The IHS Diabetes Care and Outcomes Audit: 2022 Results

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Today's topics

1. Audit overview and process
2. COVID-19 and diabetes
3. Annual Audit 2022 results
4. Questions

Commonly Used Abbreviations

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

Audit Overview and Process

What is the Audit?

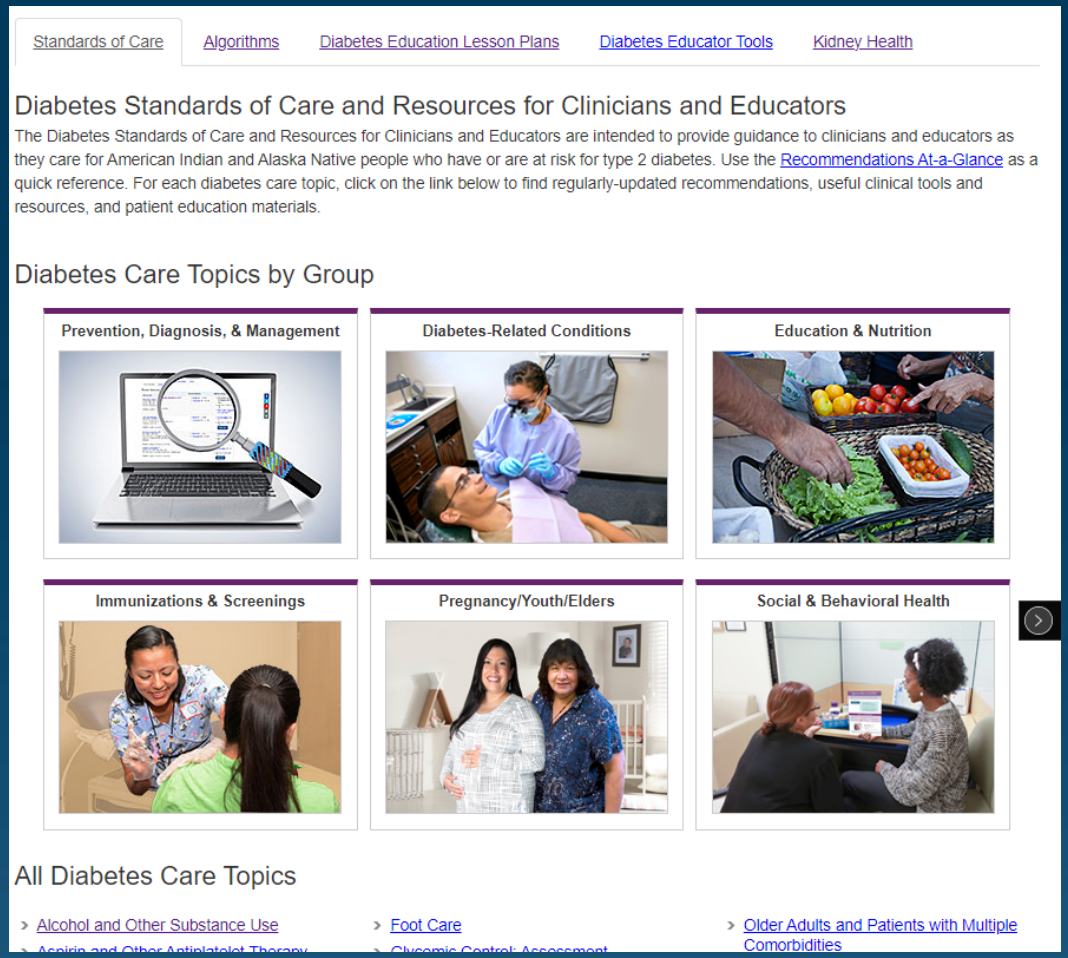
- A process for assessing diabetes care and health outcomes for American Indian and Alaska Native (AI/AN) people with diagnosed diabetes.
- Annual data collection and reporting by I/T/U facilities
  - Timeframe: previous calendar year (e.g., Audit 2022 is for Jan 1-Dec 31, 2021)
  - Data submission: February-March
  - Data review and cleaning, report preparation: April-July
  - Final results: ~summer (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 to help improve medical care and education for people with diabetes.
- **National and Area Audit reports:** provide summaries of key outcomes that assess care processes and health status of AI/AN diabetes patients.

IHS Diabetes Standards of Care and Resources for Clinicians and Educators



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

Annual Audit Goals

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

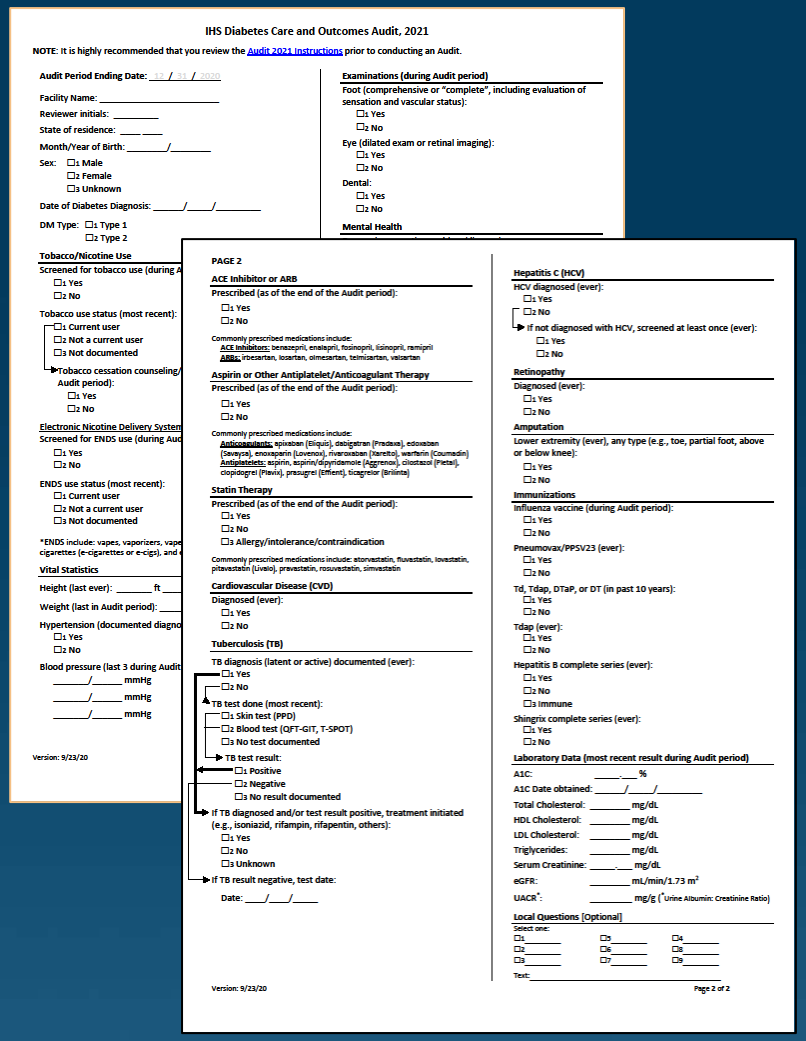
Annual Audit Process

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: DDTP and OIT
   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.
      ii. Manual Audit: Review charts and complete paper forms.

Annual Audit Process (cont.)

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:



IHS Diabetes Care and Outcomes Audit, 2021

NOTE: It is highly recommended that you review the Audit 2021 Instructions prior to conducting an Audit.

Audit Period Ending Date: 12 / 31 / 2020

Facility Name: _____

Reviewer initials: _____

State of residence: ____ ____

Month/Year of Birth: _____/_____

Sex: ☐1 Male ☐2 Female ☐3 Unknown

Date of Diabetes Diagnosis: _____/____/_____

DM Type: ☐1 Type 1 ☐2 Type 2

Tobacco/Nicotine Use

Screened for tobacco use (during A

☐1 Yes ☐2 No

Tobacco use status (most recent):

☐1 Current user ☐2 Not a current user ☐3 Not documented

Tobacco cessation counseling/ Audit period): ☐1 Yes ☐2 No

Electronic Nicotine Delivery Systen

Screened for ENDS use (during Aud

☐1 Yes ☐2 No

ENDS use status (most recent):

☐1 Current user ☐2 Not a current user ☐3 Not documented

*ENDS include: vapes, vaporizers, vape cigarettes (e-cigarettes or e-cigs), and

Vital Statistics

Height (last ever): _____ ft

Weight (last in Audit period): ____

Hypertension (documented diagno

☐1 Yes ☐2 No

Blood pressure (last 3 during Audit

_____/_____ mmHg

_____/_____ mmHg

_____/_____ mmHg

Version: 9/23/20

Examinations (during Audit period)

Foot (comprehensive or "complete", including evaluation of sensation and vascular status): ☐1 Yes ☐2 No

Eye (dilated exam or retinal imaging): ☐1 Yes ☐2 No

Dental: ☐1 Yes ☐2 No

Mental Health

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ACE Inhibitor or ARB

Prescribed (as of the end of the Audit period): ☐1 Yes ☐2 No

Commonly prescribed medications include:
ACE Inhibitors: benazepril, enalapril, fosinopril, lisinopril, ramipril
ARBs: irbesartan, losartan, olmesartan, telmisartan, valsartan

Aspirin or Other Antiplatelet/Anticoagulant Therapy

Prescribed (as of the end of the Audit period): ☐1 Yes ☐2 No

Commonly prescribed medications include:
Anticoagulants: apixaban (Eliquis), dabigatran (Pradaxa), edoxaban (Savaysa), enoxaparin (Lovenox), rivaroxaban (Xarelto), warfarin (Coumadin)
Antiplatelets: aspirin, aspirin/dipyridamole (Aggrenox), cilostazol (Pletal), clopidogrel (Plavix), prasugrel (Effient), ticagrelor (Brilinta)

Statin Therapy

Prescribed (as of the end of the Audit period): ☐1 Yes ☐2 No ☐3 Allergy/intolerance/contraindication

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

Cardiovascular Disease (CVD)

Diagnosed (ever): ☐1 Yes ☐2 No

Tuberculosis (TB)

TB diagnosis (latent or active) documented (ever): ☐1 Yes ☐2 No

TB test done (most recent): ☐1 Skin test (PPD) ☐2 Blood test (QFT-GIT, T-SPOT) ☐3 No test documented

TB test result: ☐1 Positive ☐2 Negative ☐3 No result documented

If TB diagnosed and/or test result positive, treatment initiated (e.g., isoniazid, rifampin, rifapentin, others): ☐1 Yes ☐2 No ☐3 Unknown

If TB result negative, test date: Date: ____/____/_____

Hepatitis C (HCV)

HCV diagnosed (ever): ☐1 Yes ☐2 No

If not diagnosed with HCV, screened at least once (ever): ☐1 Yes ☐2 No

Retinopathy

Diagnosed (ever): ☐1 Yes ☐2 No

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): ☐1 Yes ☐2 No

Pneumovax/PPSV23 (ever): ☐1 Yes ☐2 No

Td, Tdap, DTaP, or DT (in past 10 years): ☐1 Yes ☐2 No

Tdap (ever): ☐1 Yes ☐2 No

Hepatitis B complete series (ever): ☐1 Yes ☐2 No ☐3 Immune

Shingrix complete series (ever): ☐1 Yes ☐2 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 (*Urine Albumin: Creatinine Ratio)

Local Questions [Optional]

Select one:

☐1_____ ☐2_____ ☐3_____ ☐5_____ ☐6_____ ☐7_____ ☐4_____ ☐8_____ ☐9_____

Text: _____

Version: 9/23/20

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Process: Exams, education, immunizations, medications

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

Complications: CVD, CKD, retinopathy, TB

Note

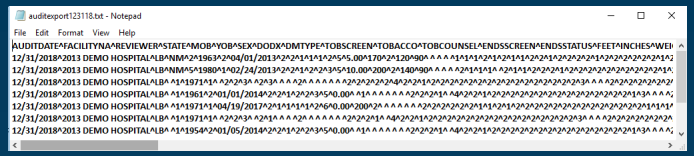
-Most outcomes are for 12-month Audit period, but some look back longer or shorter.

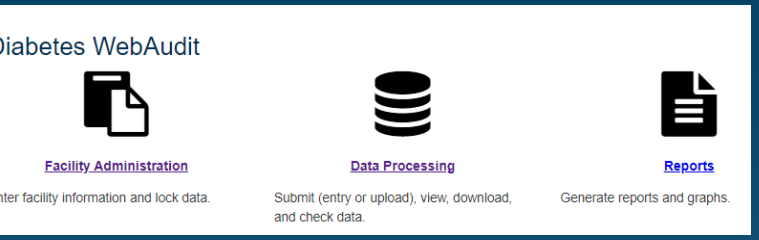
-There are changes (almost) every year!

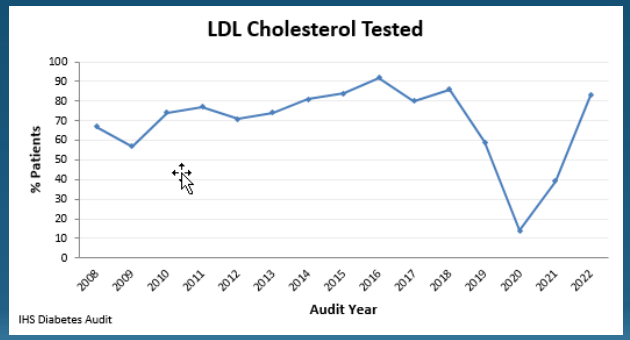
How are results provided via the WebAudit?

Input=data file or paper forms

Output=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%**		

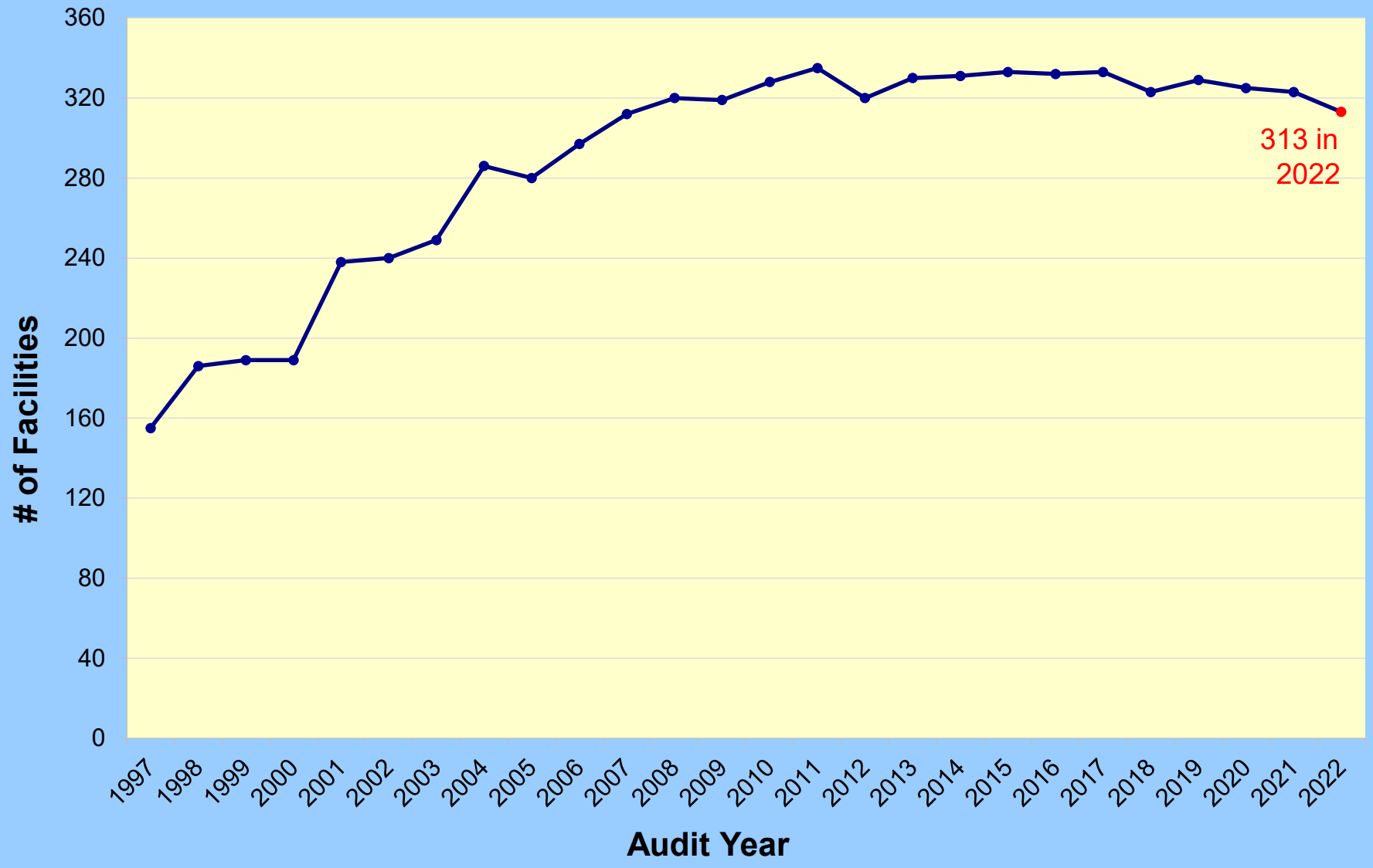
Audit History

- Timeline
  - 1980s: First local Audits conducted.
  - 1997: DDTP created a centralized Audit database with data from all 12 IHS Areas.
  - 2008: WebAudit launched.
- “Non-RPMS” Electronic Audits
  - 2011: n=13
  - 2022: n=75

Audit vs. GPRA

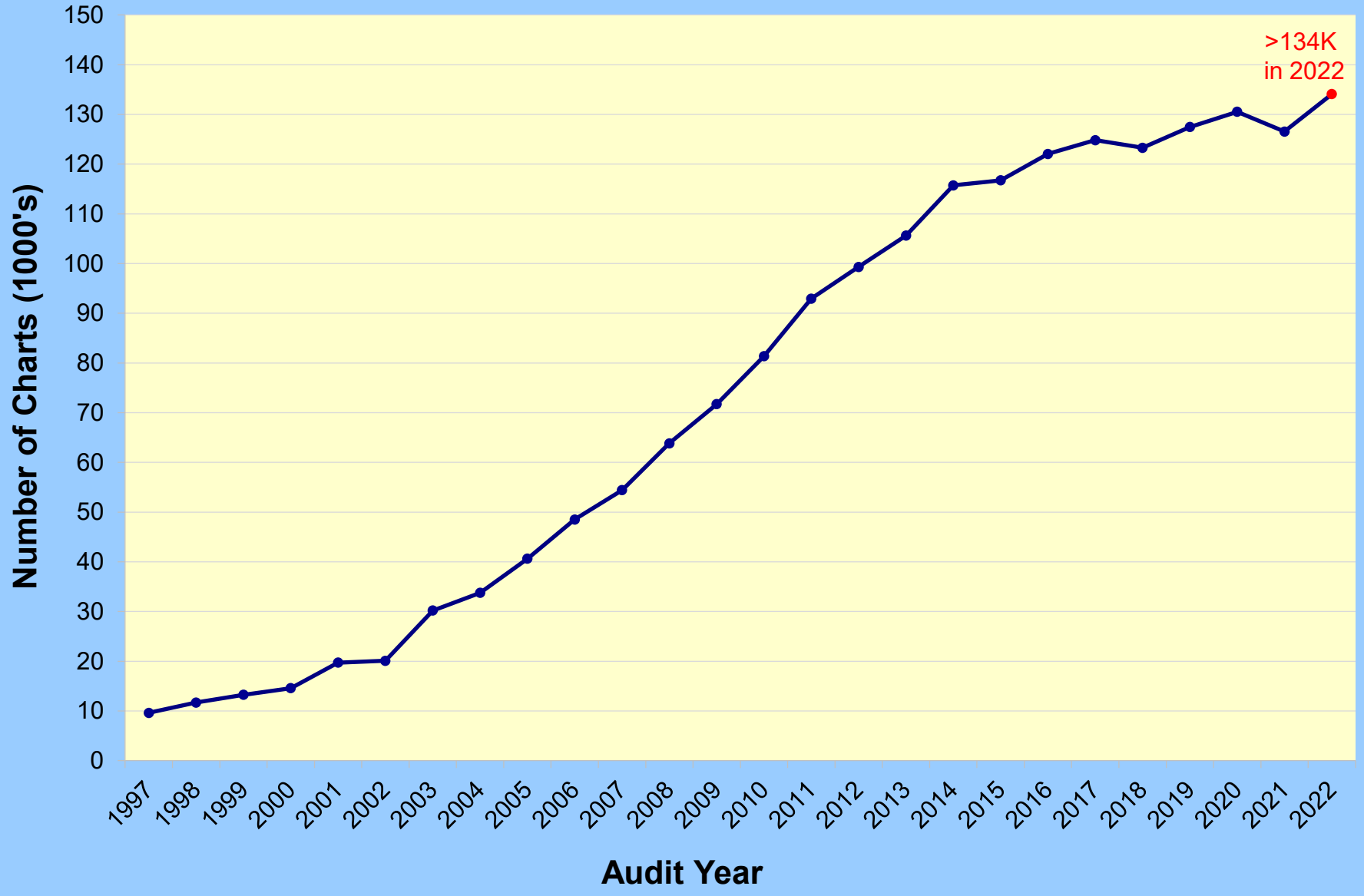
	Diabetes Audit	Government Performance and Results Act (GPRA)
Purpose	Assess health care and outcomes for AI/AN people with diabetes	Demonstrate that IHS is using funds effectively toward meeting its mission.
# of diabetes measures	>40	5
Who does it	I/T/U facilities associated with an SDPI grant (required)	-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



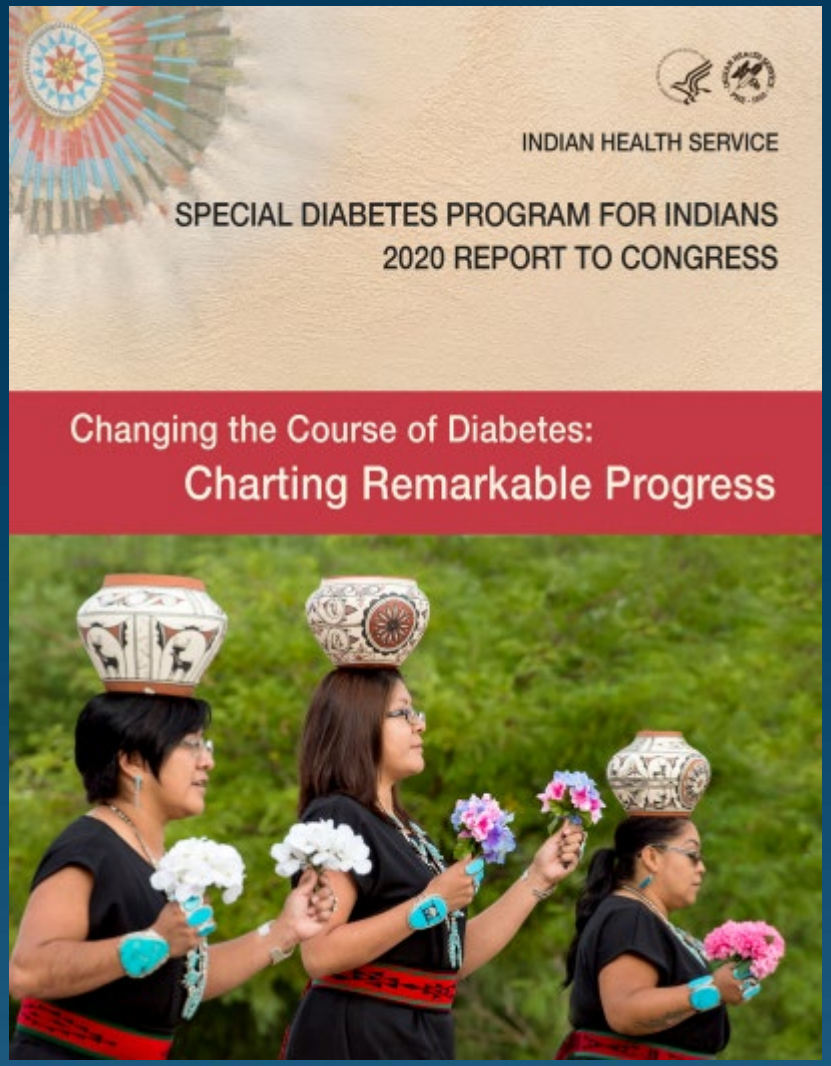
Source: IHS Diabetes Care and Outcomes Audit

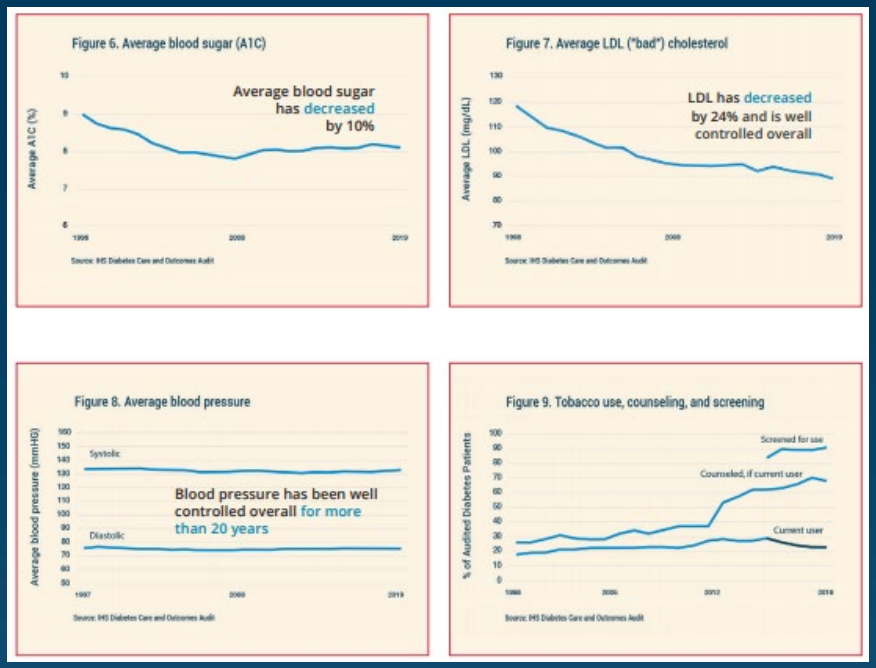
Number of Charts Audited



Source: IHS Diabetes Care and Outcomes Audit

How are national Audit results used?





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

COVID-19

COVID-19 and Diabetes

- COVID-19 infection associated with increase in new diagnoses of diabetes[1]
  - Type 1, Type 2, and complex subtype
  - Increased incidence of diabetic ketoacidosis
  - New onset diabetes may not be permanent
- Possible mechanisms include:
  - Preexisting undiagnosed diabetes
  - Stress hyperglycemia due to acute illness
  - Effects of viral infection on beta cell (direct infection, pancreatic inflammation)
  - Steroid-induced hyperglycemia

1. Khunti, K, Del Prato S, Mathieu C, Kahn SE, Gabbay RA, Buse, JB. COVID-19, Hyperglycemia, and New-Onset Diabetes. Diabetes Care 2021 Oct; dc211318. https://doi.org/10.2337/dc21-1318

Symptoms of Long COVID

Symptom list adapted from CDC:
https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/index.html

Diabetes and Long COVID-19

- Long COVID
  - Wide range of persistent health problems following SARS-CoV-2 infection
  - CDC estimates that overall 7.5% of adults in the US have long COVID symptoms[2]
  - More prevalent following severe cases
- Long COVID Syndrome and Diabetes - bidirectional
  - People with diabetes experience higher rates of Long COVID[3]
  - Increased risk and excess burden of diabetes with Long COVID[4]

2. CDC National Center for Health Statistics -(accessed 10/24/2022)
3. Raveendran AV, Misra A. Post COVID-19 Syndrome ("Long COVID") and Diabetes: Challenges in Diagnosis and Management. Diabetes Metab Syndr. 2021 September-October; 15(5): 102235. https://doi.org/10.1016/j.dsx.2021.102235
4. Xie Y, Al-Aly Z. Risks and burdens of incident diabetes in long COVID: a cohort study. Lancet Diabetes Endocrinol. 2022 May;10(5):311-321. doi: 10.1016/S2213-8587(22)00044-4. Epub 2022 Mar 21. PMID: 35325624; PMCID: PMC8937253. https://pubmed.ncbi.nlm.nih.gov/35325624/

What do we know about COVID-19 and Diabetes in Indian Country?

- No published national data at this time on
  - New diagnoses of diabetes
  - Prevalence of Long COVID
- Diabetes care was impacted significantly

Audit 2022 Results

Participation: Sites participating, charts reviewed

Process: Screenings, exams, education, immunizations

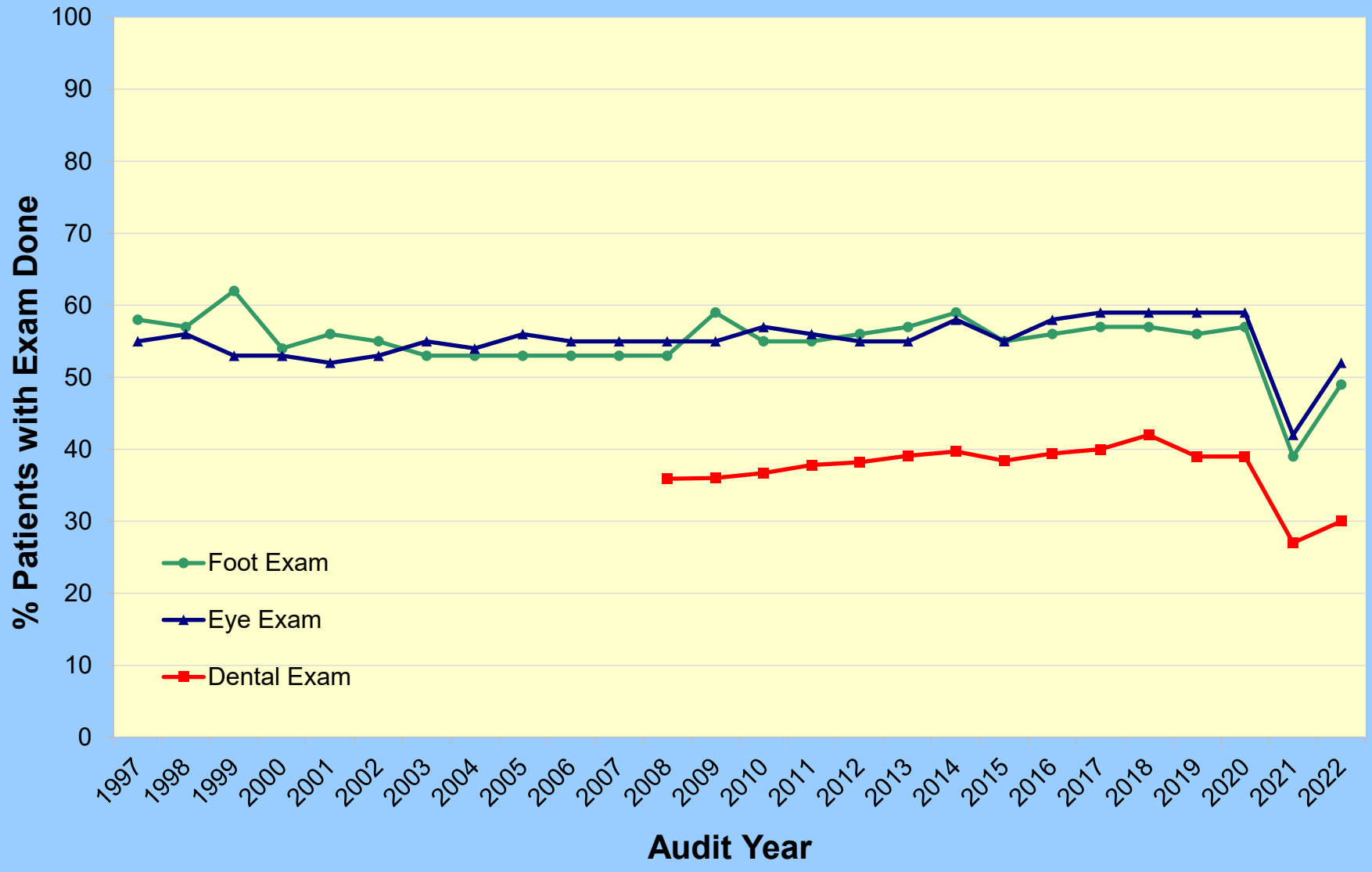
Clinical measures: Blood pressure, lab results (A1C, lipids)

Complications: CVD, CKD, retinopathy, LEA

How can we use them?

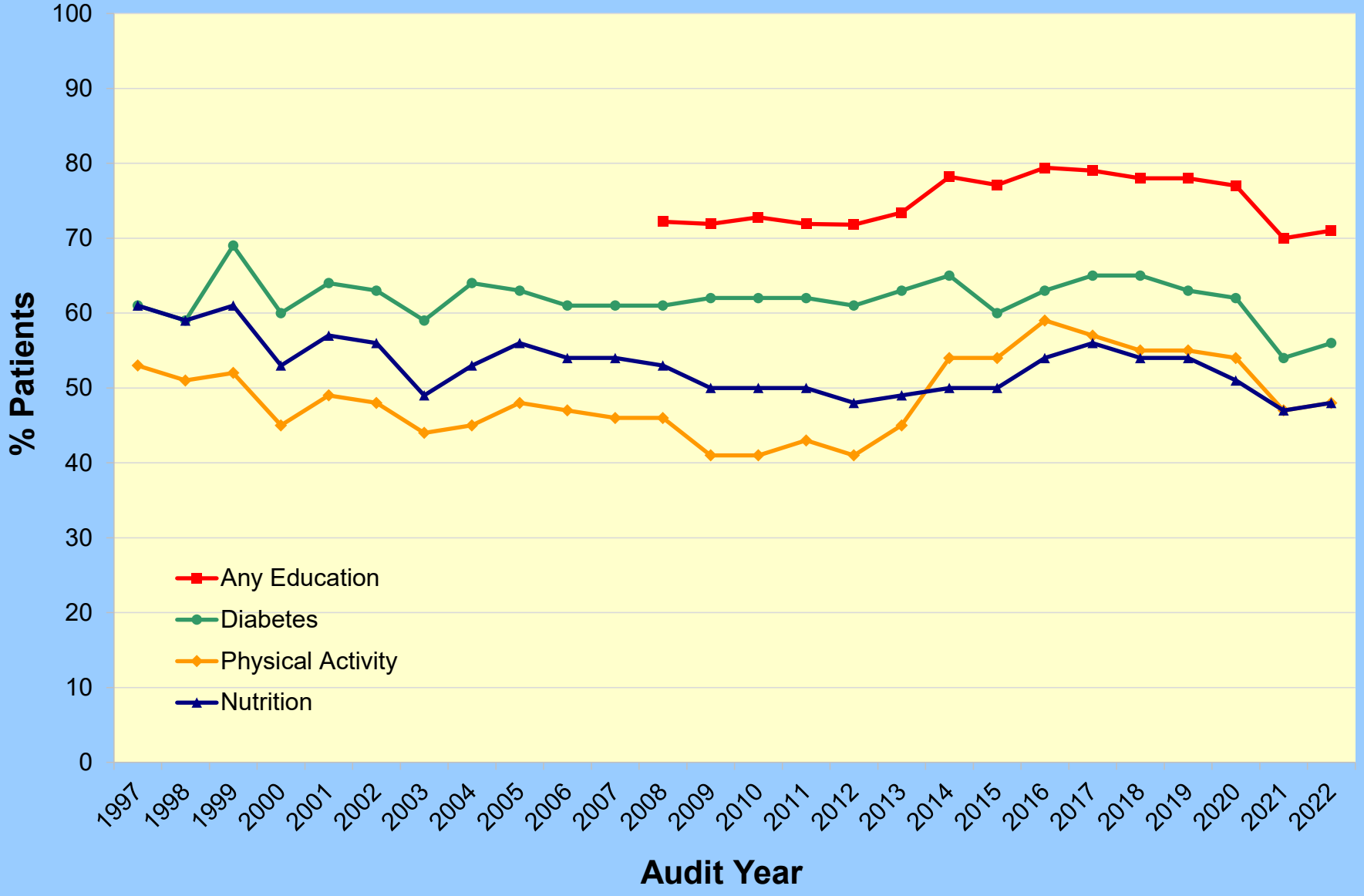
Process Outcomes

Exams



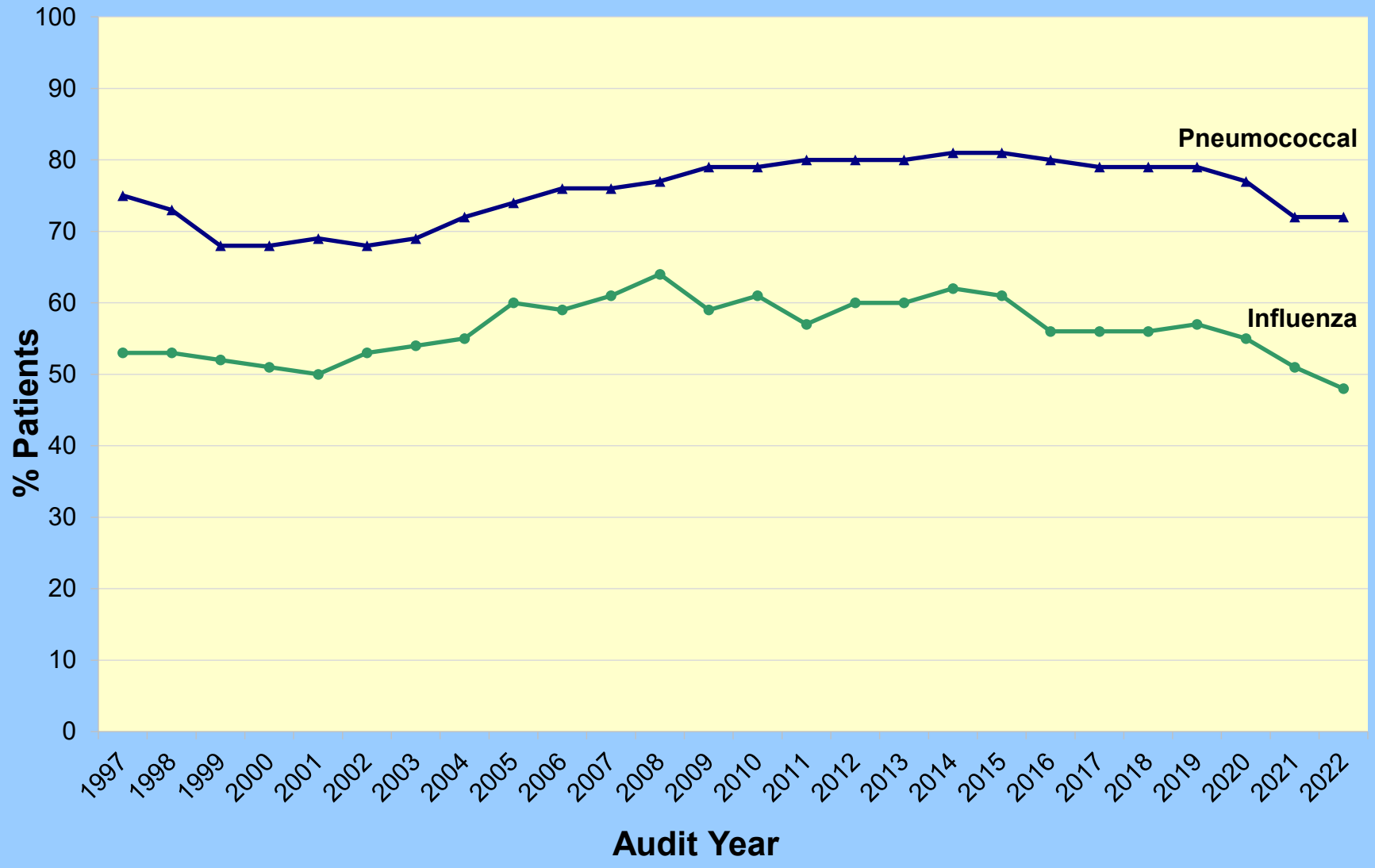
Source: IHS Diabetes Care and Outcomes Audit

Patient Education



Source: IHS Diabetes Care and Outcomes Audit

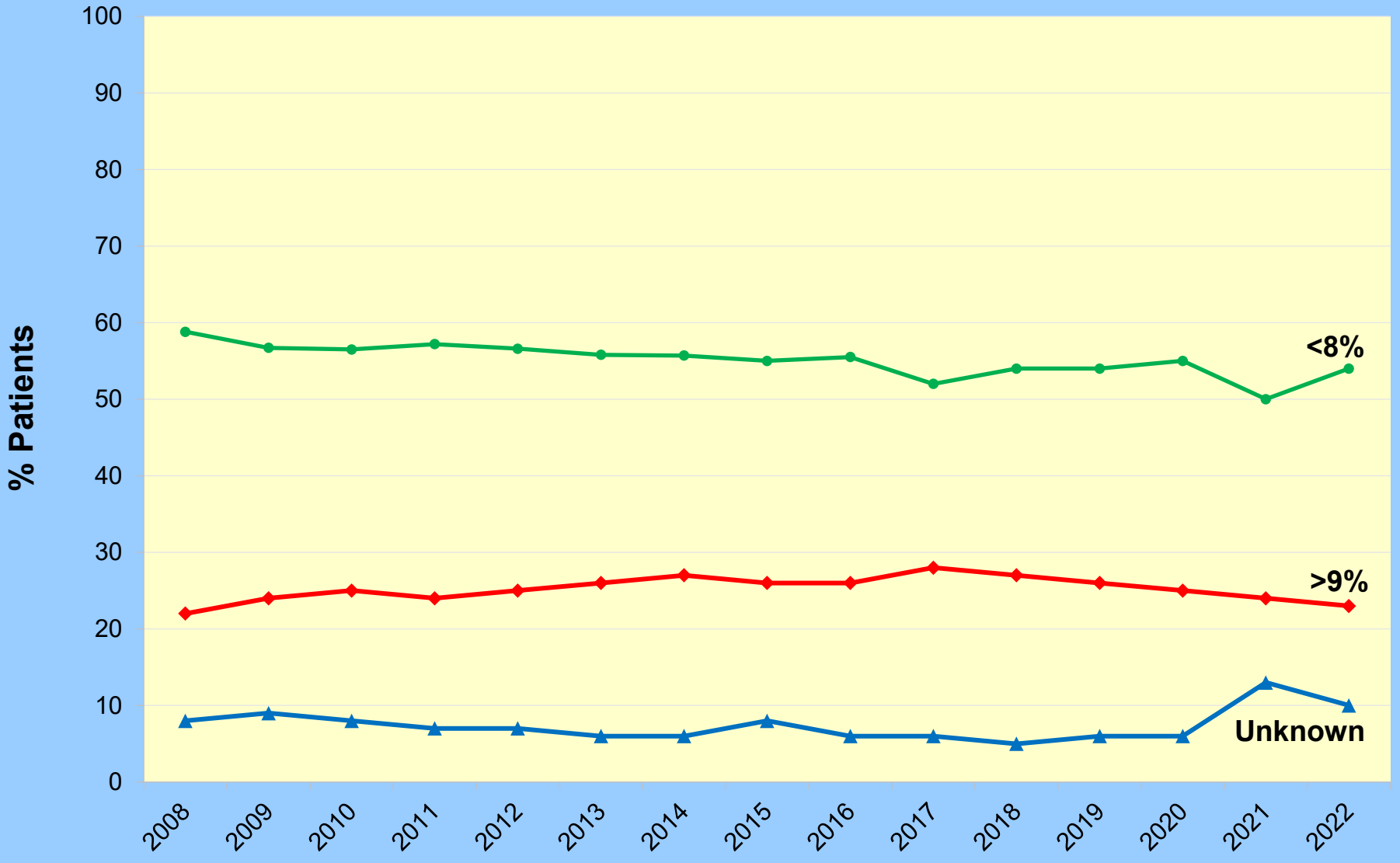
Immunizations



Source: IHS Diabetes Care and Outcomes Audit

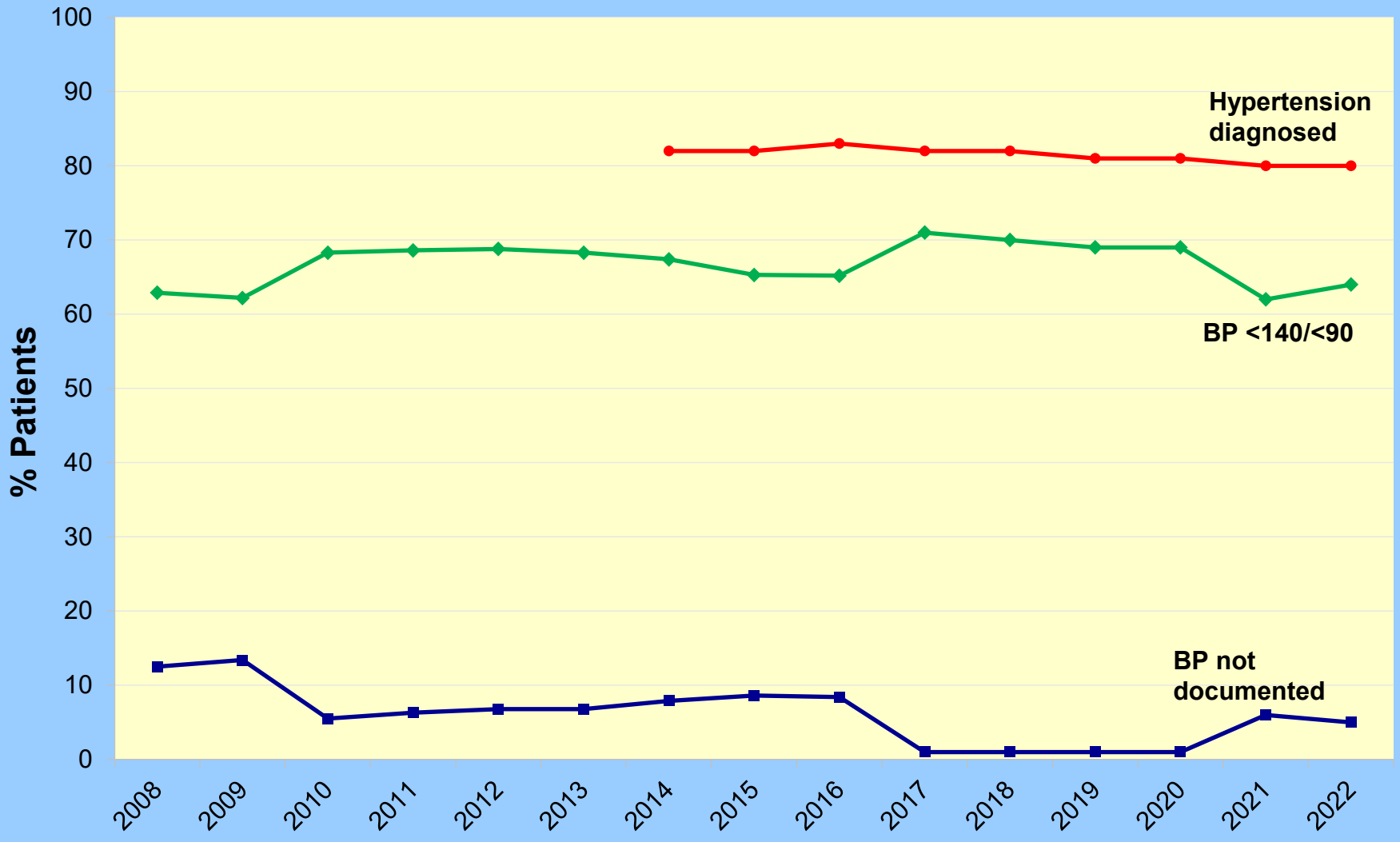
Clinical Measures

Blood Sugar Control (A1C)



Source: IHS Diabetes Care and Outcomes Audit

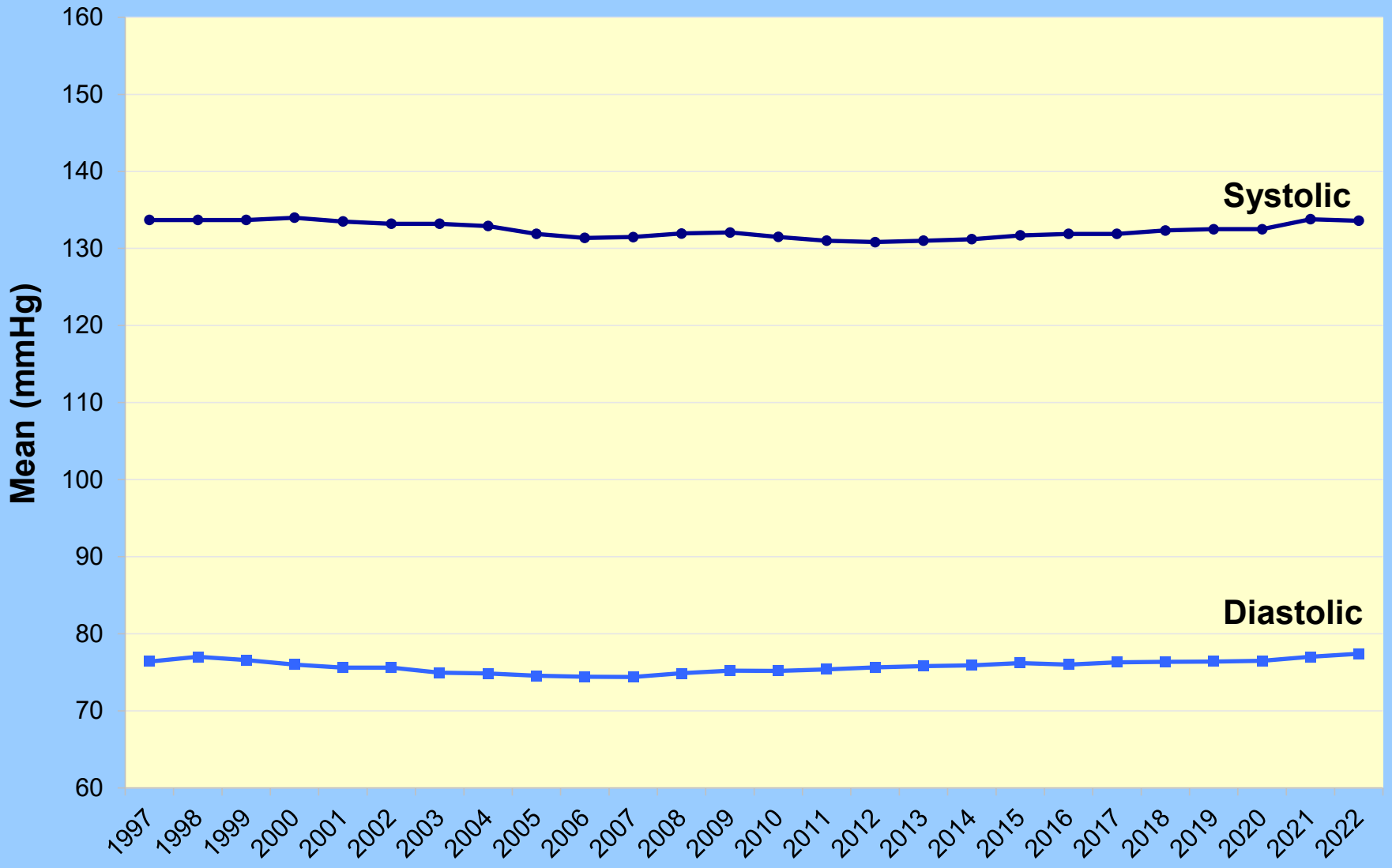
Blood Pressure Control* (<140/<90 mmHg)



*2010-2016: Patients with 2 or 3 blood pressure values. 2017-2021: Patients with 1, 2, or 3 blood pressure values.

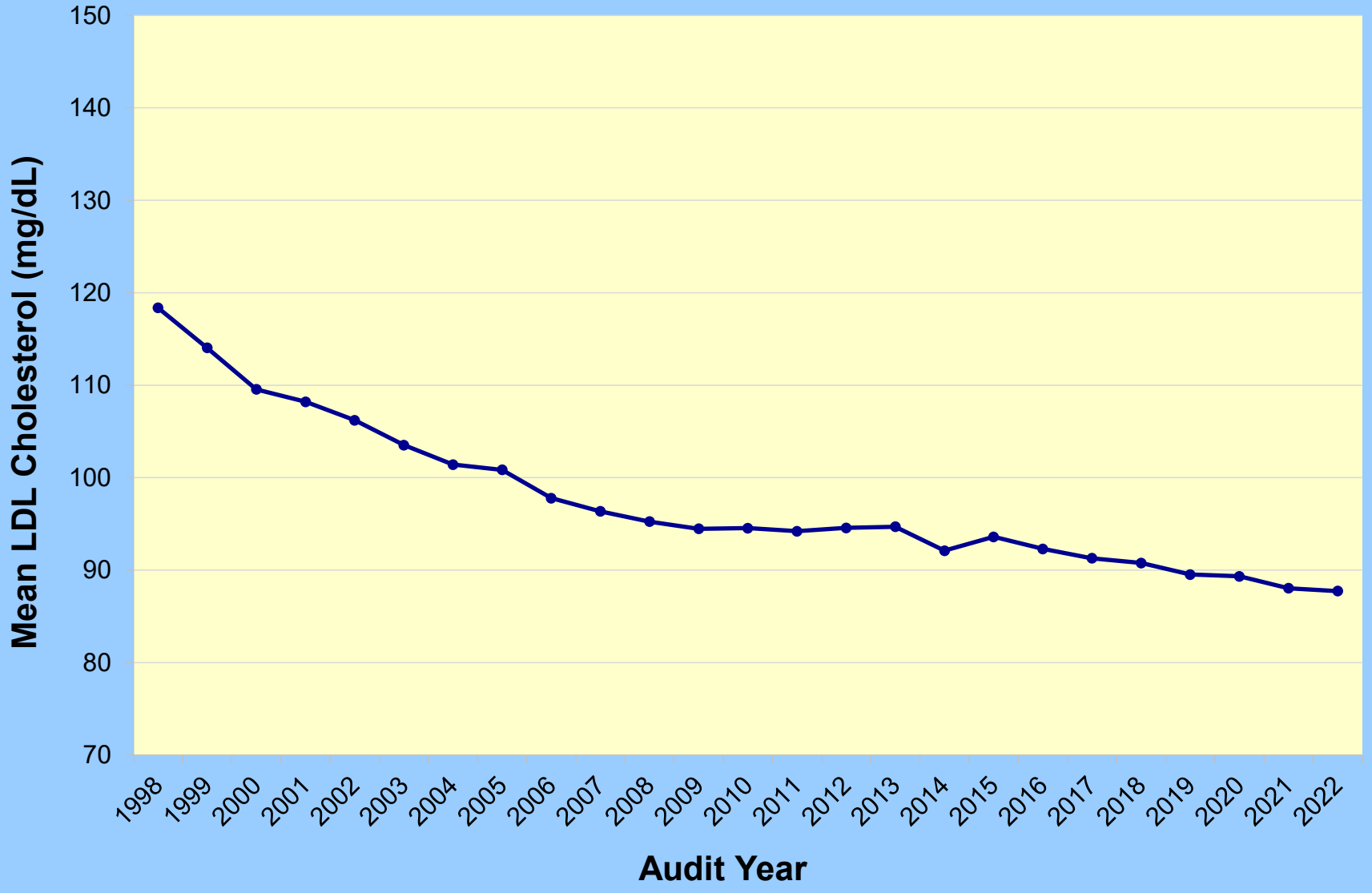
Source: IHS Diabetes Care and Outcomes Audit

Mean Blood Pressure



Source: IHS Diabetes Care and Outcomes Audit

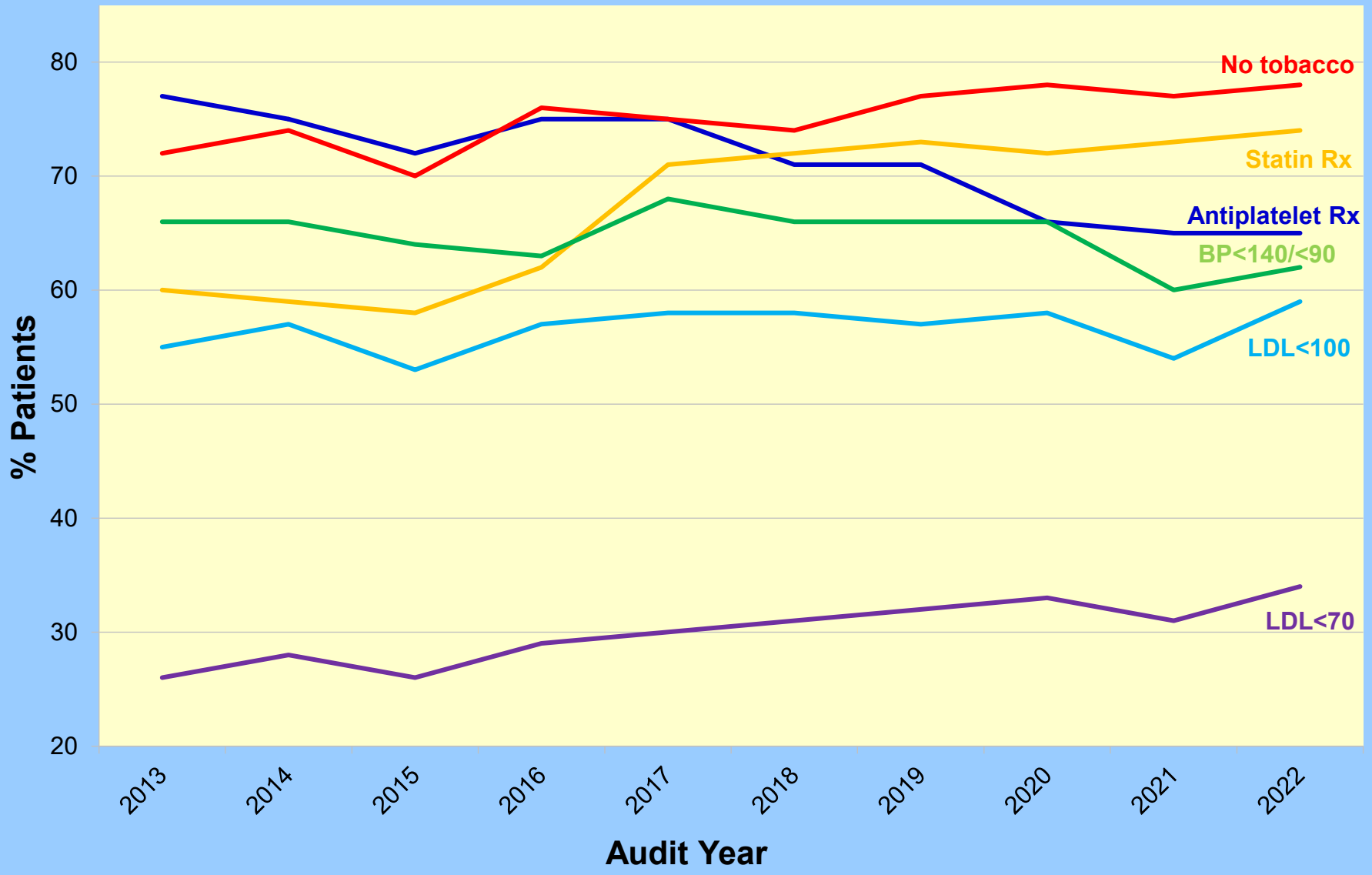
Mean LDL Cholesterol



Source: IHS Diabetes Care and Outcomes Audit

Complications

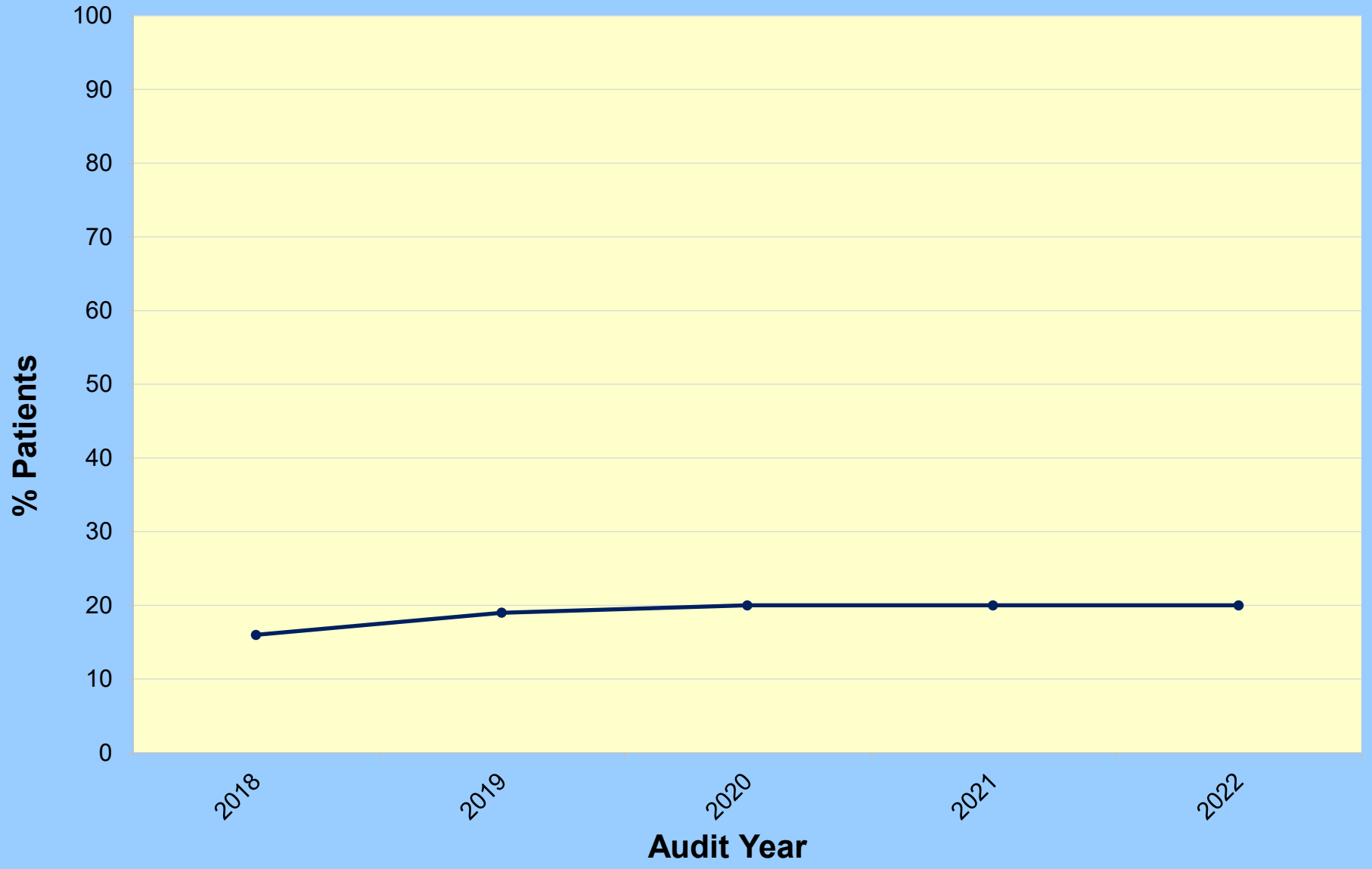
Selected Measures for Patients with Diagnosed CVD



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

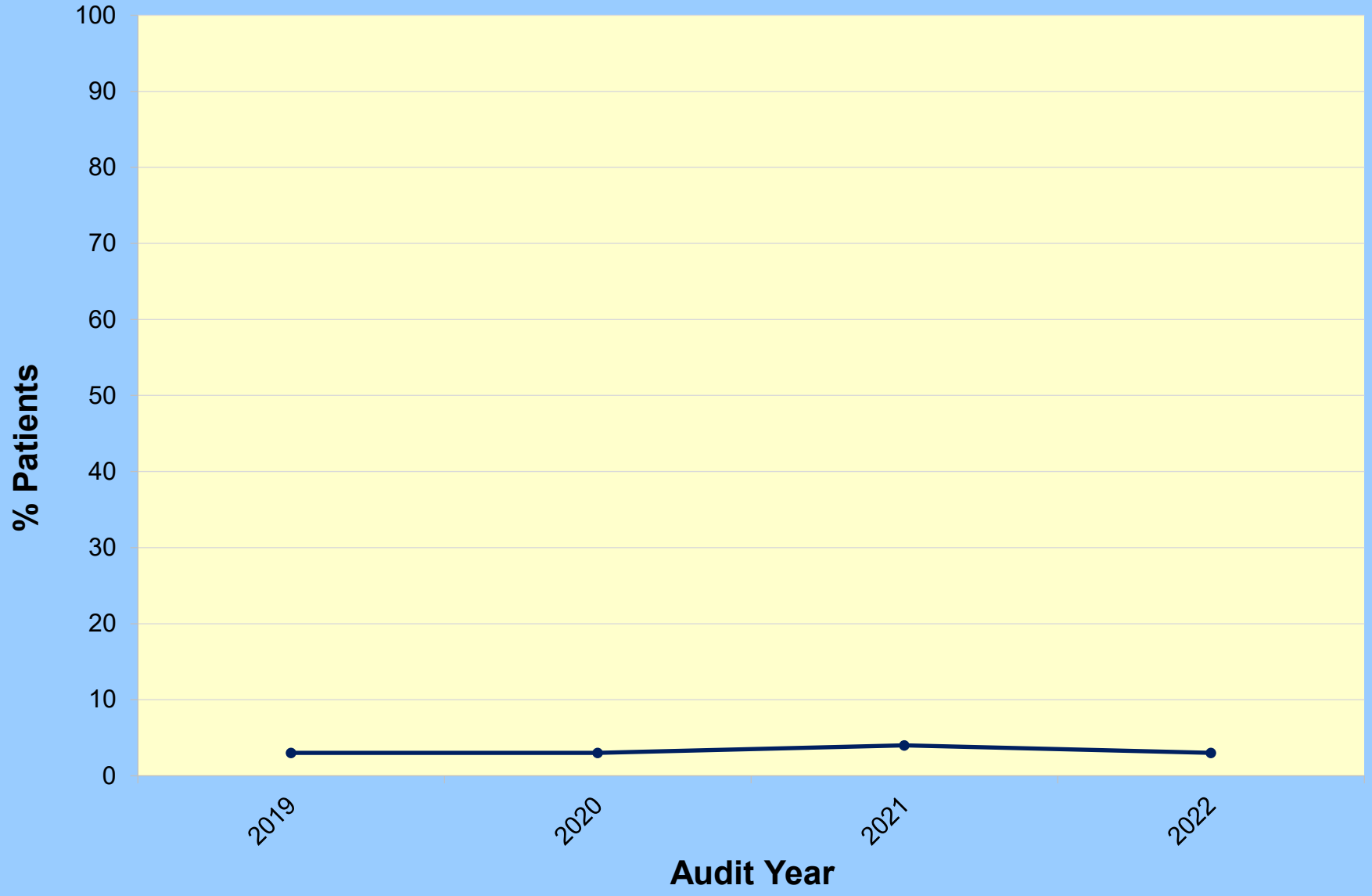
Source: IHS Diabetes Care and Outcomes Audit

Retinopathy Diagnosed



Source: IHS Diabetes Care and Outcomes Audit

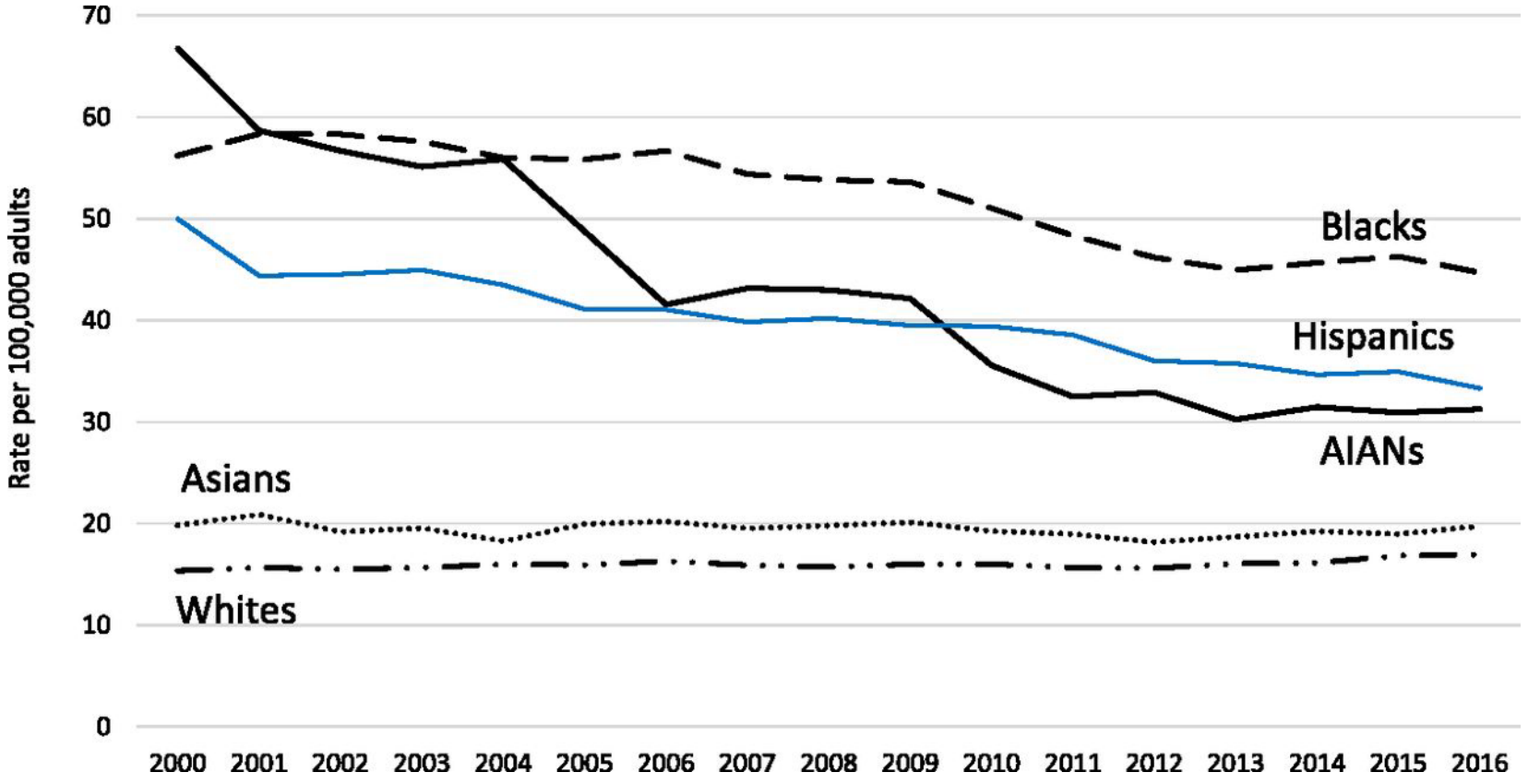
Lower Extremity Amputation



Source: IHS Diabetes Care and Outcomes Audit

Complications:
Chronic Kidney Disease

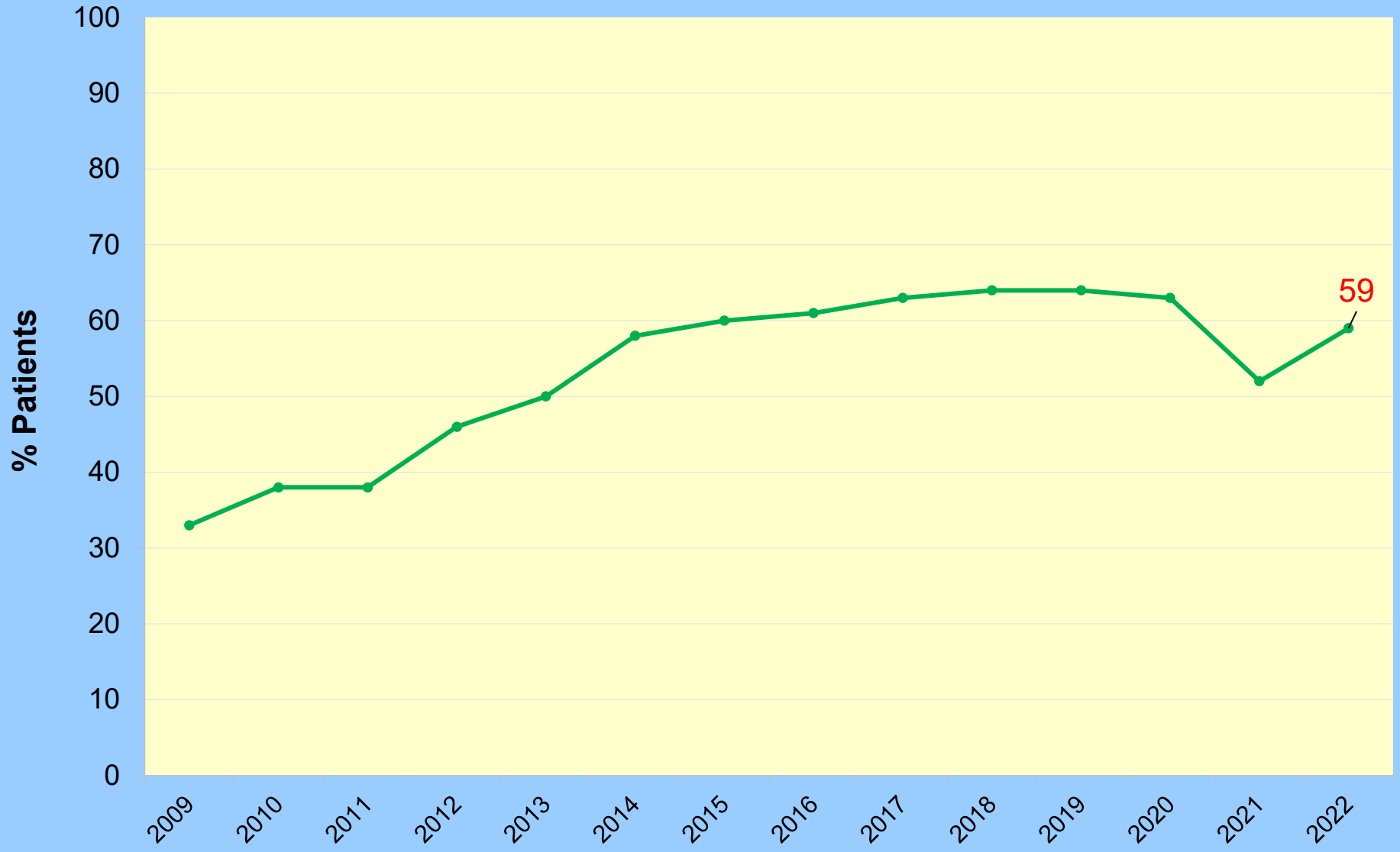
Incidence of diabetes-related ESKD among adults aged ≥18 years by race or ethnicity, 2000–2016.



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

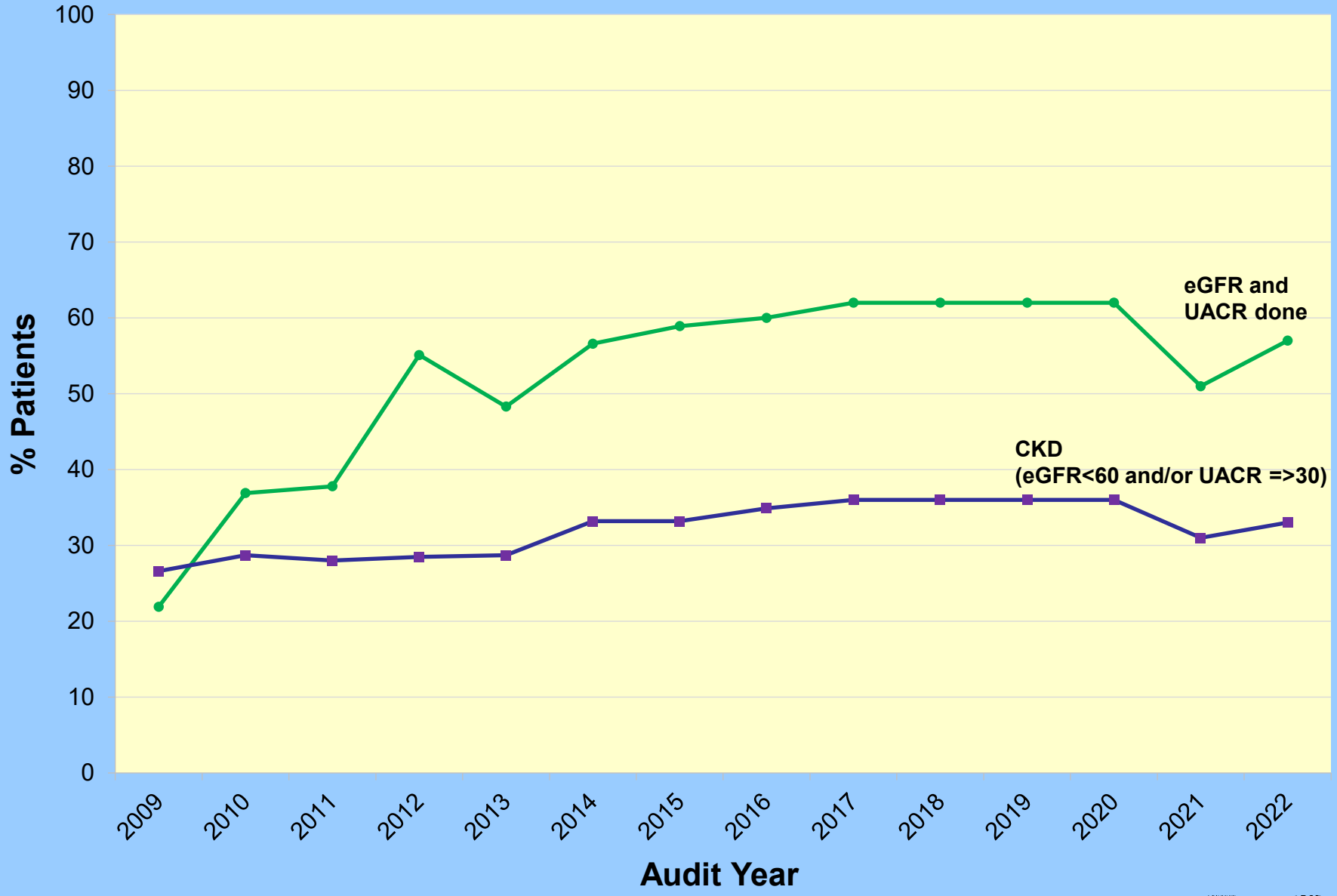
American Diabetes Association.

UACR Done



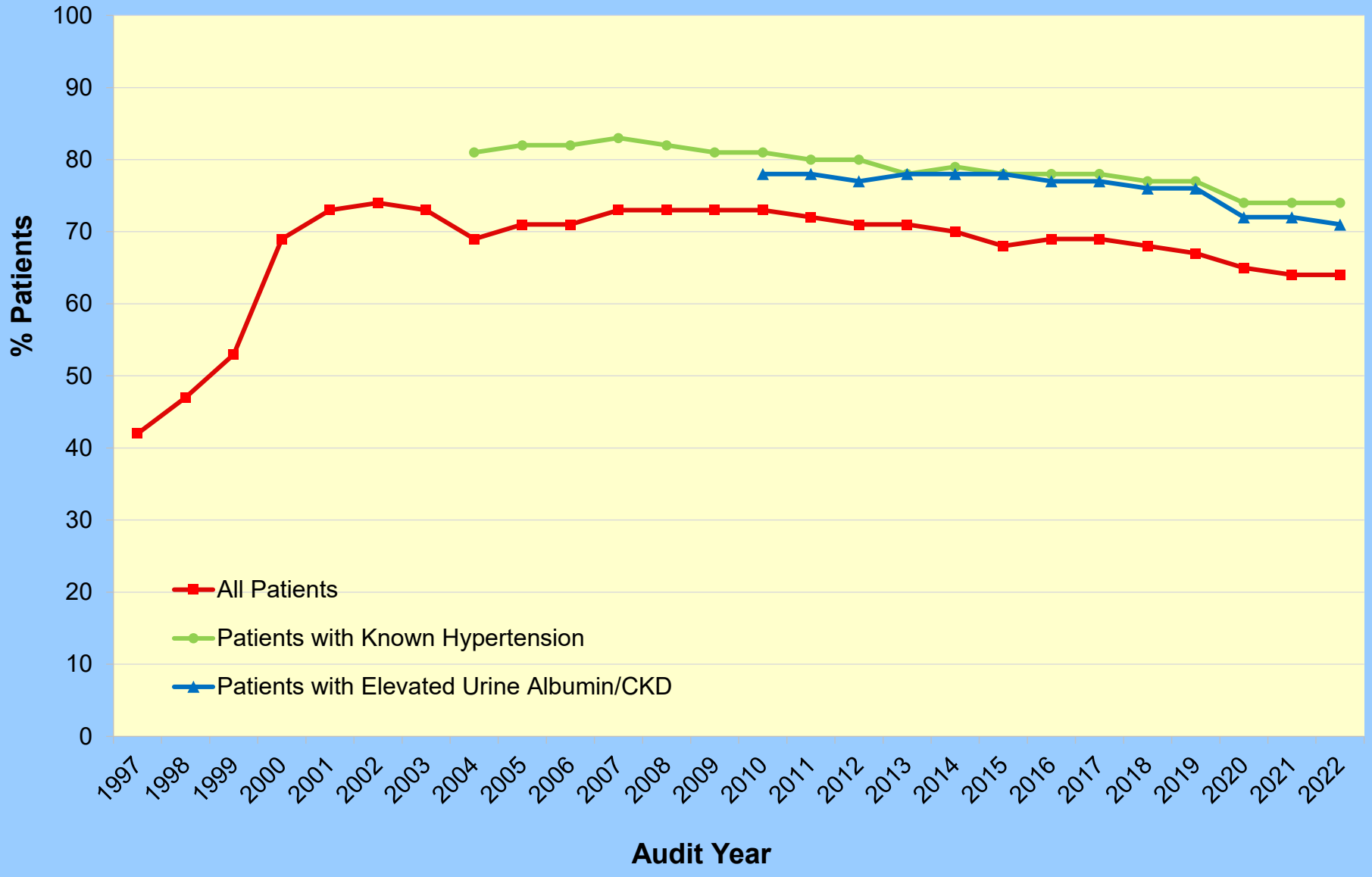
Source: IHS Diabetes Care and Outcomes Audit

CKD Testing and Diagnosis (Age ≥18 Years)



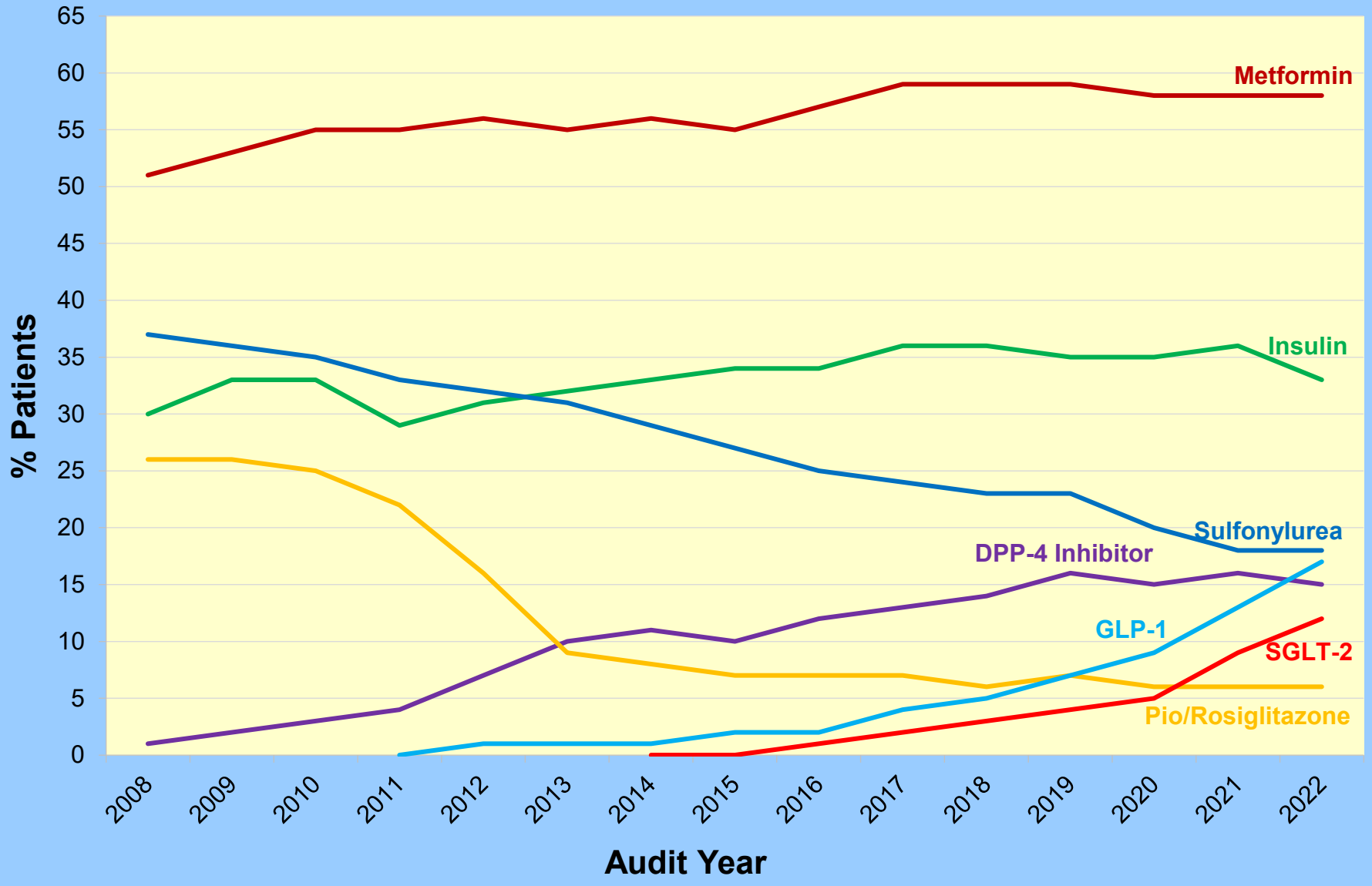
Source: IHS Diabetes Care and Outcomes Audit

ACE Inhibitor/ARB Use



Source: IHS Diabetes Care and Outcomes Audit

Selected Diabetes Medications

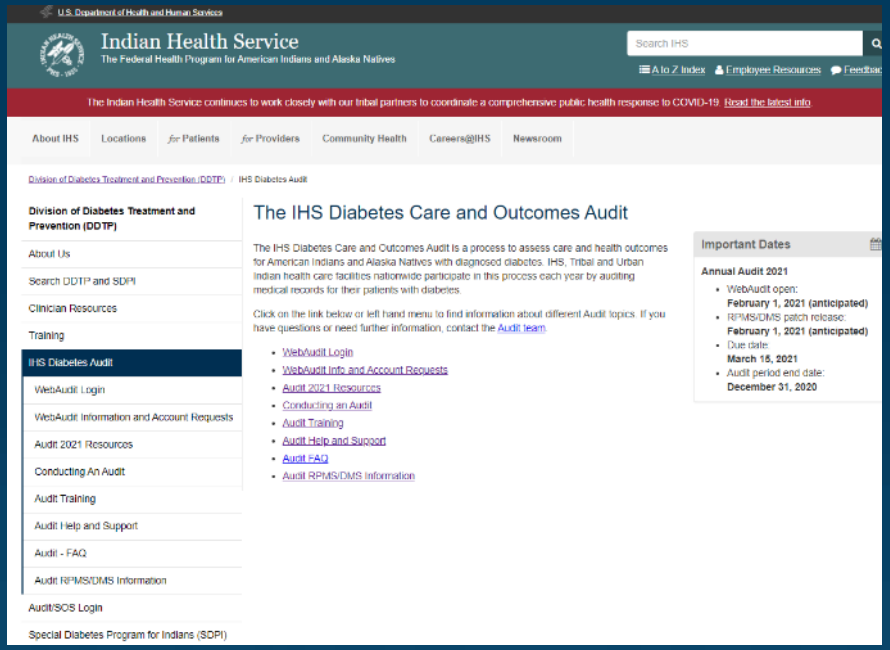


Summary

- IHS Diabetes Audit data has demonstrated major improvements in diabetes care and outcomes for AI/AN people over time.
- Based on Audit results, it appears that the impact of COVID-19 on diabetes care and outcomes is diminishing.
- 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
  - – 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

And much more! www.ihs.gov/diabetes

References

1. Khunti, K, Del Prato S, Mathieu C, Kahn SE, Gabbay RA, Buse, JB. COVID-19, Hyperglycemia, and New-Onset Diabetes. Diabetes Care 2021 Oct; dc211318. https://doi.org/10.2337/dc21-1318
2. CDC National Center for Health Statistics (accessed 10/24/2022)
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