Optimizing Diabetes Care Through Clinical Pharmacy Services

2/4/2026

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Acknowledgements and Disclaimer

This material is the result of work supported with resources and the use of facilities at the Whiteriver Indian Hospital, located in the Phoenix Area of the Indian Health Service.

The following is an IHS author located at the Whiteriver Service Unit in Whiteriver, AZ:
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Diabetes Mellitus (DM) – Statistics

General Population[1]

- Total: over **40 million people** have diabetes (12% of the U.S. population)
  2 million people with Type 1 diabetes
- Diagnosed: 29.1 million people
- Undiagnosed: 11 million people
- New cases: 1.5 million Americans are diagnosed every year

1. American Diabetes Association. Statistics about diabetes. Updated November 2023. Accessed December 30, 2025. https://diabetes.org/about-diabetes/statistics/about-diabetes

Diabetes Mellitus (DM) – Statistics

American Indian/Alaska Native (AI/AN) Population

- In 2023, the prevalence of diagnosed diabetes was highest among AI/AN (15.7%)[1]
- From 2012-2013, a total of 55,049 AI/AN were identified as having type 1 or type 2 diabetes[2]
  - Type 1 DM - 1.32%
  - Type 2 DM - 98.06%

1. American Diabetes Association. Statistics about diabetes. Updated November 2023. Accessed December 30, 2025. https://diabetes.org/about-diabetes/statistics/about-diabetes
2. Jiahui D, et al. Prevalence of Diagnosed Type 1 and Type 2 Diabetes Among American Indian and Alaska Native Peoples in 2012–2013. Diabetes Care 2024;47:e1–e3.

Whiteriver Service Unit - Whiteriver, Arizona

- Whiteriver Indian Hospital is a 40-bed facility located on the White Mountain Apache reservation
- Provides services to over 17,000 people
- 190,000 ambulatory visits annually
- 1,700 admissions annually
- 35,000 emergency room visits annually
- Employs over 41 pharmacists

Patient-Centered Medical Home (PCMH) Model

An approach to delivering **high-quality, cost-effective primary care**. The PCMH model has been associated with improved chronic disease management, increased patient and provider satisfaction, cost savings, improved quality of care, and increased preventive care.[1,2]

Patient-centered **Comprehensive** **Coordinated**

Accessible **Safe, quality care**

1. Patient-Centered Medical Home. Centers for Disease Control and Prevention (CDC). Available at: https://www.cdc.gov/cardiovascular-resources/php/pcmh-model/index.html
2. J Cavanaugh, et al. Patient Centered Medical Home. American Society of Health-System Pharmacists (ASHP). Published: February 2016. Available at: https://www.ashp.org/-/media/assets/pharmacy-practice/resource-centers/ambulatory-care/patient-centered-medical-home-faq.pdf

PCMH - The Role of Clinical Pharmacists[1,2]

- Provide patient and caregiver education
- Medication counseling and monitoring
- Evaluate effectiveness and safety of therapies
- Identify medication-related problems and evaluate the need for intervention(s)
- Assess a patient's drug-related needs
- Design and implement a pharmaceutical care plan
- Conduct follow-up evaluations
- Lead prevention initiatives, including efforts focused on diabetes, opioid use, and sexually transmitted infections

1. American College of Clinical Pharmacy. *Comprehensive Medication Management in Team-Based Care*. American College of Clinical Pharmacy. Accessed January 30, 2026. https://www.accp.com/docs/positions/misc/CMM%20Brief.pdf
2. Dodd MA, Haines SL, Maack B, et al. ASHP statement on the role of pharmacists in primary care. *Am J Health Syst Pharm.* 2022;79(22):2070-2078. doi:10.1093/ajhp/zxac227. (academic.oup.com)

Goals for Clinical Pharmacist Implementation

- Increase patient access to health care
- Reduce burden on primary care providers
- Improve achievement of Government Performance and Results Act (GRPA) targets
- Reduce patient morbidity and mortality
- Improve patient quality of life and satisfaction

Optimizing Therapeutic Outcomes with Pharmacists[1]

- Pharmacist-managed clinics are associated with improved clinical outcomes and enhanced access to evidence-based care
- Pharmacist-led interventions significantly enhance therapeutic outcomes
- **Endocrine diseases**:
  - Pharmacist-managed diabetes clinics significantly improved diabetes-related parameters, achieved A1c goals more frequently and enhanced nephropathy screening rates
  - Compared to usual care, pharmacist-managed patients were approximately 20% more likely to achieve target A1c goals

1. Thorakkatil S, et al. Improving patient safety and access to healthcare: the role of pharmacist-managed clinics in optimizing therapeutic outcomes. Explor Res Clin Soc Pharm. 2024;16:100527.

Whiteriver Clinical Pharmacy Services

Our pharmacists are fully integrated into all areas of ambulatory practice, including:

- Family Medicine
- Internal Medicine
- Urgent Care
- Dialysis
- Skilled Nursing
- Home Visits
- Preventative Medicine

Pharmacists care for adults and pediatric patients under a broad collaborative practice agreement (CPA).

Whiteriver Clinical Pharmacy Services

The Chronic Disease Therapy Management (CDTM) CPA allows pharmacists to manage **any chronic condition which is treated with medications**, including:

- Endocrinology
- Cardiology
- Nephrology
- Pulmonology
- Neurology
- Rheumatology
- Gastroenterology
- Behavioral health
- Infectious disease
- Substance use disorder
- Preventative medicine

Clinical pharmacists have the opportunity to complete specialized training in physical assessment to address acute conditions.

Whiteriver Clinical Pharmacy Services

Referral Process

- **Eligibility**: patients must have a diagnosis of a condition that requires primarily medication management
- **Who can refer?**
  - Patient
  - Medical provider
  - Pharmacist
  - Diabetes educator
  - Other clinical staff
- **Hours of operation:** Monday-Thursday 8:30 AM to 6:30 PM and Friday 9 AM to 12 PM

Whiteriver Clinical Pharmacy Services - Diabetes Management

Year	2023	2024	2025
# of patients	204	384	313
# of patient encounters	1618	1443	2011
Baseline A1c (%)	9.1	8.9	9.6
End of year A1c (%)	7.6	7.7	8.5

Clinical Pharmacy Outreach Services

- Conduct in-home clinical visits including:
  - Vital sign assessment
  - Medication monitoring and adjustment
- Improve medication adherence
- Administer long-acting injection medications
- Provide vaccinations to adult and pediatric patients
- Complete childhood development screenings such as Ages and Stages Questionnaires (ASQ)
- Schedule primary care and/or PCMH appointments to connect patients back to care

Dialysis Rounds with Clinical Pharmacist

- Conduct rounding at 3 dialysis centers (Whiteriver, Show Low, and Globe) monthly to every 3 months
- Perform medication reconciliation and assess medication adherence
- Provide all patients with a copy of their current medication regimens
- Review laboratory results and update patient records with most recent laboratory data
- Provide medication and therapy recommendations to dialysis center medical staff
- Streamline communication between dialysis center medical staff with primary care providers and clinical care coordinators
- Assist with scheduling patients with their primary care and/or a PCMH pharmacist for appropriate follow-up

Post-Graduate Pharmacy Residency Project

Pharmacist-Led Home Visits to Implement Point-of-Care A1c Testing and Re-Establish Care for Patients Lost to Follow-Up

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This material is the result of work supported with resources and the use of facilities at the Whiteriver Service Unit, located in the Phoenix Area of the Indian Health Service.

The following are the IHS authors located at the Whiteriver Service Unit in Whiteriver, AZ

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Health technicians/Medical assistants: Denise Andreotti-Phillips, HT, Shanielle Clarkson, MA

Original content from WRSU Residency Project 2024-2025

Post-Graduate Pharmacy Residency Project

Inclusion criteria

- Age 30-75 years
- Hgb A1c ≥ 9%
- No A1c or follow-up in at least 12 months
- Participates in one home visit and one POC A1c

Exclusion criteria

- 3 failed attempts to locate on 3 separate days
- Not living within 25 miles of service area
- No baseline A1c by March 2025

Patients meeting inclusion criteria and consenting to care were offered up to 6 home visits over 3-6 months

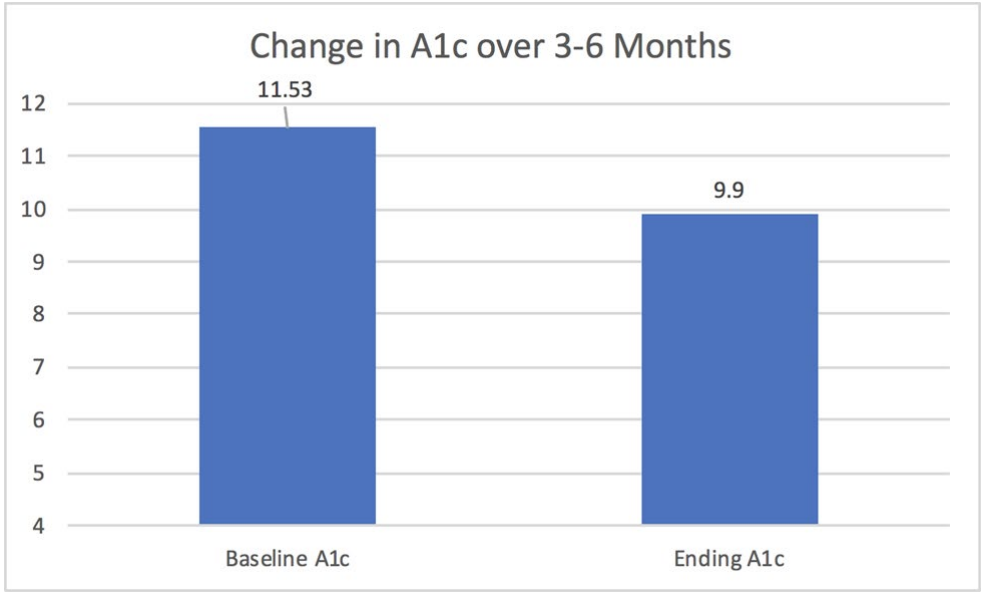
Post-Graduate Pharmacy Residency Project

Results

Of the 143 patients identified in the initial iCARE panel, 15 patients (10.5%) met inclusion criteria and completed the project

Primary endpoint

- Average **initial A1c was 11.53%**
- Patients had a primary care appointment an average of 0.73 times in the previous 6 months
- After completion of the project, the **ending A1c was 9.9%**, and 10/15 (66.6%) of patients had a decrease in A1c ≥ 10%



Post-Graduate Pharmacy Residency Project

Secondary endpoint

- Outreach team contacted patients an average of 4.3 times
- Number of primary care or PCMH pharmacist visits increased to 2.73 appointments in the project period
- 8 patients consented to DM foot exams. In these 8 exams, 4 patients were found to have adverse findings; 3 people had bilateral neuropathy, and one person needed a callus removed by podiatry

Post-Graduate Pharmacy Residency Project

Future Implementation of Point of Care Hemoglobin A1c Screening

- Home clinic visits
- Outreach events (i.e., local health fairs and mass vaccination events)

Obesity

Definition: a neurohormonal metabolic disease that is chronic and heterogeneous with multiple causes and can increase the risk of:[1,2]

- Hypertension
- **Type 2 diabetes**
- Coronary heart disease
- Stroke
- Certain cancers

1. Emmerich S, et al. Obesity and Severe Obesity Prevalence in Adults: United States, August 2021-August 2023. Centers for Disease Control and Prevention (CDC). Updated September 2024. Available at: https://www.cdc.gov/nchs/products/databriefs/db508.htm.
2. Nadolsky K, et al. American Association of Clinical Endocrinology Consensus Statement: Algorithm for the Evaluation and Treatment of Adults with Obesity/Adiposity-Based Chronic Disease – 2025 Update. Endocrine Practice. 2025;31(11):1351-1394.

Obesity - Statistics

Adults[1]

- During August 2021-August 2023, prevalence of obesity in adults was **40.3%** of women and men with no significant differences between women and men
- Obesity is most prevalent in ages 40-59
- The prevalence of severe obesity (BMI ≥40) in adults was **9.4%** of adults and was higher in women than men for each age group
- From 2013-2014 through Aug 2021 - Aug 2023, the age-adjusted prevalence of obesity did not change significantly, while severe obesity prevalence increased from **7.7% to 9.7%**

1. Emmerich S, et al. Obesity and Severe Obesity Prevalence in Adults: United States, August 2021-August 2023. Centers for Disease Control and Prevention (CDC). Updated September 2024. Available at: https://www.cdc.gov/nchs/products/databriefs/db508.htm.

Obesity - Statistics

Children[1,2]

- **19.7% (14.7 million)** of children and adolescents (ages 2-19 years old) were classified as obese
- The percentage of US children and adolescents affected by obesity has more than tripled from **5% in 1963 to 1965 to 19% in 2017 to 2018**
- Obesity puts children and adolescents at risk for serious short- and long-term adverse health outcomes later in life, including CVD, **T2DM**, and metabolic-associated steatotic liver disease (MASLD)

1. Centers for Disease Control and Prevention. Childhood Obesity Facts. Updated April 2024. Accessed December 30, 2025. https://www.cdc.gov/obesity/childhood-obesity-facts/childhood-obesity-facts.html
2. Hampl SE, Hassink SG, et al. Clinical Practice Guideline for the Evaluation and Treatment of Children and Adolescents With Obesity. *Pediatrics*. 2023;151(2):e2022060640. doi:10.1542/peds.2022-060640

Obesity - Statistics

American Indian/Alaska Native (AI/AN)[1]

Adults

- 40.9% of adults ages 18 and older were obese in 2024
- In 2024, AI/AN adults were 22% more likely to be obese than adults of the total population

Children

- Students in grades 9–12 were 18% more likely to be overweight than their peers in the total population
- 14% of students in grades 9-12 were obese in 2023

1. Obesity and American Indians/Alaska Natives. US Department of Health and Human Services Office of Minority Health. Updated Sep 2025. Accessed December 30, 2025. Available at: https://minorityhealth.hhs.gov/obesity-and-american-indiansalaska-natives

Obesity - Diagnosis and Classification[1]

Body Mass Index (BMI)*

Category	BMI (kg/m^2)
Overweight	25-29.9
Class I Obesity	30-34.9
Class II Obesity	35-39.9
Class III Obesity	≥40

*Clinical interpretation of BMI includes the need to confirm that elevated BMI values represent excess adiposity after considering an individual's age, sex, muscularity, fluid status, sarcopenia, and osteopenia

Weight Circumference

- Women: ≥ 88 cm (≥ 34.5 in)
- Men: ≥ 102 cm (≥ 40 in)

Waist-to-Height Ratio

- Threshold value: ≥ 0.5 is indicative of increased cardiovascular disease risk

1. Nadolsky K, et al. American Association of Clinical Endocrinology consensus statement: algorithm for the evaluation and treatment of adults with obesity/adiposity-based chronic disease—2025 update. Endocr Pract. 2025;31(11):1351-1394.

Obesity Treatment Guidelines: Initiation of Pharmacotherapy

- **American Diabetes Association (ADA)[1]**
  - BMI ≥30 kg/m^2
  - BMI ≥27 kg/m^2 with one or more obesity-associated comorbid conditions (i.e., type 2 diabetes, hypertension, and/or dyslipidemia)

1. American Diabetes Association. Standards of care in diabetes—2026. Diabetes Care. 2026;41(suppl 1):S1-S371.

Obesity Treatment Guidelines: Initiation of Pharmacotherapy

- **American Association of Clinical Endocrinology (AACE)[1]**
  - Assess BMI, body composition (i.e., bioelectrical impedance analysis), waist circumference, and waist-to-height ratio
  - Evaluate for presence and severity of obesity-related diseases and complications (ORCD) and stage the clinical severity of adiposity-based chronic disease (ABCD)
    - Stage 1 - no known cardiometabolic, biomechanical, or other obesity-related conditions and/or does entail risk of future ORCD
    - Stage 2 - 1 mild to moderate ORCD
    - Stage 3 - At least one severe ORCD

1. Nadolsky K, et al. American Association of Clinical Endocrinology consensus statement: algorithm for the evaluation and treatment of adults with obesity/adiposity-based chronic disease—2025 update. Endocr Pract. 2025;31(11):1351-1394.

Obesity Treatment Guidelines: Initiation of Pharmacotherapy[1]

ABCD Stage 1	ABCD Stage 2 or 3	
No obesity-related diseases and complications identified	**Obesity Complications** • OA (knee, hip) • OSA • Obesity hypoventilation syndrome • Lymphedema • Stress urinary incontinence • GERD • Prediabetes and metabolic syndrome • MASLD • Obesity glomerulopathy, CKD • HFpEF • Thromboembolism • Idiopathic intracranial hypertension • Disability limiting activities of daily living	**Obesity-Related Diseases** • T2DM • MASH • HFrEF • Atrial fibrillation • Certain cancers • Cholelithiasis, cholecystitis • Asthma • Depression, anxiety • Internalized weight bias • Stigmatization • Disordered eating • Cognitive decline, dementia • Inflammatory skin diseases • Intertrigo

1. Nadolsky K, et al. American Association of Clinical Endocrinology consensus statement: algorithm for the evaluation and treatment of adults with obesity/adiposity-based chronic disease—2025 update. Endocr Pract. 2025;31(11):1351-1394.

Weight Loss Program

Established in February 2023

A patient-centered, multidisciplinary approach to help the patient achieve healthy weight loss. As part of the program patients are managed by PCMH pharmacists who may initiate and/or titrate weight loss medications.

PCMH pharmacists may also refer patients to:

- Nutrition
- Physical Therapy
- Behavioral Health

Weight Loss Program

- Time frame: 18 months from April 2025
- Number of visits: 6 or more
- Number of patients: 72
  - Lost weight (at least 5%): 43
    - 10-14%: 17
    - 15-19%: 4
    - +20%: 8
  - No change: 25
  - Gained weight (at least 5%): 4
- Average baseline A1c: 6.3
- A1c at end of time frame: 5.9

Overview

- Clinical pharmacists are implemented into the PCMH model to increase patient access to health care
- A collaborative practice agreement allows clinical pharmacists to manage any chronic condition that is treated with medications
- The pharmacy outreach team conducts home visits for patients who have transportation difficulty and those who need close follow-up that can be completed at home
- Clinical pharmacists collaborate with diabetes educators, dietitians, and physical therapy to optimize multi-disciplinary services and support patients in achieving their goals
- Modest and sustained weight loss can improve blood sugar, blood pressure, and cholesterol

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- American Diabetes Association. Statistics About Diabetes. Updated November 2023. Accessed December 30, 2025. https://diabetes.org/about-diabetes/statistics/about-diabetes
- D J, et al. Prevalence of Diagnosed Type 1 and Type 2 Diabetes Among American Indian and Alaska Native Peoples in 2012–2013. *Diabetes Care*. 2024;47:e1-e3.
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- Centers for Disease Control and Prevention. Childhood Obesity Facts. Updated April 2024. Accessed December 30, 2025. https://www.cdc.gov/obesity/childhood-obesity-facts/childhood-obesity-facts.html
- Hampl SE, Hassink SG, et al. Clinical Practice Guideline for the Evaluation and Treatment of Children and Adolescents With Obesity. *Pediatrics*. 2023;151(2):e2022060640. doi:10.1542/peds.2022-060640
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Questions?

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