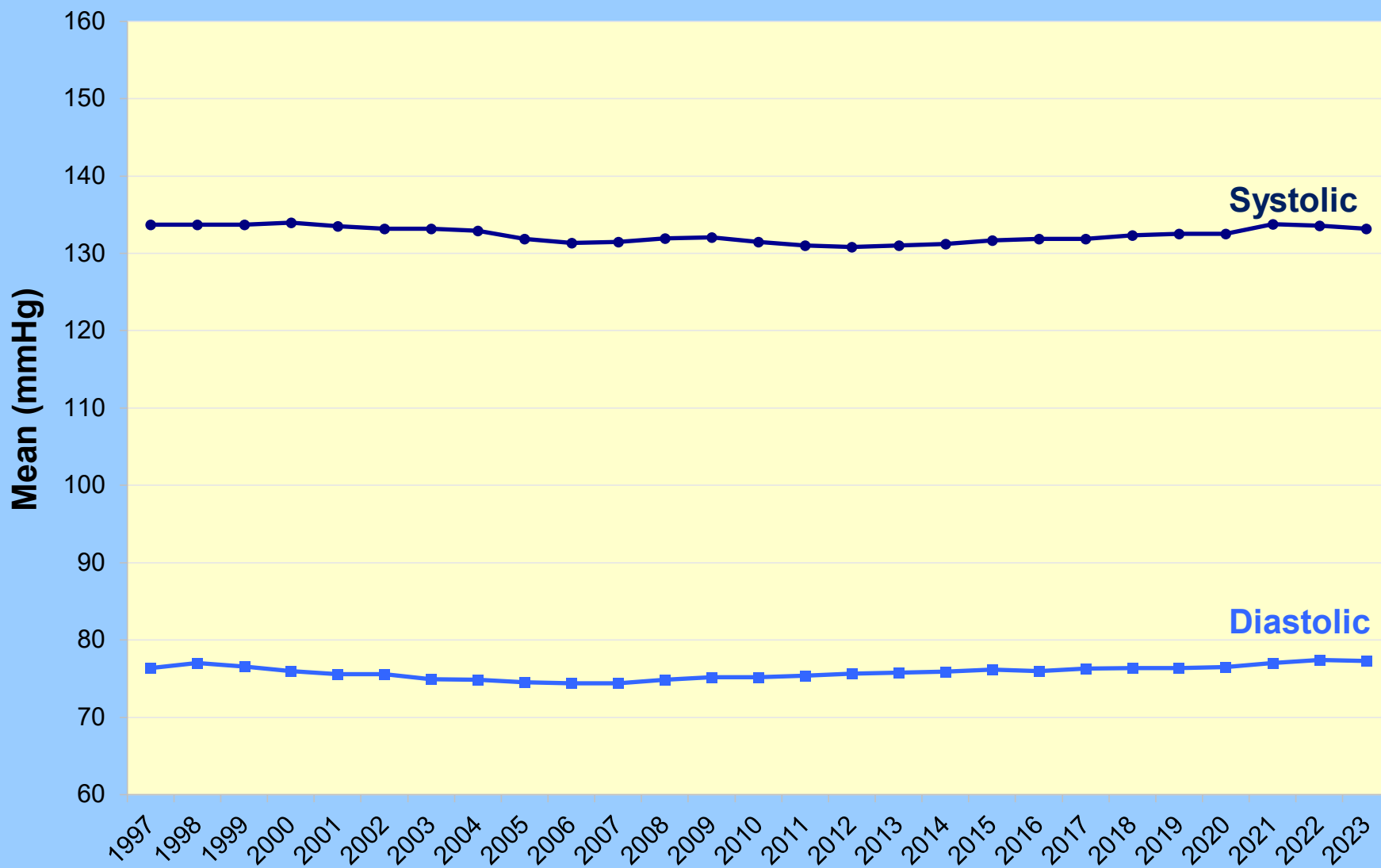


*2010-2016: Patients with 2 or 3 blood pressure values. 2017-2023: Patients with 1, 2, or 3 blood pressure values.

Source: IHS Diabetes Care and Outcomes Audit



Mean Blood Pressure

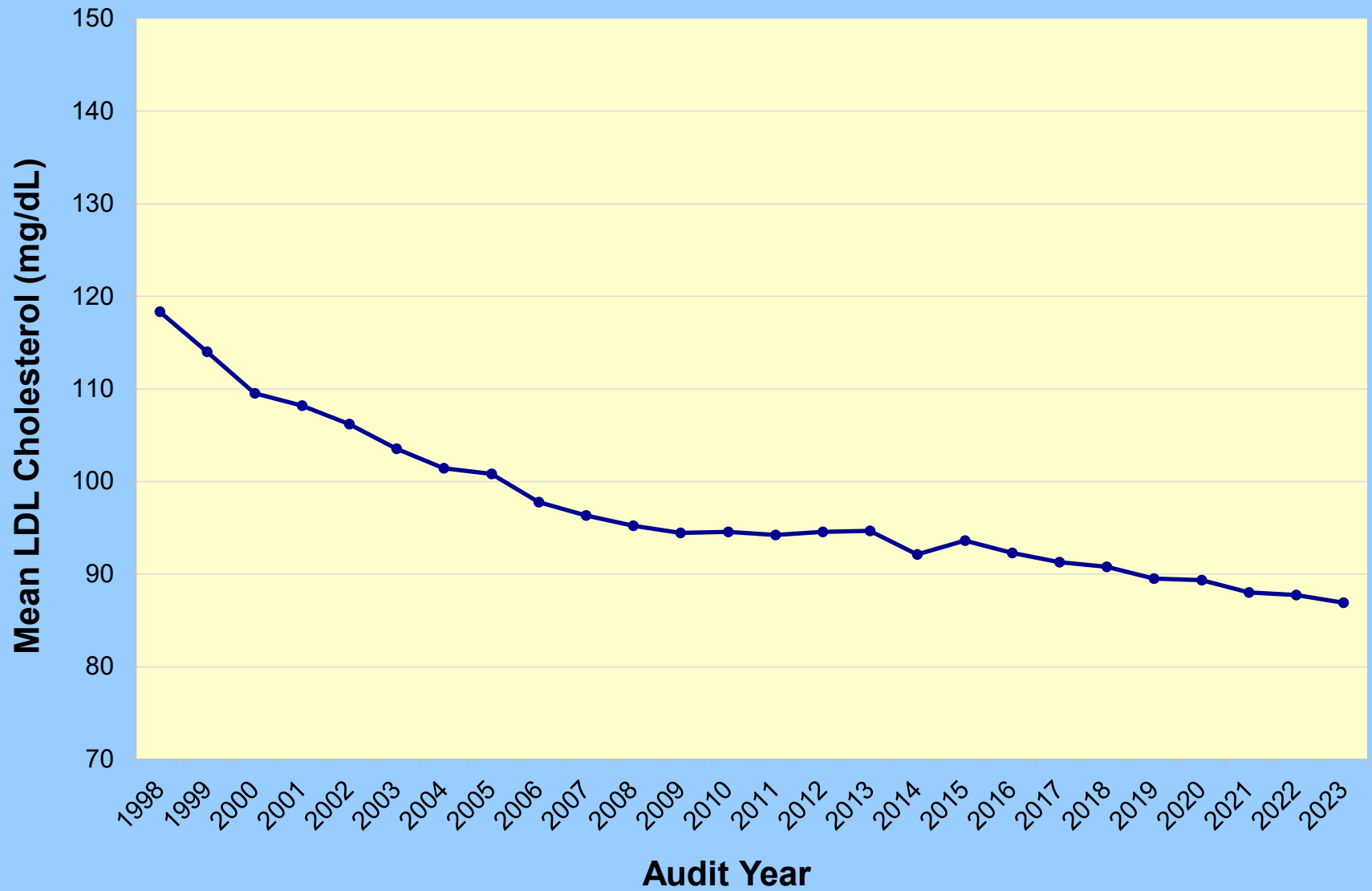


*2010-2016: Patients with 2 or 3 blood pressure values. 2017-2023: Patients with 1, 2, or 3 blood pressure values.

Source: IHS Diabetes Care and Outcomes Audit



Mean LDL Cholesterol

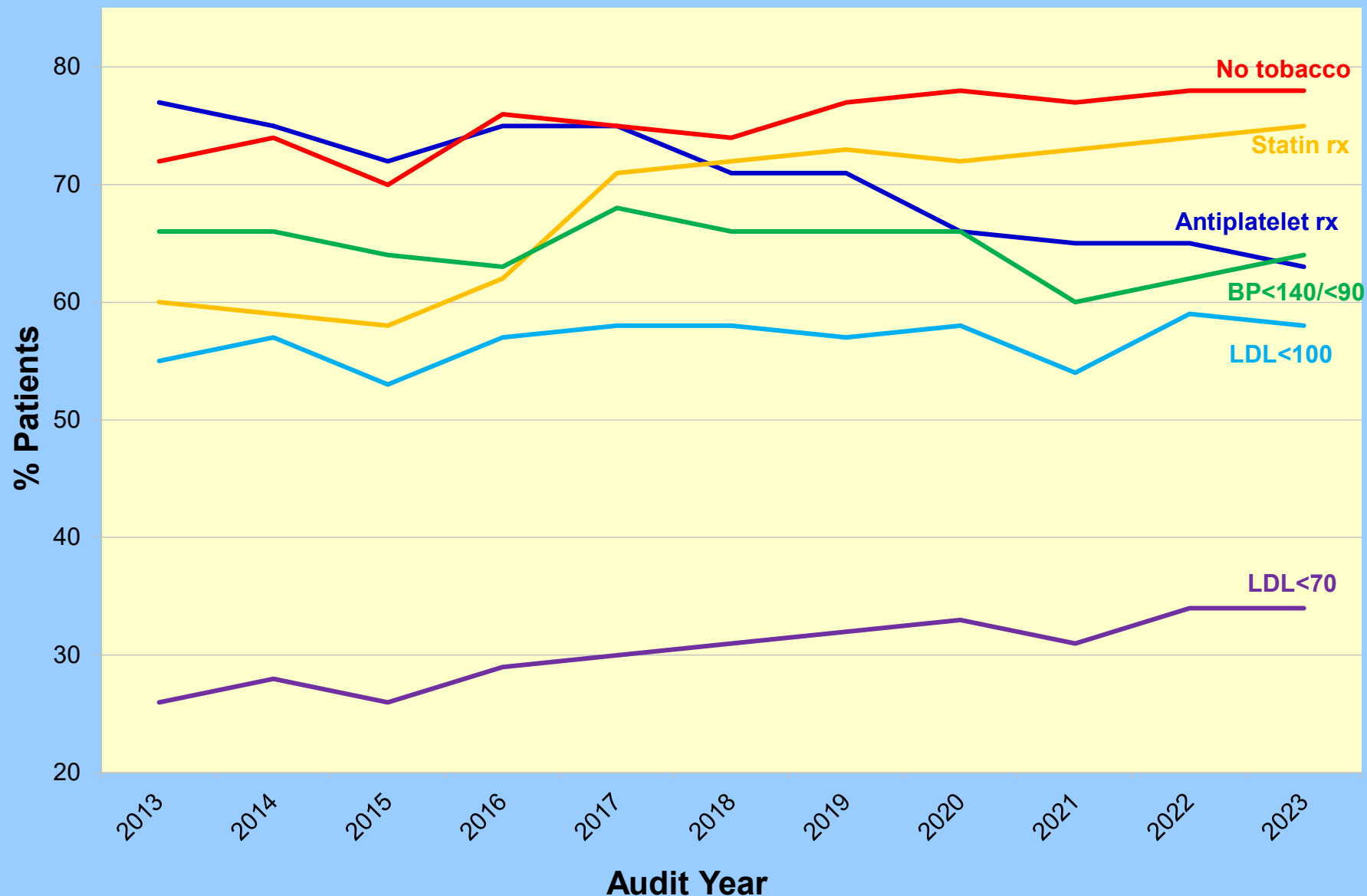


Source: IHS Diabetes Care and Outcomes Audit



Complications

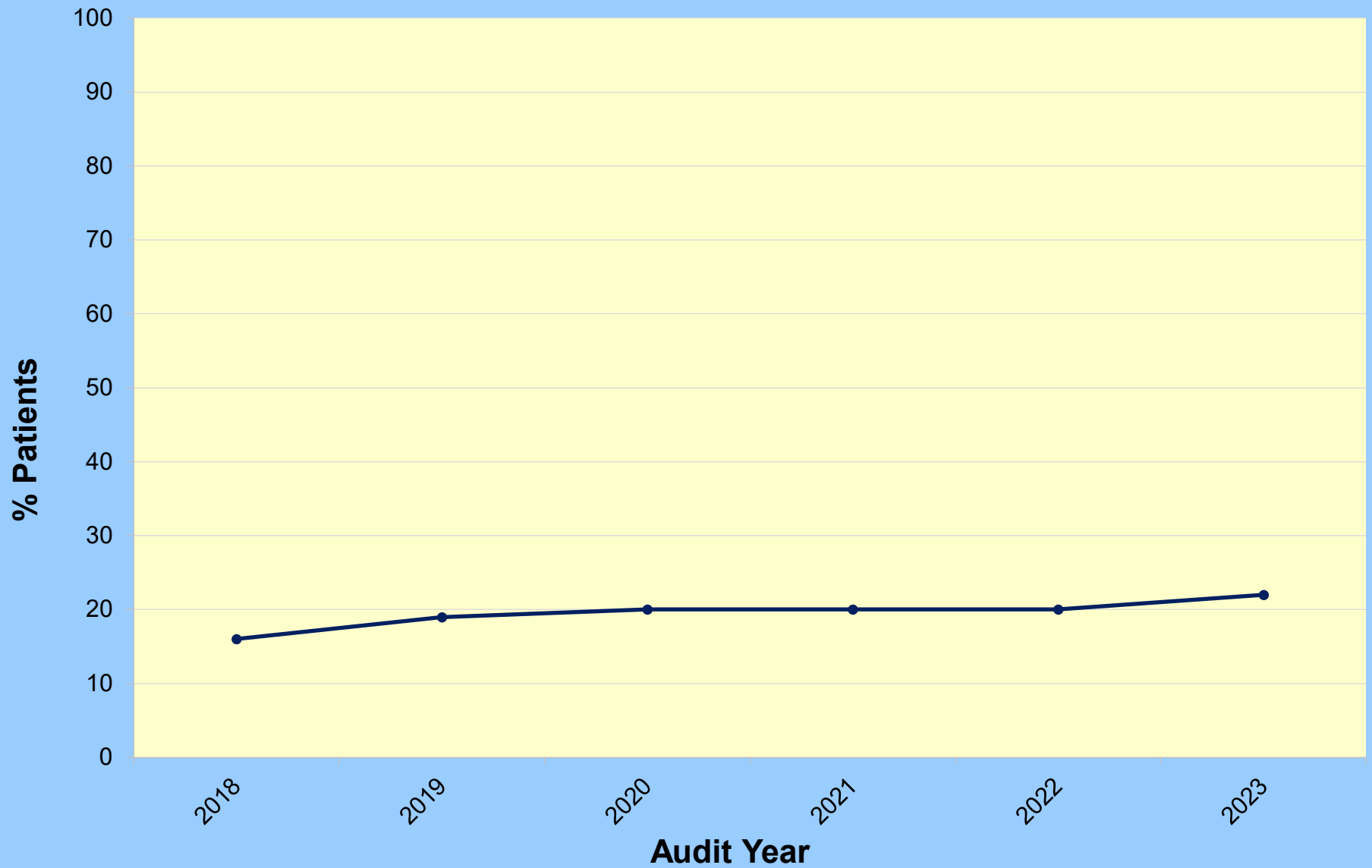
Selected Measures for Patients with Diagnosed CVD



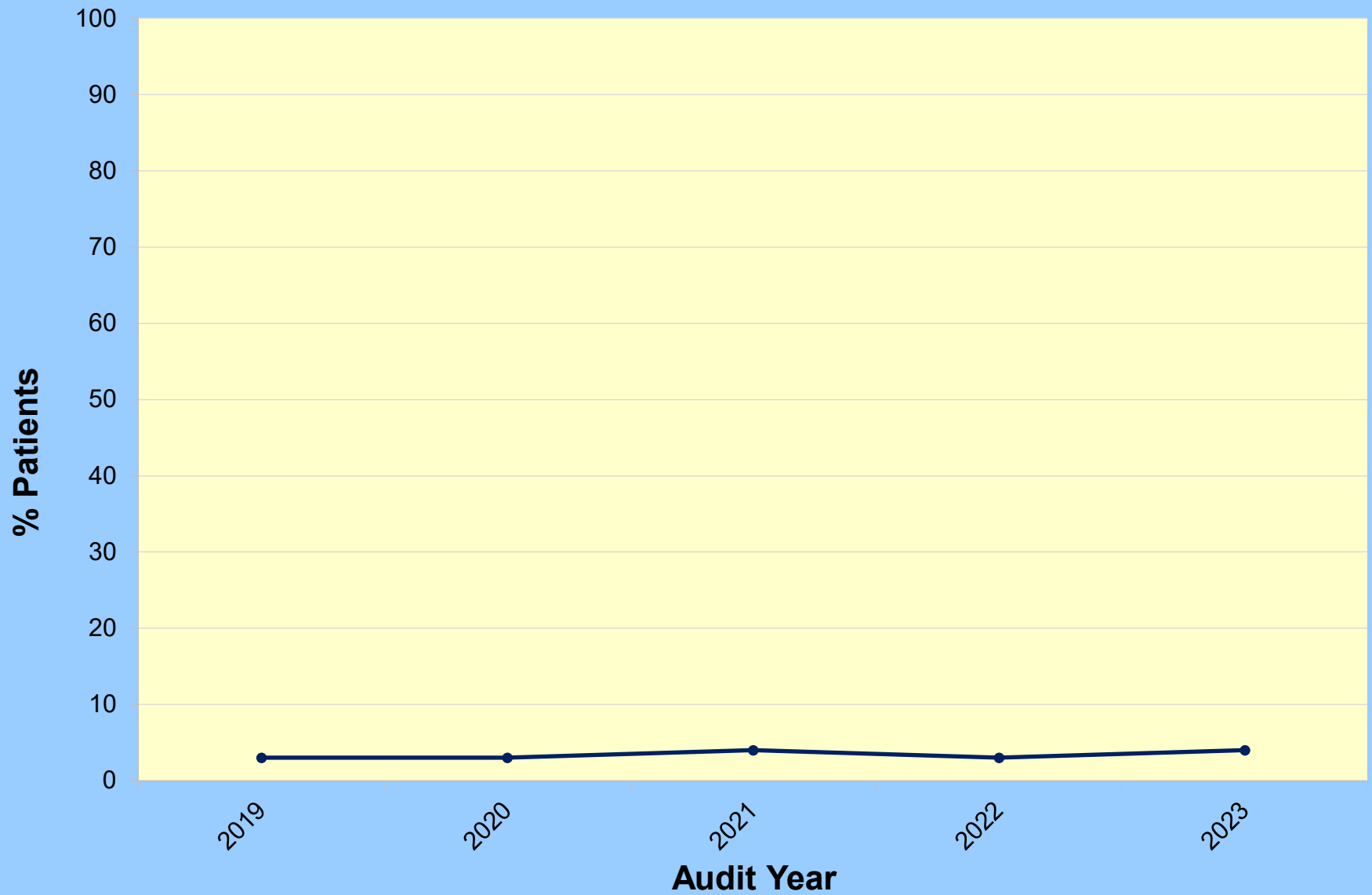
Note: Axis range is 20-85 instead of 0-100.

Source: IHS Diabetes Care and Outcomes Audit

Retinopathy Diagnosed

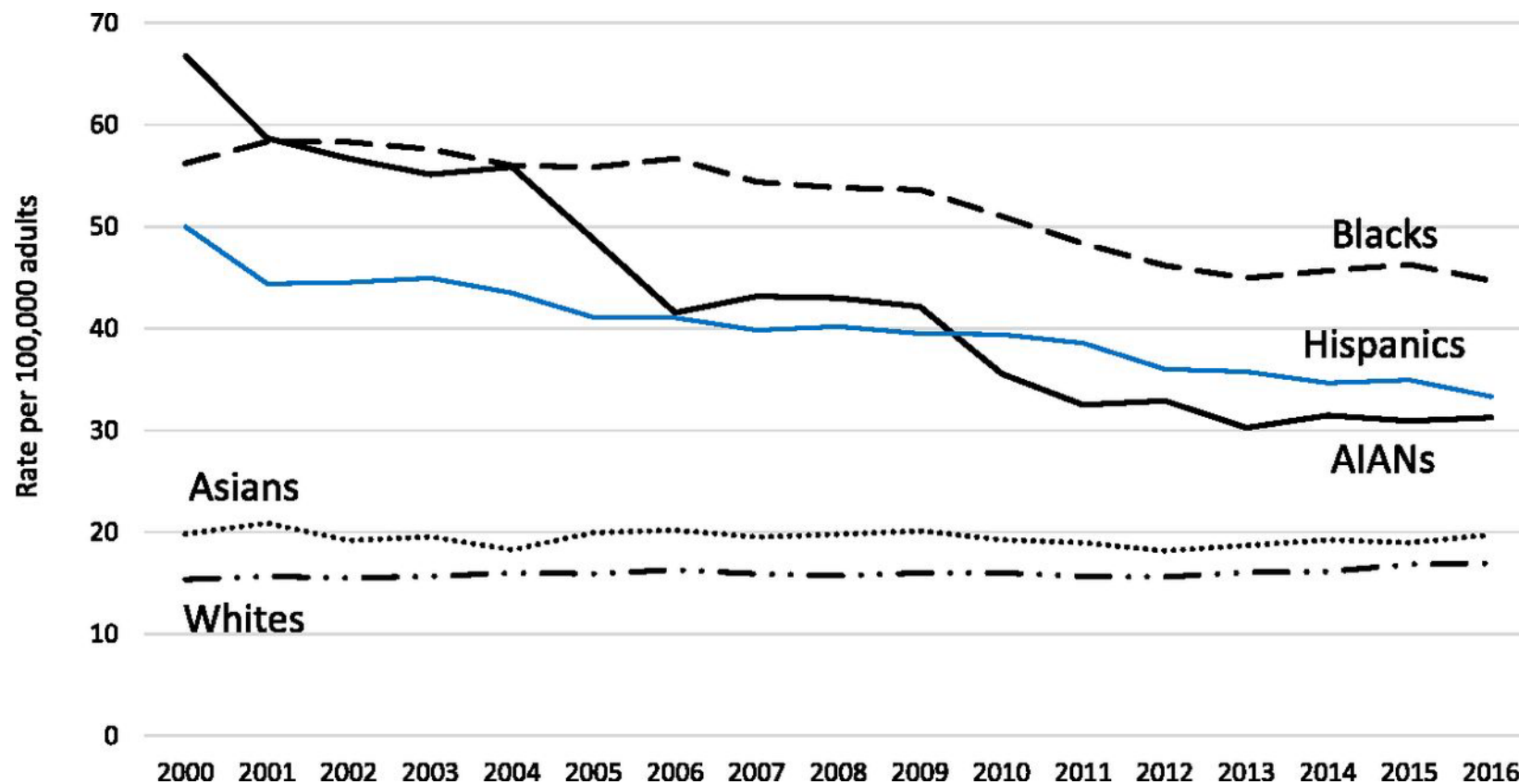


Lower Extremity Amputation



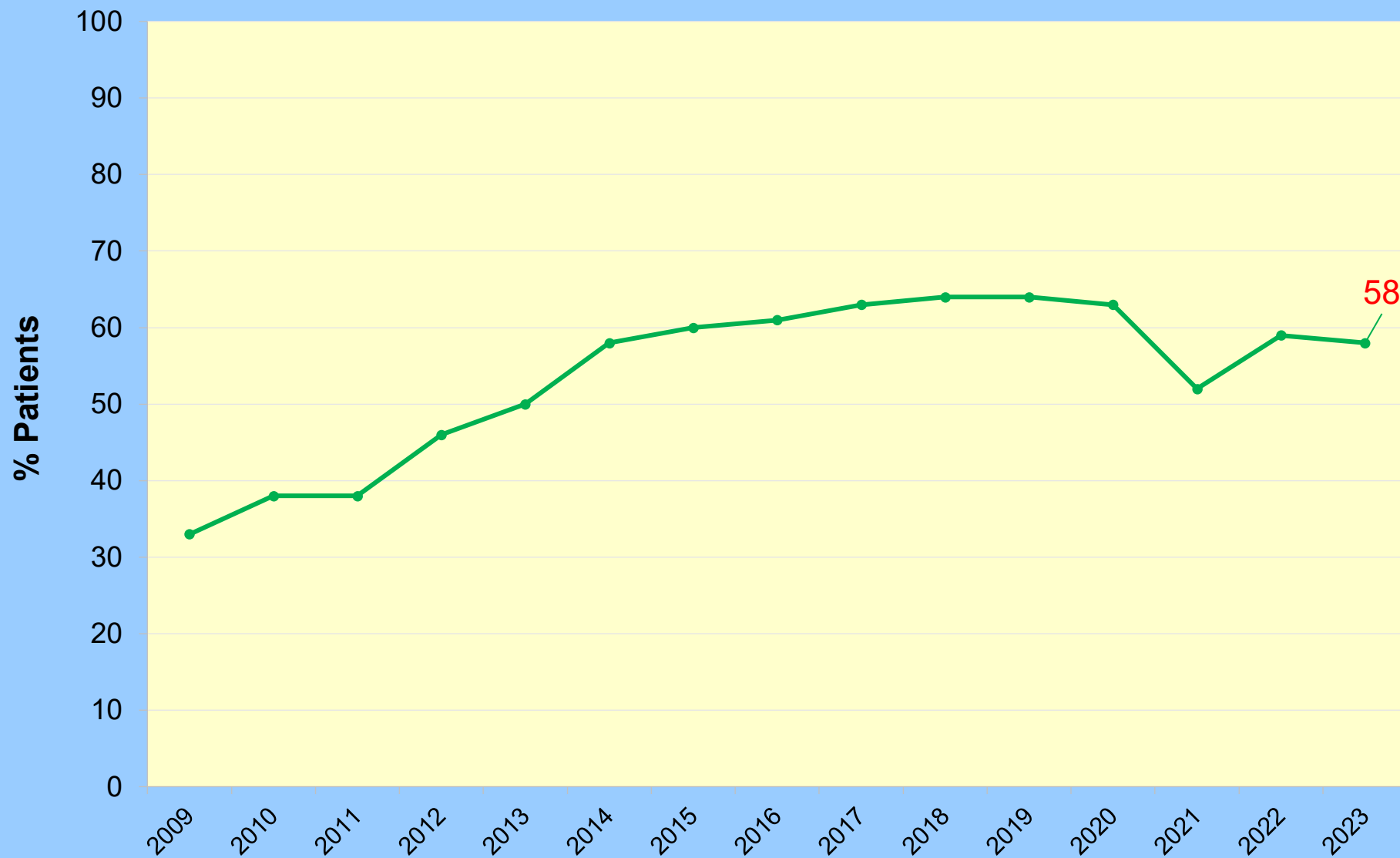
Complications: Chronic Kidney Disease

Incidence of diabetes-related ESKD among adults aged ≥ 18 years by race or ethnicity, 2000–2016.

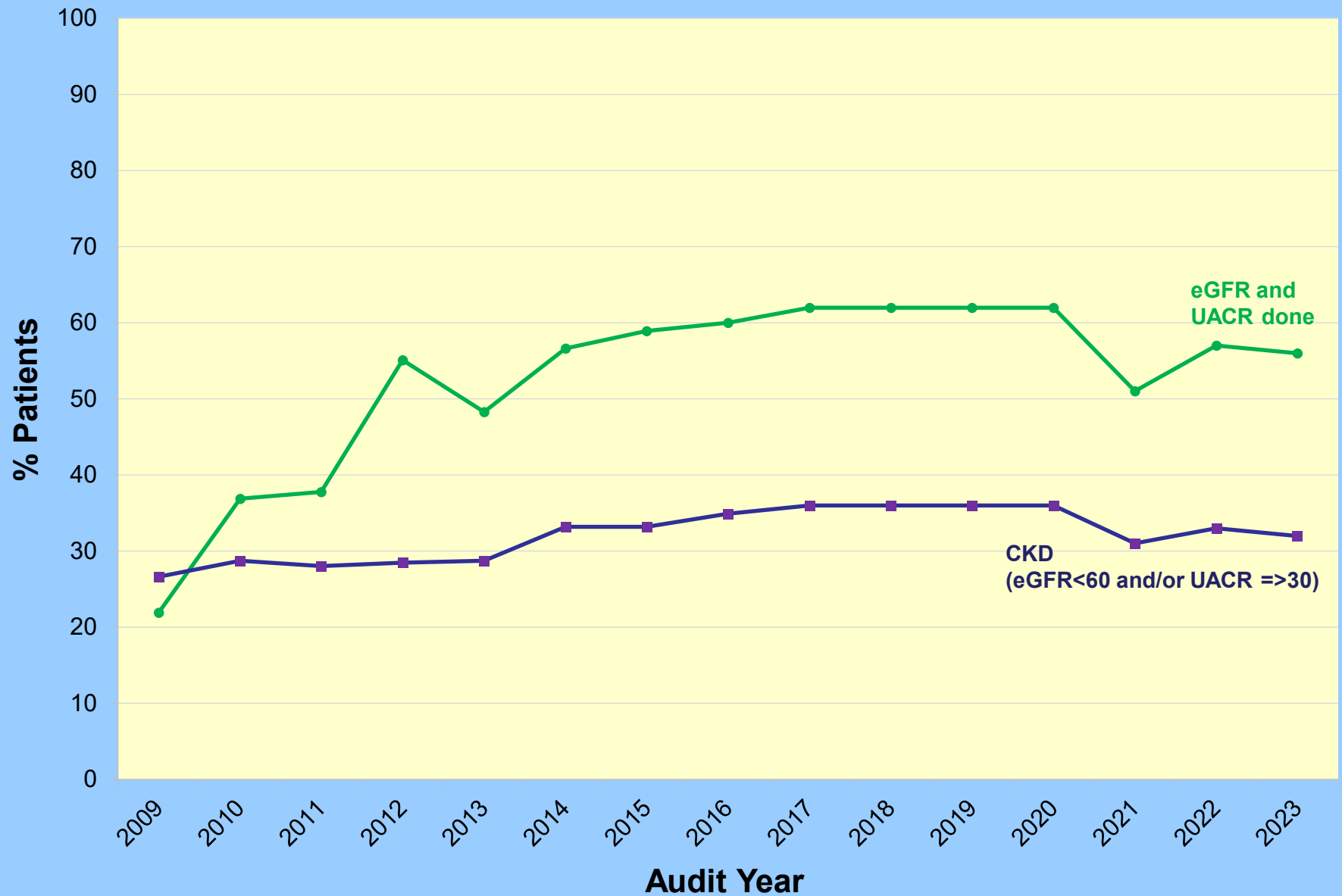


Nilka Ríos Burrows et al. *Diabetes Care* 2020;43:2090-2097

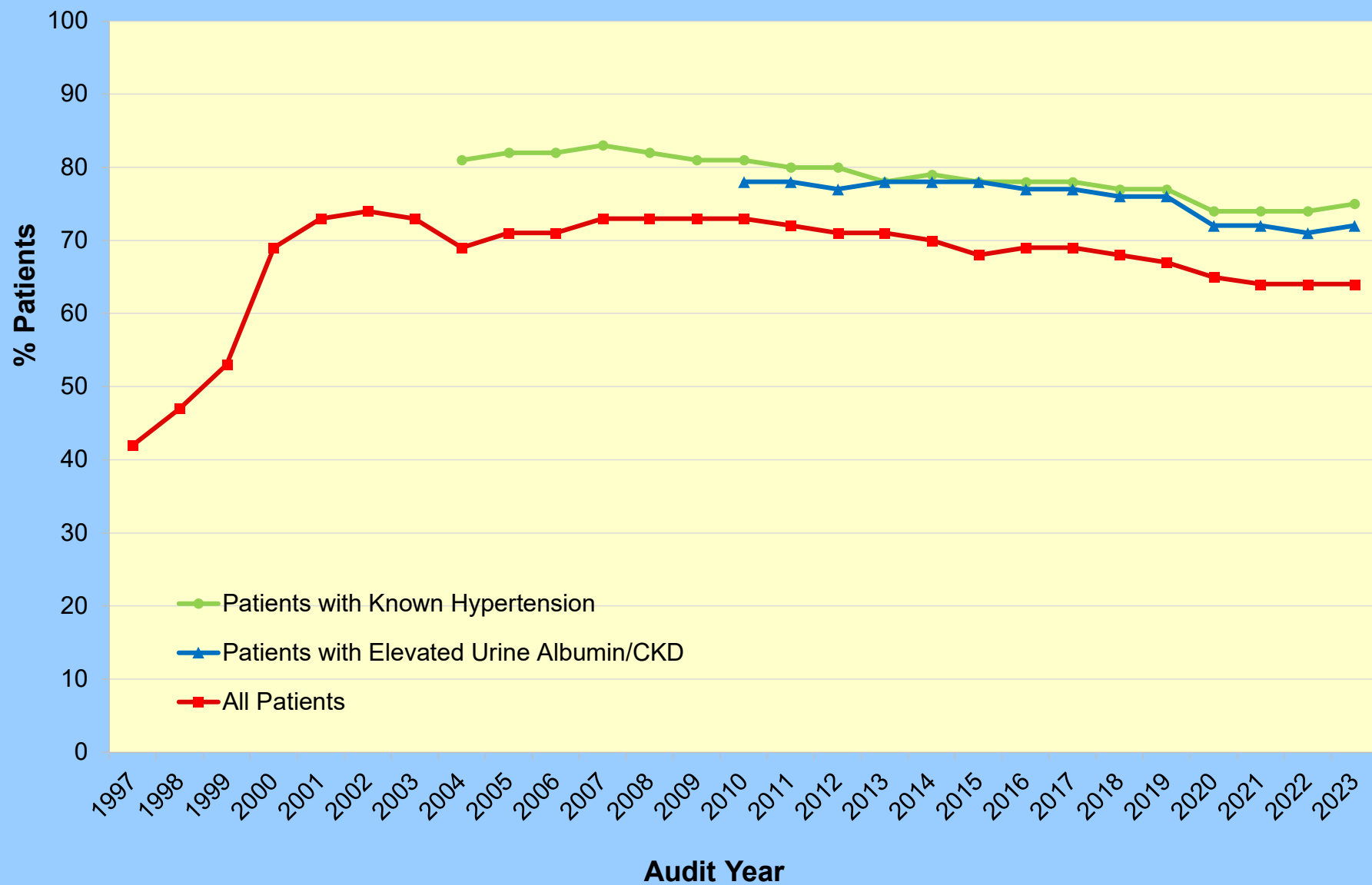
UACR Done



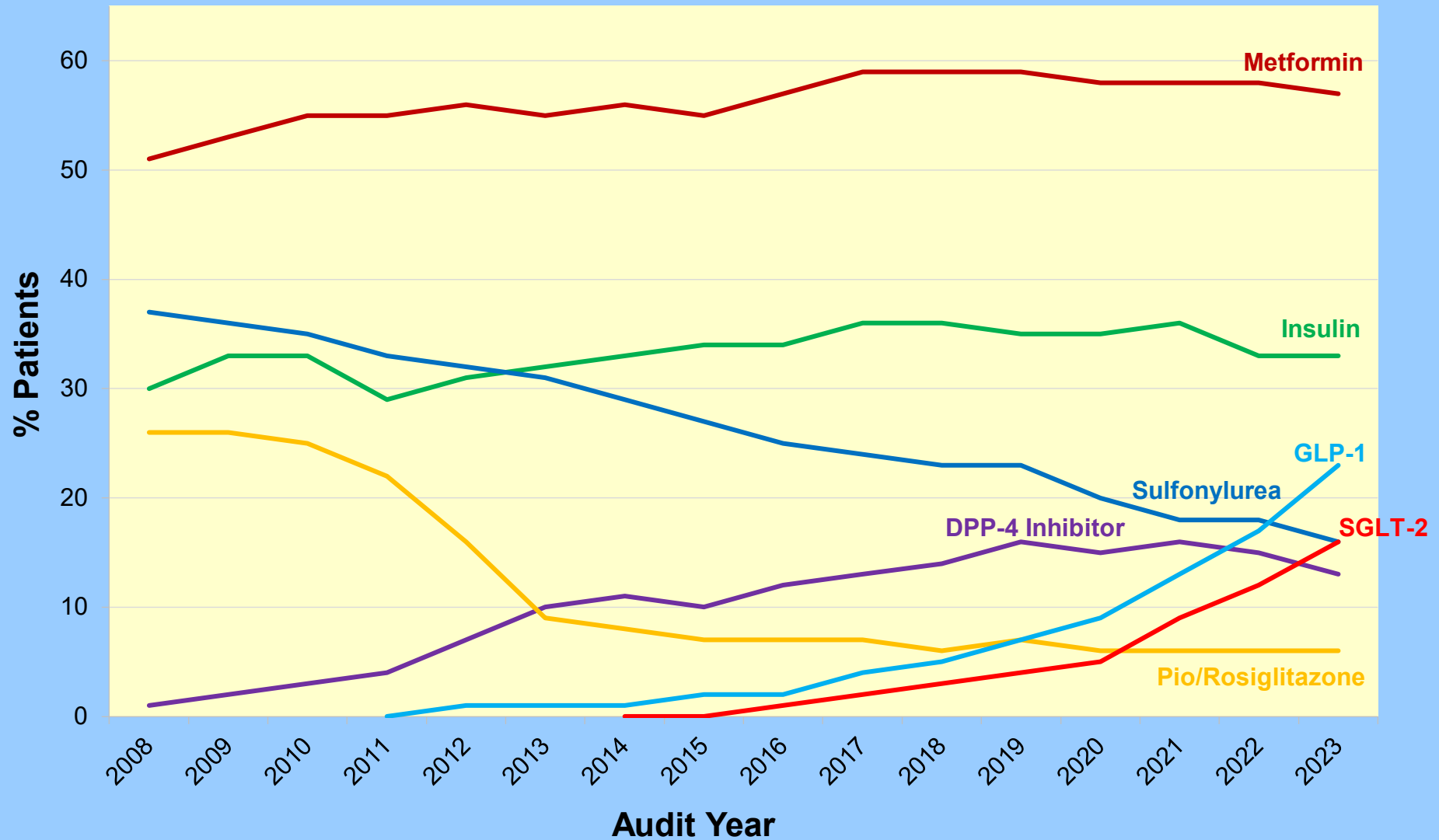
CKD Testing and Diagnosis (Age ≥ 18 Years)



ACE Inhibitor/ARB Use



Selected Diabetes Medications



Note: Axis range is 0-65 instead of 100.

Source: IHS Diabetes Care and Outcomes Audit

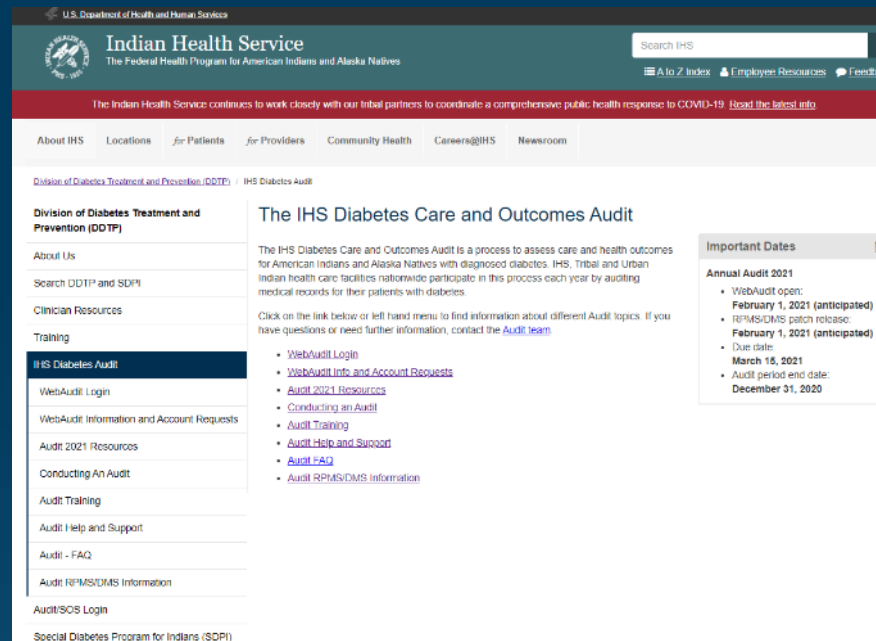


Summary

- IHS Diabetes Audit data has demonstrated major improvements in diabetes care and outcomes for AI/AN people over time.
- Programs can use their Audit data to help:
 - Identify opportunities to improve care
 - Monitor progress in achieving goals

Audit Resources

- **Website:**
<https://www.ihs.gov/diabetes/audit>
 - Materials and documentation: Form, Instructions, Checklists, RPMS/DMS manual
 - Training: Live, recorded, DMS
 - Other information and resources



- **Audit team (WebAudit & general questions):** email diabetesaudit@ihs.gov
- [Area Diabetes Consultants/Area Audit Support](#)
- **OIT Service Desk (RPMS questions & support):**
<https://www.ihs.gov/Helpdesk/>

Free clinical resources from DDTP!

- Diabetes Standards of Care
 - Focused on AI/AN patients
 - More than 30 topics
- CME/CE Training
 - Live and on demand (>50 topics)
- Treatment Algorithms (6 topics)
 - Concise information for point of care reference
 - Print or view online or on a mobile device

Diabetes Care Topics by Group

Prevention, Diagnosis, & Management



Diabetes-Related Conditions



Education & Nutrition



Immunizations & Screenings



Pregnancy/Youth/Elders



Social & Behavioral Health



And much more! www.ihs.gov/diabetes

Reference

1. Nilka Ríos Burrows, Yan Zhang, Israel Hora, Meda E. Pavkov, Karen Sheff, Giuseppina Imperatore, Ann K. Bullock, Ann L. Albright; Sustained Lower Incidence of Diabetes-Related End-Stage Kidney Disease Among American Indians and Alaska Natives, Blacks, and Hispanics in the U.S., 2000–2016. *Diabetes Care* 1 September 2020; 43 (9): 2090–2097. <https://doi.org/10.2337/dc20-0495>

Diabetes Audit Team

Carmen Hardin, MSN
Director, DDTP

Lori Butcher
RPMS Developer

Renee Chase, RN
Federal Lead DMS RPMS

Lani Desaulniers, MD
Clinical Consultant

Jermaine Gonzales
WebAudit Developer

Nancy Haugen, MSN, CNP
ADC Representative
(Great Plains Area)

Melanie Knight
SDPI Program Coordinator

Sarah Murray, MPH, PMP
DDTP Project Manager

Meera Narayanan, RD, CDE
Director, Diabetes Surveillance
Alaska Area

Tracy Nelson, MSN
ADC Representative
(Portland Area)

Lisa Nielsen
DMS Project Manager

Angela Pinto-Yazzie
DMS Software
Deployment/Tester

Kelly Samuelson
IT Quality Analyst, Senior

Karen Sheff, MS
Biostatistician

Skip Squires
DMS Technical Lead

Dorinda Wiley-Bradley, RN
Diabetes Audit Consultant

Mark Williams
Visual DMS Developer

**Area Diabetes Consultants
and Support Staff**

Questions?