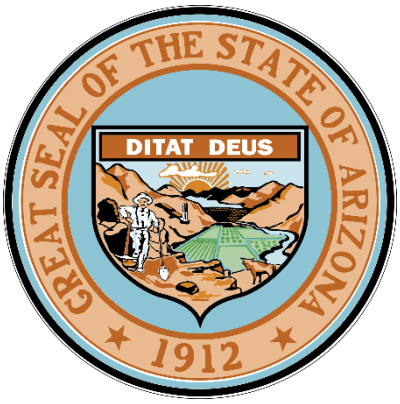
ARIZONA
DEPARTMENT OF
HEALTH SERVICES

Diabetes Action Plan & Report

January 1, 2025

Report to the Legislature of the State of Arizona in response to the Fifty-Third Legislature, Second Regular Session, 2018: House Bill 2258. This is a collaborative report from the Arizona State Department of Health Services, the Arizona State Department of Administration, Arizona Health Care Cost Containment System, Arizona State Retirement System, Public Safety Personnel Retirement System, Arizona Diabetes Coalition and Leadership Council and Arizona Diabetes Stakeholders.

~Health and Wellness for all Arizonans~



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Acknowledgements / Contributors

As Arizonans and diabetes stakeholders, action on the recommendations provided in this report will help reduce the burden of diabetes on all Arizonans by improving the lives of those affected by this devastating disease.

ADHS would like to extend its most sincere gratitude to each of the collaborators and stakeholders who aided in the production of this report, your assistance is invaluable in this project. Thank you for the dedication and continued collaboration as we work towards reducing the burden of diabetes on the diverse communities of Arizona.

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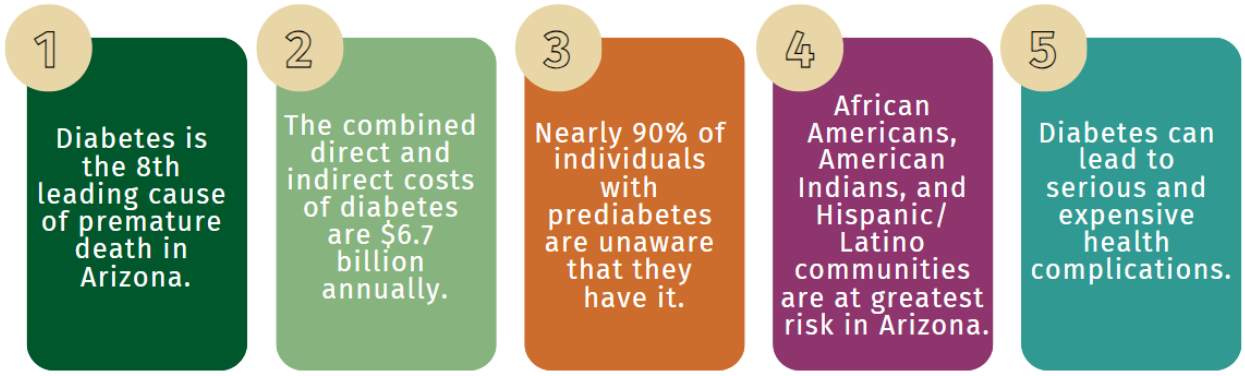
EXECUTIVE SUMMARY

The Arizona Department of Health Services (ADHS) is pleased to release the fourth Arizona Diabetes Action Plan and Report (DAP)--a comprehensive report highlighting statewide initiatives and the burden of diabetes on Arizonans. The 2025 DAP is the product of ADHS' collaboration with the Arizona Health Care Cost Containment System (AHCCCS), the Arizona State Retirement System (ASRS), the Arizona Department of Administration (ADOA) Benefits Division, the American Diabetes Association, and the Arizona Diabetes Leadership Council and Coalition.



Diabetes is now the eighth leading cause of premature death in Arizona and greatly contributes to early disability.[1] Diabetes affects various parts of the body and the different communities of Arizona. As this relentless disease affects many Arizonans, the African American, American Indian, and Hispanic/Latino communities are at the greatest risk in Arizona. Greater insulin resistance, decreased insulin secretion, and an increased rate of obesity typically affect these communities.[2] While genetics play a role in the higher risk reported in these communities, socio-economic disparities equally compound the problem. Historically the lack of access to healthy foods, places to exercise and play, and the ability to receive adequate medical and preventive care all multiply the risk for worse health outcomes in these communities.[2] Improper disease management and inadequate treatment can lead to various serious health complications: heart disease, stroke, kidney disease, blindness, nerve damage, lower leg amputation and death.[3]

Current estimates show that the combined yearly direct and indirect costs of diabetes in Arizona are a staggering $6.7 billion a year.[4] With almost 615,200 adults living with diabetes in Arizona, it is also estimated that another 2 million adults (1 in 3 Arizonans) have prediabetes.[4] As the numbers increase, close to 90% of those with prediabetes are not aware they have it, exacerbating the risk of developing type 2 diabetes.[1] If nothing is done, prediabetes and diabetes rates, as well as healthcare costs, will rise. In an effort to achieve health equity, guided by the Arizona Health Improvement Plan (AzHIP) 2021-2025[5], the State can tackle diabetes directly and indirectly: through preventive measures, supporting adequate care, and addressing the social determinants of health (SDOH).

Since publishing the 2023 Diabetes Action Plan and Report (2023 DAP), there have been successful outcomes and milestones met through statewide efforts guided by the recommended policies and actions contained therein. For example, ADHS and Contexture began developing the Arizona Diabetes Referral Network to increase electronic referrals to prediabetes and diabetes prevention programs and services–which is directly tied to the 2023 DAP's Recommendation Number Four (4). This partnership with Contexture will also serve to increase referrals to services and resources that address multiple SDOH needs–linking health care providers to other service delivery or community organizations. Increasing these community linkages aligns with the 2023 DAP's Recommendation Number Six (6). ADHS considers tribal diabetes support as a top priority and seeks to scale technical assistance and available resources to tribal diabetes programs. Through previous CDC-grant funding and current, ADHS training consultants have provided DSMES site accreditation TA and support as well as National Diabetes Prevention Program (DPP) lifestyle coach training and coaching to sites and organizations that serve tribal communities. ADHS remains committed to sustaining collaborations with tribal diabetes organizations through the Tribal Workgroup of the Arizona Diabetes Coalition (ADC) such as the first-ever ADHS-led Tribal Diabetes Health Equity Summit that occurred in Phoenix in November of 2023. Our statewide partners are committed to supporting Tribes and tribal-serving entities in Arizona, and a tribal-specific recommendation is included that promotes increasing statewide efforts.

In some cases, certain policy recommendations may be very similar and remain unchanged from previous DAP iterations. This may be due to limited progress implementing statewide action or policy changes needed to drive proposed 2023 DAP recommendations. National Diabetes Prevention Program (DPP) payer coverage continues to be a top recommendation in previous DAP iterations. Although AHCCCS provides Diabetes Self-Management Training (DSMT) coverage, not all private health plans offer DSMT as a covered benefit

DIABETES IN ARIZONA

It is estimated that **1 in 3** Arizonans have **prediabetes**

It is estimated that **1 in 10** Arizonans have **diabetes**

American Indian/Alaska Native adults experience diabetes 3x more than the general state population

Individuals with Diabetes Have Higher Risks of:

BLINDNESS | **HEART DISEASE** | **LOSS OF TOES, FEET, OR LEGS**

Americans with diabetes have medical expenses approximately 2.6 times higher than those who do not have diabetes.

In Arizona, there are:

28 Centers for Disease Control & Prevention-Recognized National Diabetes Prevention Programs

and

59 Association of Diabetes Care & Education Specialist/American Diabetes Association-Accredited Diabetes Programs

THE COSTS OF DIABETES IN ARIZONA

$5.1 Direct Medical Costs (doctor visits, medications, supplies, hospital care)

+ **$1.6 Indirect Costs** (absenteeism, lower work productivity, early disability)

$6.7 Billion Dollars in Diabetes-Related Costs

All data references are accurate as of December 2024.

ARIZONA DEPARTMENT OF HEALTH SERVICES

PREDIABETES

WHAT IS PREDIABETES?

Prediabetes is a **serious, but reversible condition** where blood sugars are higher than normal, but not high enough to be diagnosed as diabetes. **Without treatment, prediabetes can lead to diabetes, heart disease, and stroke.**

WHO DOES PREDIABETES IMPACT?

The Centers for Disease Control and Prevention estimates that **1 out of 3 adults** in the United States have prediabetes, or 38% of the adult population. Of those, **90%** are unaware that they have prediabetes. **It is estimated that nearly 1.9 million Arizonans have prediabetes, or 35% of the adult population.**

WHAT CAN BE DONE?

1. Get screened for prediabetes by a medical professional

2. If you have prediabetes, lose weight by eating healthy and being more active, as this can lower your risk of getting type 2 diabetes by **50%**

All data references are accurate as of December 2024.

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TYPE 1 DIABETES

What is Type 1 Diabetes?

Type 1 diabetes occurs **when the body does not make any insulin.** Insulin is a hormone that **converts blood sugar into energy** for the body to use.

There is no known way to prevent type 1 diabetes.

Priority Population

Type 1 diabetes can develop at any age but is **usually diagnosed in children, teenagers, and young adults.** Nationally, **18,000** youth are diagnosed with type 1 diabetes **each year.**

Type 1 diabetes is estimated to account for 5% of all adult diabetes cases.

Treatment

Treatment for type 1 diabetes includes **multiple injections of insulin daily.** Insulin can be delivered by a manual injection or a pump.

COMPLICATIONS

Untreated hypoglycemia (low blood sugar) can lead to **seizures, loss of consciousness, and in severe cases, death.**

Hyperglycemia (very high blood sugar) can lead to **trouble seeing, confusion, drowsiness, and comas.**

All data references are accurate as of December 2024.

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TYPE 2 DIABETES

What is Type 2 Diabetes?

Type 2 diabetes occurs **when the body can make insulin but cannot use the insulin properly.** Insulin is a hormone that **converts blood sugar into energy** for the body.

Type 2 diabetes can develop at any age and in most cases is preventable.

How Many Arizonans Have Diabetes?

An estimated **95%** of all diabetes cases in the state are type 2 diabetes. This amounts to almost **600,000 people** in Arizona.

There are almost as many people living with type 2 diabetes as there are people living within the city limits of Tucson and Flagstaff combined.

Risk Factors

Risk factors for diabetes that *can* be changed:

- Being overweight
- Not being physically active

Risk factors for diabetes that *cannot* be changed:

- Being 45 years or older
- Having a family history of diabetes

COMPLICATIONS

Diabetes is the **leading cause** of blindness in adults. People living with diabetes are **2** times more likely to have a stroke and **2 to 3** times more likely to have depression.

All data references are accurate as of December 2024.

ARIZONA DEPARTMENT OF HEALTH SERVICES

GESTATIONAL DIABETES

WHAT IS GESTATIONAL DIABETES?

Gestational diabetes is when a pregnant woman, whom has never had diabetes before, has high blood sugar during pregnancy.

PRIORITY POPULATION

- In Arizona, 11.5% of women giving birth received a diagnosis of gestational diabetes
- About 50% of women with gestational diabetes go on to develop type 2 diabetes

RISKS TO THE MOTHER & CHILD

Blood sugar management supports a healthy pregnancy. Women with gestational diabetes may be at **increased risk of late-term pregnancy loss and preterm labor.**

Women are **20-50% more likely** to develop type 2 diabetes within 10 years of having gestational diabetes. Babies born to mothers with gestational diabetes have a **higher risk** of:

- **Being born at 9 pounds or more**, which can make delivery more difficult
- **Being born early**, which can cause breathing and other problems
- **Having low blood sugar**
- **Developing type 2 diabetes later in life**

All data references are accurate as of December 2024.

ARIZONA DEPARTMENT OF HEALTH SERVICES

2025 RECOMMENDED POLICIES AND ACTIONS

The following recommendations were identified in combination by the Arizona Department of Health Services (ADHS) Diabetes Program; the Diabetes Action Plan and Report (DAP) Team; and the DAP Data Workgroup of the Arizona Diabetes Coalition. The participating individuals and organizations formally met and gathered consensus throughout the year-long process. The process involves using several data sources that combine surveys, community working sessions, subject matter expert recommendations, lived experiences, and community testimonials to develop meaningful policies and actions to improve diabetes health outcomes.

The ADHS Diabetes Program led this effort by coordinating with stakeholders, identifying and compiling data, and finalizing the report. The DAP Report Team is comprised of designated representatives of state agencies and a non-profit agency that are legislatively mandated to submit diabetes-related data and participate in the development of the biennial report: the Arizona Health Care Cost Containment System (AHCCCS), the Arizona State Retirement System (ASRS), the Arizona Public Safety Personnel Retirement System (PSPRS), the Arizona Department of Administration (ADOA), and the American Diabetes Association (ADA). The DAP Workgroup of the Arizona Diabetes Coalition is an ad-hoc workgroup that convenes every two years in concurrent alignment with the DAP which provides community members access to the DAP process through workgroup member discussions and narrative submissions; and offer grassroots-level insights that may not be reflected in the current data sources.

The 2025 Diabetes Action Plan and Report identified policy and action recommendations and are considered to be the most impactful directives in addressing the burden of diabetes in Arizona. The recommendations presented in this DAP may be directly related to or may build upon successful recommendations brought forth in the three previous biennial reports: 2019, 2021 and 2023 respectively.

1 Expand AHCCCS Coverage to Include the National Diabetes Prevention Program (National DPP) (Recommendation carried over from the DAP 2023).

Rationale: The National Diabetes Prevention Program (National DPP) is an evidence-based initiative led by the CDC, aimed at preventing or delaying type 2 diabetes in high-risk individuals through building and maintaining healthy lifestyle habits.[6] With over 1 in 3 adults in Arizona estimated to be at risk for type 2 diabetes due to prediabetes—a condition where blood glucose levels are higher than normal but not yet in the diabetic range—the program targets a significant health challenge.

The costs associated with managing diabetes are staggering, often burdening low-income populations. For example, **the total diabetes-related hospitalization and emergency department discharge costs in Arizona in 2023 exceeded $1.35 billion (Table 8).** Diabetes medications, such as insulin, can cost over $1,000 per month, making prevention programs not only medically necessary but also **cost-effective.**[7] Arizona's Medicaid program, AHCCCS, currently serves nearly 2.1 million residents providing much-needed health care coverage.[8] AHCCCS plays a vital role in supporting low-income populations, who benefit from its coverage and resources, particularly as they face higher rates of type 2 diabetes.[2] As health care costs and spending related to diabetes rise every year, current estimates now show that individuals living with diabetes, on average, have medical expenditures 2.6 times higher than would be expected without diagnosed diabetes.[9] Expanding access to the National DPP for Medicaid beneficiaries could delay or prevent type 2 diabetes, heart disease, and stroke in prediabetic patients, saving the state millions in future healthcare costs.

Education, legislative action, and the Governor's approval are precursors for AHCCCS to expand covered benefits, such as the National Diabetes Prevention Program (National DPP), to its 2.1 million members. In limited circumstances, AHCCCS can build a covered program into its annual budget request. Proposed legislation is sponsored and lobbied by individual legislators, organizations, or citizens, not state agencies. Under the guided leadership of a nationally recognized diabetes organization and the Arizona Diabetes Coalition a consensus can be built for coverage of the National DPP. The two, while fostering collaboration with ADHS for strategic alignment, can work to identify key legislative champions, educate policymakers, and propose legislation. An initial proposal could request a legislative appropriation for coverage of an expanded pilot program for all AHCCCS MCOs -a time-limited program, or an ongoing coverage mandate – like the AHCCCS coverage of Diabetes Self-Management Training. These actionable steps may recur over several years while the collaborative spends time and effort educating policymakers, building consensus, and making the case for coverage. When pursuing legislation, patient advocacy organizations and community partners frequently find allied support from public health organizations, pharmacists, physicians, nurses, and other professional health related associations and individuals. These collaborative groups would present a compelling narrative and data-informed case for coverage.

Other data for the ongoing case for AHCCCS National DPP coverage was generated through the ADHS-led Medicaid Beneficiary Enrollment Pilot Project (2023-2024) which involved an MCO piloting coverage of the National DPP for up to 50 beneficiaries by contracting directly with a CDC-recognized National DPP organization. The pilot was designed to create a proof of concept for National DPP coverage that served to develop and formalize referral processes, create reimbursement metrics, while also establishing the required data flow required for submitting claims information.

At least **29 states have already added the National DPP as a covered benefit for Medicaid beneficiaries**, structuring their programs in ways that best meet the needs of their populations.[10] These programs offer valuable models for Arizona to follow, incorporating flexible delivery modalities such as online and in-person formats, as well as various reimbursement and provider structures.

Additionally, the National DPP is uniquely positioned to address social determinants of health (SDOH) by teaching life skills and tailoring the program to the specific needs of participants. Social determinants of health are the conditions in which a person is born, grows, lives, works and ages. In diabetes, understanding and mitigating the impact of SDOH are priorities due to disease prevalence, economic costs, and disproportionate population burden.[11] This is especially important for racial and ethnic minority groups, and lower-income populations who have historically faced higher rates of diabetes-related illness and death. **Studies have shown that the National DPP's lifestyle change program not only helps prevent type 2 diabetes but also generates cost savings, with one study estimating a savings of about $2,600 per participant.[10]**

2 Encourage non-AHCCCS payers to provide 10 hours of Diabetes Self-Management Education (DSME), annually, as a covered service benefit.

Rationale: In June 2022, Governor Ducey signed House Bill (HB) 2083 into law which requires AHCCCS to cover up to 10 hours per year of diabetes self-management education (DSME), as diabetes outpatient self-management training (DSMT), services (or benefits) for enrollees.[12] AHCCCS set aside $2.1 million dollars over 4 years to support reimbursement of accredited DSMT services. DSMT can be covered if prescribed by a primary care practitioner, and includes personalized nutrition counseling, medication, testing education, and more. Additionally, Medicare covers up to 10 hours of initial DMST for individuals enrolled in the option Medicare Part B insurance plan.[13]

With this coverage, people with diabetes would have more access to accredited DSME programming, and with proper education and support–individuals with diabetes would have better blood sugar control; prevent expensive diabetes complications and avoid hospital admissions and readmissions. This recommendation continues to inform the actions of members of the diabetes community to support legislation for this coverage. To ensure that Arizonans not covered by AHCCCS or Medicare Part B receive this similar benefit, this coverage must be extended to all Arizona payers. This recommendation will expand services for Arizona residents that are non- AHCCCS and/or Medicare Part B beneficiaries. Other payers can learn from what worked for AHCCCS thereby expanding access to diabetes management services.

3 Encourage coverage for pharmacist-provided services for those with diabetes under AHCCCS.

Rationale: Despite the demonstrated benefit of diabetes care by pharmacists and the unmet need in critical areas of the State, pharmacists are unable to sustain services to care for those with diabetes due to lack of payment under AHCCCS and most commercial insurance carriers in Arizona. This lack of payment makes for an unsustainable business model for pharmacists that are providing these services and impacts future pharmacists from providing these services.

Access to care for diabetes is a critical issue for Arizonans, especially for those in areas with limited access to a provider. In such communities, pharmacists are often the most accessible healthcare provider. Pharmacists in a variety of settings participate in care as a member of the healthcare team, working along-side and/or in coordination with primary care providers and specialists to ensure continuity of care. Additionally, the scope of practice for pharmacists in Arizona includes management of chronic conditions and Arizona State Board of Pharmacy statutes allow for pharmacists to enter into collaborative practice agreements "to initiate, monitor and modify drug therapy or provide disease management assistance".[14] **In September of 2024, the Chief Pharmacy Officer of the United States Public Health Service released a public statement supporting the role of pharmacists to address health disparities across a wide range of acute and chronic conditions including diabetes.[15]**

It is well established that pharmacists can impact diabetes outcomes, specifically A1c reduction, reducing time needed to reach an A1c goal, number of daily insulin injections, daily units of insulin injected, reduction in fluctuation of blood glucose, and hypoglycemia reduction. Pharmacist interventions have also been shown to increase screenings for diabetes related complications.[16]

While pharmacists are qualified to provide clinical care to those with diabetes, many with post-graduate education and the patient outcomes demonstrated above, **a key barrier to leveraging pharmacists as a resource to improve the state of diabetes in communities has been payment for services.** Diabetes Self-Management Education and Support (DSMES) and the National DPP are covered services under Medicare, and DSMES is a covered service under AHCCCS. However, there remains a large percentage of the population with diabetes that do not qualify for those benefits but still require access to appropriate diabetes care.

Recognizing the benefit and tremendous need, in September 2023 Blue Cross Blue Shield of Arizona included pharmacists in the list of eligible providers to contract and be paid for any service in the pharmacist's scope of practice.[17] **State Medicaid offices across the country have**

also recognized the valuable role that pharmacists play, paying for pharmacist-provided services in at least 35 states.[16]

CDC also recognizes the tremendous benefit of pharmacists in the care of people with diabetes, with consistent funding opportunities related to pharmacy engagement in Diabetes Self-Management Education and Support (DSMES) and the Diabetes Prevention Program (DPP) and Medication Therapy Management (MTM) for over a decade. Under the current CDC-RFA-DP-23-0020 cooperative agreement, the Arizona Department of Health has embraced this through multiple strategies engaging pharmacies and pharmacists in the care of Arizonans living with diabetes.

4 Encourage AHCCCS, Managed Care Organizations (MCOs), Accountable Care Organizations (ACOs), and private insurers to emphasize and focus on prediabetes and diabetes in their organizational priorities, projects, and policies.

Rationale: Medicare, Medicaid, state employee benefit plans, commercial health plans, MCOs, ACO, and employers should prioritize prediabetes and diabetes in establishing organizational priorities, projects, or policies that can benefit all their respective constituents. These payor groups may have many individuals with prediabetes or diabetes within their patient populations, so it is imperative to establish consistent and coordinated diabetes priorities and metrics that consider the experiences and expertise of community organizations that directly serve and understand the diverse populations that reside within their respective service areas or populations. Medicare, Medicaid, state employee benefit plans, commercial health plans, MCOs, ACO, and employers can engage groups like the Arizona Diabetes Leadership Council and Coalition (ADC) and the Diabetes Program at ADHS to potentially work in tandem towards larger state or national goals, initiatives, or objectives related to addressing health equity. Coverage of the National Diabetes Prevention Program by payor groups is a long-term goal for the diabetes organizations that work with the ADHS Diabetes Program, as well as the member organizations of the ADC.

5 Continue to expand diabetes prevention and control activities in Arizona's rural and urban tribal communities that include capacity building, technical assistance, and community engagement.

Rationale: In 2022, the American Indian/ Alaska Native (AI/AN) population in Arizona had a high prevalence of diabetes, 16.6% respectively, as compared to Arizona's overall prevalence (12.9%) (Table 11). The AI/AN population continues to see health disparities, even after seeing a drop in prevalence from 2018 to 2020. ADHS and statewide partners can support initiatives that address the factors that affect tribal health disparities. Historically, tribal communities have seen increased levels of obesity, lack of healthy foods, and communication disparities due to a lack of internet connectivity.[2,18] Community and tribal organizations can collaborate

on initiatives that address these challenges; remove the barriers to diabetes prevention support; and provide resources to maximize individual and population health outcomes. These activities will serve as early prediabetes interventions that will potentially have a massive impact on diabetes rates in Arizona's rural and urban tribal communities.

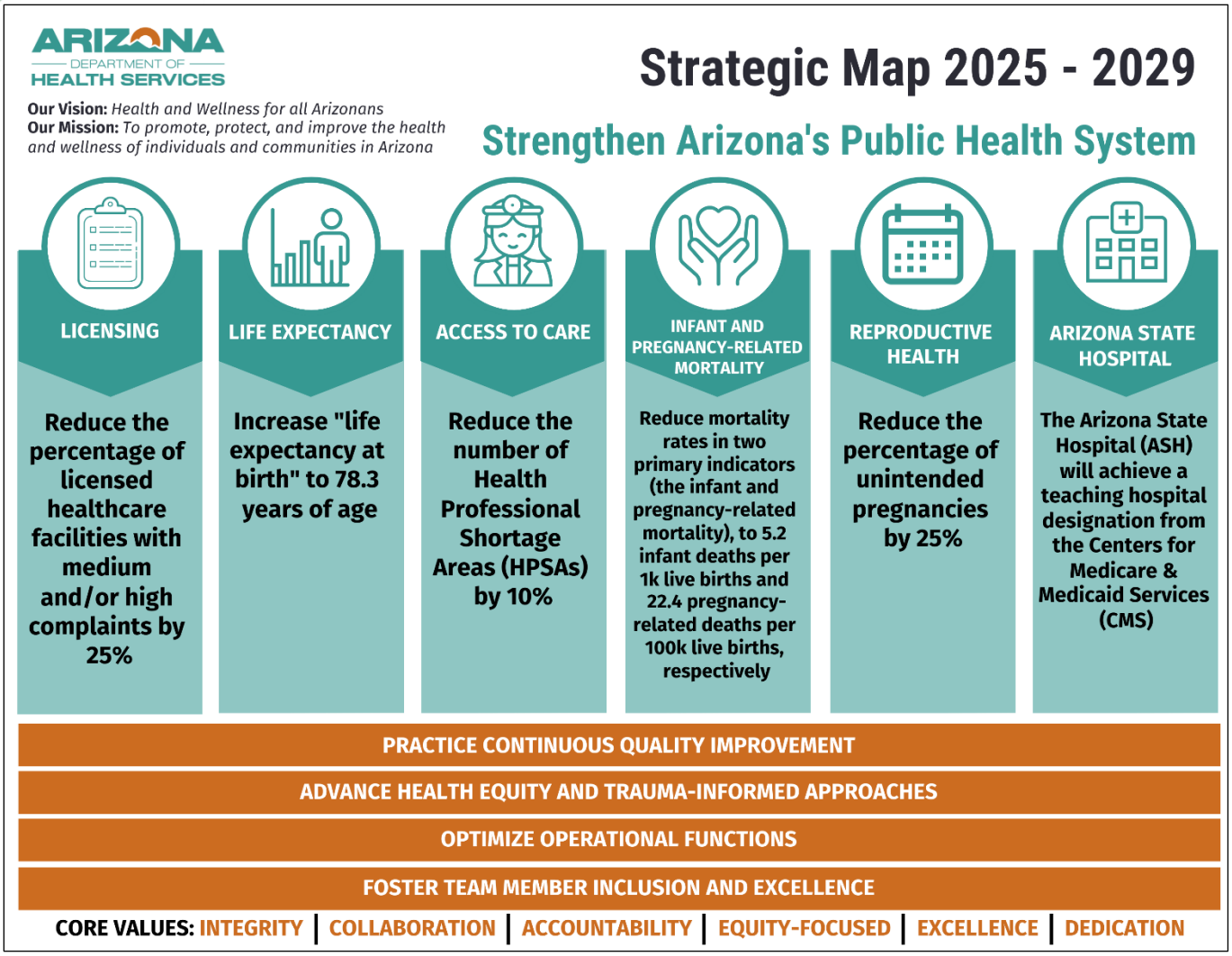
STRATEGIES, SERVICES, AND PROGRAMS ADDRESSING DIABETES IN ARIZONA

The Arizona State Legislation mandated the Arizona Department of Health Services (ADHS), the Arizona Department of Administration (ADOA), Arizona Health Care Cost Containment System (AHCCCS), Arizona State Retirement System (ASRS), Arizona Public Safety Personnel Retirement System (PSPRS), the Arizona Diabetes Coalition and Leadership Council and Arizona Diabetes Stakeholders to provide action plans for how each agency addresses the burden of diabetes in Arizona. The following presents various state agencies and organizations' diabetes initiatives that are currently implemented to serve the people of Arizona.

Arizona Department of Health Services (ADHS)

The Arizona Department of Health Services uses a multi-prong approach to address several behavioral and physical risk factors for its Diabetes Program. The ADHS Division of Public Health Prevention Services houses the Bureau of Chronic Disease & Health Promotion. The Bureau comprises several offices, one of which is the Office of Chronic Disease and Population Health (OCDPH) under which the Diabetes Program sits. The Diabetes Program collaborates with other programs in the OCDPH to promote inclusion of diabetes prevention and management programming to address comorbidities, including cardiovascular disease, cancer prevention, community health worker, worksite wellness, and healthy aging. ADHS works in areas involving school health, access to nutritious foods, physical activity, community design, community and clinical linkages, and utilization of a non-physician workforce to reach rural and disparate communities.

The Arizona Department of Health Services' Diabetes Action Plan and Report strategies align with the ADHS' 2025-2029 Strategic Plan and the 2021 - 2025 Arizona Health Improvement Plan (AzHIP) and focuses on the entire public health system at the state, county and community level. ADHS' AzHIP identified five (5) public health priorities that would impact the health and quality of life for a significant number of Arizonans. The AzHIP identifies strategic issues and desired health outcomes to be achieved in a coordinated effort with statewide partners, striving for measurable success over a five-year period, beginning in 2021 and ending in 2025. ADHS will begin planning for the 2026-2030 AzHIP in early 2025.



Arizona Health Improvement Plan (AzHIP)

In 2021, the second edition of the AzHIP 2021-2025 was released. A major difference between the 2016-2020 AzHIP to the current edition was the number of health priorities – thirteen (13) versus five (5) priorities, respectively. The 2021-2025 AzHIP marked a shift in moving from a disease-specific focus to an upstream approach in addressing the critical health needs of the state. The AzHIP 2021-2025 focuses on the implementation of the five (5) health priorities. ADHS shares progress with partners on a regular basis. The 2021 - 2025 AzHIP health priorities are: Health Equity, Health in All Policies / Social Determinants of Health, Mental Well-being, Rural & Urban Underserved Health, and Pandemic Recovery & Resiliency.

General Funding Information

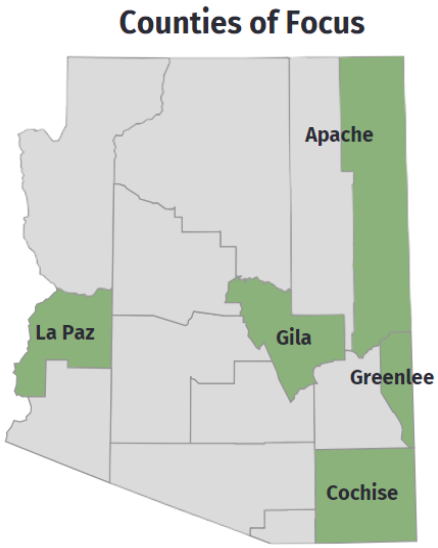
Arizona Department of Health Services receives cooperative agreement funds from the Centers for Disease Control and Prevention (CDC) which are used to support state-level diabetes personnel, operating costs, epidemiological and evaluation efforts, diabetes coalition efforts, and special projects related to the prevention and management of diabetes within the State of Arizona. In Federal Fiscal Year (FY) 2023, ADHS was funded by CDC under the CDC 1815 grant; and starting in FY2024 ADHS was funded by CDC under the CDC 2320 grant.

CDC 1815 Grant – Diabetes (FY 2018-2023)

During 2018 - 2023, the CDC 1815 grant funded the areas of diabetes, heart disease, and stroke, and provided the resources for the necessary activities to develop and support the implementation of the National Diabetes Prevention Program (National DPP) in Arizona. Support for the National DPP included efforts to increase the number of accredited prevention or self-management programs; expand referral capacity and referral systems to programs in Arizona; and necessary technical assistance and training to statewide partners. ADHS grantees were selected from across Arizona to maximize the reach and include high-risk groups in disparate geographic locations. Many direct service organizations are well-established among rural, underserved, and vulnerable populations, including border, refugee, and tribal communities. ADHS grantees supported under the 1815 grant included, media/marketing, Federally Qualified Health Centers (FQHCs)/Look Alikes, county health departments, universities, and professional consultants.

CDC 2103 Grant – Diabetes (FY 2021-2024)

The Office of Chronic Disease and Population Health – Diabetes Program received funding to convene a gathering of rural and urban tribal partners that are reaching underserved populations across the state; the most important counties are those with either no (or very few) CDC-recognized diabetes prevention or accredited self-management programs: Apache, Gila, Cochise, La Paz, and Greenlee. The 2023 Tribal Diabetes Health Equity Summit focused on addressing COVID-related barriers and successes in diabetes prevention and management within Arizona's high-risk communities. The summit offered a secondary feature as a workforce capacity building tool to subsequently award DSMES training and National DPP Lifestyle Change Coach training scholarships to individuals and organizations reaching target populations. The project was executed in collaboration with the members of the Arizona Diabetes Leadership Council (ADLC) and the Health Equity and Tribal Workgroups of the Arizona Diabetes Coalition (ADC). Additional information regarding the summit is contained within the ADHS-Led Initiatives: Evidence-Based Programs, Projects and Best Practices section below.



CDC 2320 Grant – Diabetes (FY2024-2028)

ADHS coordinates a collaborative and community-driven approach to achieve outcomes for the CDC 2320 grant: A Strategic Approach to Advancing Health Equity for Priority Populations with or at Risk for Diabetes CDC-RFA-DP-23-0020. Currently, the ADHS Diabetes Program delivers diabetes prevention and management support across the state through various community-based contractors. The federal funding supports work under the following strategies over a five-year grant period (2023-2028).

ADHS' Selected Strategies for CDC 2320 Grant

Strategy 1: Strengthen self-care practices by improving access, appropriateness, and feasibility of diabetes self-management education and support (DSMES) services for priority populations.

Strategy 5: Increase enrollment and retention of priority populations in the National Diabetes Prevention Program (National DPP) lifestyle intervention and the MDPP by improving access, appropriateness, and feasibility of the programs.

Strategy 7: Improve sustainability of CDC-recognized National DPP delivery organizations serving priority populations by establishing or expanding National DPP Umbrella Hub Arrangements.

Strategy 9: Increase and sustain DSMES and National DPP delivery sites within pharmacy networks and chain pharmacies to improve reach to priority populations.

Strategy 10: Support the development of multi-directional e-referral systems that support electronic exchange of information between health care and CBOs, including:

- CDC-recognized organizations offering the National DPP lifestyle intervention *and/or*
- ADA-recognized/ADCES-accredited DSMES services and/or diabetes support programs or services in the community *and*
- Community programs/services that address SDOH or meet social needs

Strategy 12: Improve the sustainability of Community Health Workers (CHWs) by building or strengthening a supportive infrastructure to expand their involvement in evidence-based diabetes prevention and management programs and services.

ADHS seeks to sustain accredited DSME and CDC-recognized National DPPs by creating an Umbrella Hub Arrangement (UHA); and a formalized Arizona Diabetes Referral Network (Referral Network). Establishing these systems will create the referral and billing infrastructure that will increase participant enrollment in accredited and recognized programming and supplemental services. The created UHA and Referral Network will help health care organizations to augment their diabetes and prediabetes program.

ADHS will manage collaborative agreements to produce the following outcomes during the five-year period:

1. Decrease the proportion of people with diabetes A1C >9%
2. Increase the number of organizations implementing evidence-based community behavioral change programs
3. Increase participation in evidence-based community behavioral change programs
4. Increase the number of program completers (total # and # from priority populations) served by CDC-recognized National DPP delivery organizations who reduce their risk for type 2 diabetes
5. Increase multi-directional communication between clinical and community resources
6. Increase the number of patients screened and referred to community resources (i.e., health/mental health resources)

ADHS grantees were selected across Arizona to maximize the program reach to groups at higher risk for diabetes and in disparate geographic locations. Many direct service organizations are well-established, and serve rural, underserved, and vulnerable populations, including border, refugee, and tribal communities. ADHS grantees supported under the 2320 grant included universities, community-based organizations, county health departments, Federally Qualified Health Centers (FQHCs)/ Look Alikes, and the statewide Health Information Exchange.

ADHS-Led Initiatives: Evidence-Based Programs, Projects, and Best Practices

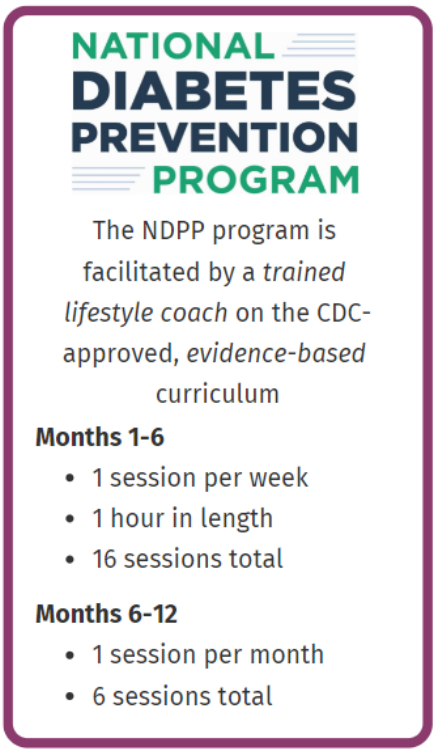
Diabetes Self-Management Education and Support (DSMES)

Diabetes Self-Management Education and Support (DSMES) is the foundation of care for people with diabetes. DSMES is a well-defined process that educates a person with diabetes on how to manage their diabetes by teaching self-care behaviors including medication management, being active and inclusion of healthy foods.[19] DSMES also help people make informed decisions regarding their care, problem solving and healthy coping strategies. DSMES have been shown to be a cost-effective approach to reducing hospitalizations and diabetes related health care costs and is considered a key component to patient-centered care. Three national organizations (American Diabetes Association, Association of Diabetes Care and Education Specialists and Self-Management Resource Center) use evidence-based practices and curriculum, and accredit or recognize diabetes education programs to ensure that they are following national standards on diabetes self-management training.[19] Nationally accredited and recognized programs are eligible for insurance reimbursement with a physician referral if a State has Medicaid coverage or if the accredited program is a Medicare supplier. In Arizona, accredited DSMES programs can submit claims for

reimbursement to AHCCCS. If an accredited DSMES program is a Medicare supplier, that program can submit claims for reimbursement to Medicare. Despite reimbursement opportunities, it is widely known that DSMES is an underutilized program both nationally and in Arizona. In addition to accredited programs such as DSME, many community-based organizations offer non-accredited diabetes education classes that focus efforts on healthy eating.

National Diabetes Prevention Program (National DPP)

The National Diabetes Prevention Program (National DPP) was launched by the Centers for Disease Control and Prevention (CDC) in 2012 after results of a three (3)-year research study and several translational studies concluded that research participants greatly reduced their overall risks of developing type 2 diabetes.[10] The study results were consistent across gender, race and socioeconomic status. Differences noted across age included a fifty-eight percent (58%) diabetes risk reduction in adults between 18-59 years old whereas participants over the age of 60 showed greater risk reduction - 71%. The results of the National DPP research study suggested that millions of people in the United States with prediabetes can lower their risk of developing type 2 diabetes by losing a modest amount of weight through decreased fat and calorie intake and by engaging in moderate intensity physical activity at least 150 minutes each week. The National DPP was determined by the Department of Health and Human Services Office of the Actuary to reduce healthcare costs without reducing the quality of care and thus was certified in 2016 and recertified in 2017.[10]



The National DPP is a year-long structured program delivered in two distinct phases: sixteen (16) weekly 1-hour sessions in the first six (6) months followed by a second six (6) month phase where participants meet at least once per month or six (6) times for the remainder of the program.[10] The program is facilitated by a trained lifestyle change coach on the CDC-approved evidence-based curriculum. During the sessions, participants interact with fellow participants and the lifestyle coach, while focusing on behavior modification, managing stress and peer support.

The National DPP is a national partnership of public and private organizations working together to build an infrastructure for nationwide delivery and sustainability of the National DPP. Over 1300 organizations have registered with the CDC to deliver the National DPP in

community-based organizations, work sites, healthcare facilities and places of worship. National DPP delivery sites that have achieved Preliminary, Full, and Full Plus are eligible for private insurance and Medicare reimbursement and can be utilized without a physician referral or copay. As of printing of this report, there are twenty-seven (27) CDC-recognized National DPPs throughout Arizona.[20]

Tribal Diabetes Health Equity Summit

The 2023 Tribal Diabetes Health Equity Summit was held in November 2023. The summit featured breakout sessions and relevant topics addressing the impact that COVID-19 had on diabetes prevention and management within the Tribal, Spanish-speaking, and African American communities. Discussions took place surrounding best practices and strategies for ensuring quality diabetes care and prevention services for all high-risk communities. In addition to opportunities for Tribal and Spanish-speaking networking across Arizona to share resources among providers, agencies, members and stakeholders. The audience for the summit included federally qualified health centers (FQHCs), Tribal diabetes programs, Tribal health systems, Spanish National DPPs, accredited and non- accredited DSME programs, diabetes management support staff, payers, clinicians, and community health workers involved in diabetes prevention education. Planning for the 2025 Tribal Diabetes Health Equity Summit will begin in January 2025.

Arizona Diabetes Coalition- Tribal Workgroup

ADHS collaborates with the Tribal Workgroup of the Arizona Diabetes Coalition. The Tribal Workgroup continually assesses the diabetes program-related support needs of Arizona's Tribal health programs; and updates the workgroup's charter to align with the Coalition's current priorities, projects, and goals. A diverse and active Tribal Workgroup provides advice to the State regarding diabetes support and resources.

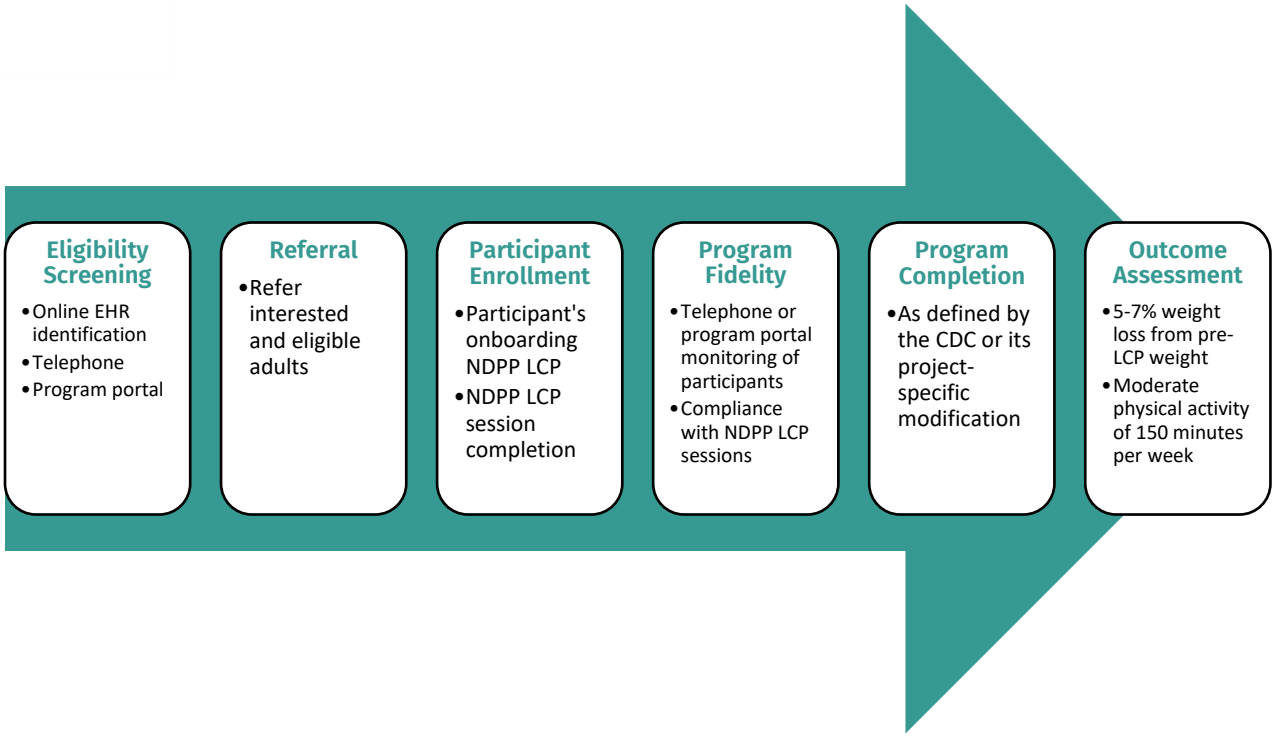
Family Diabetes Prevention Program (FDPP)

Type 2 diabetes tends to run in families, and although research has established that type 2 diabetes can be prevented or delayed in high-risk adults, many high-risk families in Arizona do not have access to diabetes prevention services. To address this gap, this NIH-funded research study is testing whether a family-based diabetes prevention intervention can reduce risk factors for type 2 diabetes among high-risk Latino families. The study is a collaboration between Arizona Department of Health Services, Arizona State University, St. Vincent de Paul Medical and Dental Clinic, and the Valley of the Sun YMCA. In addition to testing the family-based intervention, the team will build relationships with community agencies across the State of Arizona in order to build capacity for delivering family-based diabetes prevention services. The project acknowledges the importance of partnerships across various sectors to meet the needs of high-risk populations. The long-term goal is to

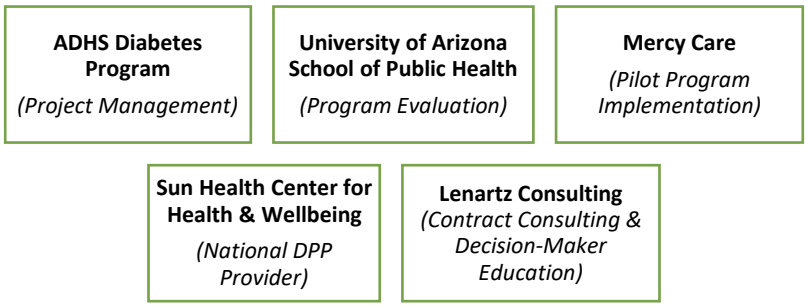
establish the data, relationships, and infrastructure that will support evidence-based health promotion and diabetes prevention programs for high-risk families across the state. ADHS continues to be a partner in promoting program messaging, providing linkages between researchers and community partners, and disseminating program results.

National Association of Chronic Disease Directors (NACDD) Grant – Medicaid Beneficiary Enrollment Project Pilot (MBEP)

Establishing and sustaining coverage for the National DPP Lifestyle Change Program through Medicaid is a key factor in promoting health equity for vulnerable populations at risk of developing type 2 diabetes. The Medicaid Beneficiary Enrollment Project (MBEP) provides an opportunity for states to receive funding and group-based technical assistance from the Centers for Disease Control and Prevention's (CDC) Division of Diabetes Translation and the National Association of Chronic Disease Directors (NACDD) to increase access to and enrollment in the National DPP for Medicaid beneficiaries. Arizona's Medicaid agency, the Arizona Health Care Cost Containment System (AHCCCS), provides coverage by contracting care and services to managed care organizations (MCOs). The MCOs may have different target populations and coverage of benefits and must adhere to legislative mandates and rules in providing coverage and benefits. For this reason, legislative action is needed for the state's Medicaid agency to expand or add coverage of benefits and services. Expanding National DPP coverage will provide cost-savings to payers, providers, and health systems while improving health outcomes and reducing comorbidities. Piloting this enrollment project will generate the necessary data to show improved health outcomes, the scalability of the efforts, and needed agency/legislative action to build the case for overall Medicaid coverage.



ADHS set out to establish a pilot project with Mercy Care, a MCO, to generate the necessary data to continue to build the state's case for Medicaid coverage of the National DPP. ADHS sought to identify an MCO to enroll 50 eligible participants into a free National DPP to simulate benefit coverage by contracting directly with a CDC-recognized National DPP provider.



ADHS identified Mercy Care, an Arizona MCO. Mercy Care then selected a CDC-recognized National DPP provider, Sun Health. Sun Health and Mercy Care then developed engagement, enrollment, and recruitment processes with the goal to reach fifty (50) Medicaid beneficiaries in one (1) year.

As the pilot program wound down, the last quarter of the project period provided an opportunity to reflect on its implementation, including the processes deployed to achieve its objectives. Program fidelity was ensured by using the same criteria when new members were

enrolled and by ensuring adherence to the DPP program. Mobile phone disconnection, difficulty finding providers, and access to digital devices to join online programs were some of the limitations of the program implementation.

> Participant retention was high for the pilot program, with **76%** of individuals adhering to the program's schedule.

While it might be challenging to determine cost-effectiveness because of the time frame for implementing the program, the program was a good innovation that provided a unique experience and would be feasible to implement in the long term for prediabetic adults. The program's easy deployment also makes it feasible. Sun Health reported thirty-eight (38) participants in their National DPP, and twenty-nine (29) of the participants adhered to the program schedules during the period under review. This resulted in a 76% (29/38) participant retention rate. Despite the short program implementation period, the seventy-six (76%) retention rate and increased awareness of diabetes prevention and healthy lifestyle changes contribute support to the feasibility of scaling this MBEP pilot state-wide for its potential in preventing diabetes disease and its complications. Finding sustainable funding mechanisms remains the most significant, immediate challenge during an ongoing budget deficit cycle that could last three to five years.

Prediabetes Media Campaign - Agents of Change / Mission Possible

In Arizona, one in every three adults has prediabetes and doesn't know it. Arizona residents are underdiagnosed for prediabetes because they are unaware of their risk factors and are not routinely screened for diabetes by their primary care providers. Using CDC 1815 funding, ADHS implemented the Prediabetes Media Campaign involving two separate marketing strategies with similar messaging, call-to-actions, but with different intended targets. The Agents of Change[26] marketing is health care provider-focused, and addresses low rates of screening and referrals to a CDC-recognized National DPP. Virtual toolkits were developed and made available to health care providers that had instructions on how to develop patient referral protocols and processes to CDC-recognized National DPP organizations. Health care providers could download the toolkit and other provider-directed messaging through the Diabetes Program landing page on the ADHS website. The Mission Possible[27] messaging is consumer-driven and expresses the need for awareness; being proactive about asking for screenings; and that prediabetes is reversible. Mission Possible media displayed the urgency and need for Arizonans to be familiar with prediabetes risk factors, signs, and symptoms. The messaging also included actionable steps individuals can take to prevent the onset of diabetes such as taking a diabetes risk test to know one's level of risk. A free, online diabetes risk test (through doihaveprediabetes.org) is linked on the Mission Possible tab of the Diabetes Program landing page.

Other consumer-facing prediabetes marketing collateral was developed and translated to Spanish for use in print, digital, and other traditional media delivery formats. This prediabetes media was displayed on billboards along major freeways in Yuma, Mesa, and Phoenix throughout 2021-2022 in areas where National DPP sites were located. Digital advertisements were run in Phoenix and Tucson throughout 2021-2023 to help drive prediabetes awareness. Media reports from the campaign efforts showed high engagement in Spanish-speaking populations in Tucson and Phoenix evident through high "click-through-rates" when digital advertisements were running. The primary goals of the Prediabetes Media Campaign are to drive prediabetes awareness amongst health care providers and consumers to highlight risk factors for diabetes, while encouraging screening and referrals to a CDC-recognized National DPP. ADHS will be working with an outside advertising agency to update media collateral using CDC 2320 funding; and will relaunch the campaign in FY 2025-2026.

The Arizona Diabetes Leadership Council (ADLC) and Coalition (ADC)

The Arizona Diabetes Coalition (ADC) historically has included participants and representatives from over three hundred (300) organizations, agencies and individuals that work to promote diabetes prevention and control. The mission of the ADC is to reduce the burden of diabetes on individuals, families, communities, the health care system, and the state. This shall be done by increasing awareness of diabetes and advocating for and promoting policies and programs that improve access to care, treatment, and outcomes for people with diabetes and those at risk for developing diabetes. Members of the ADC assist in the development of the biennial Diabetes Action Plan (DAP).

The Arizona Diabetes Control Program and Arizona Advisory Council were established in 1994, having added "Prevention" to its title as a result of the Diabetes Prevention Program Study in 2002. In 2005, the Arizona Advisory Council became the Arizona Diabetes Coalition and is led by the [Arizona Diabetes] Leadership Council (ADLC). The ADLC is a 15-to-21-member council that serves as advisors to the state's Diabetes Program at ADHS. ADHS works collaboratively with the ADC and the ADLC to eliminate health disparities in diabetes.

The Leadership Council and Coalition is tasked with:

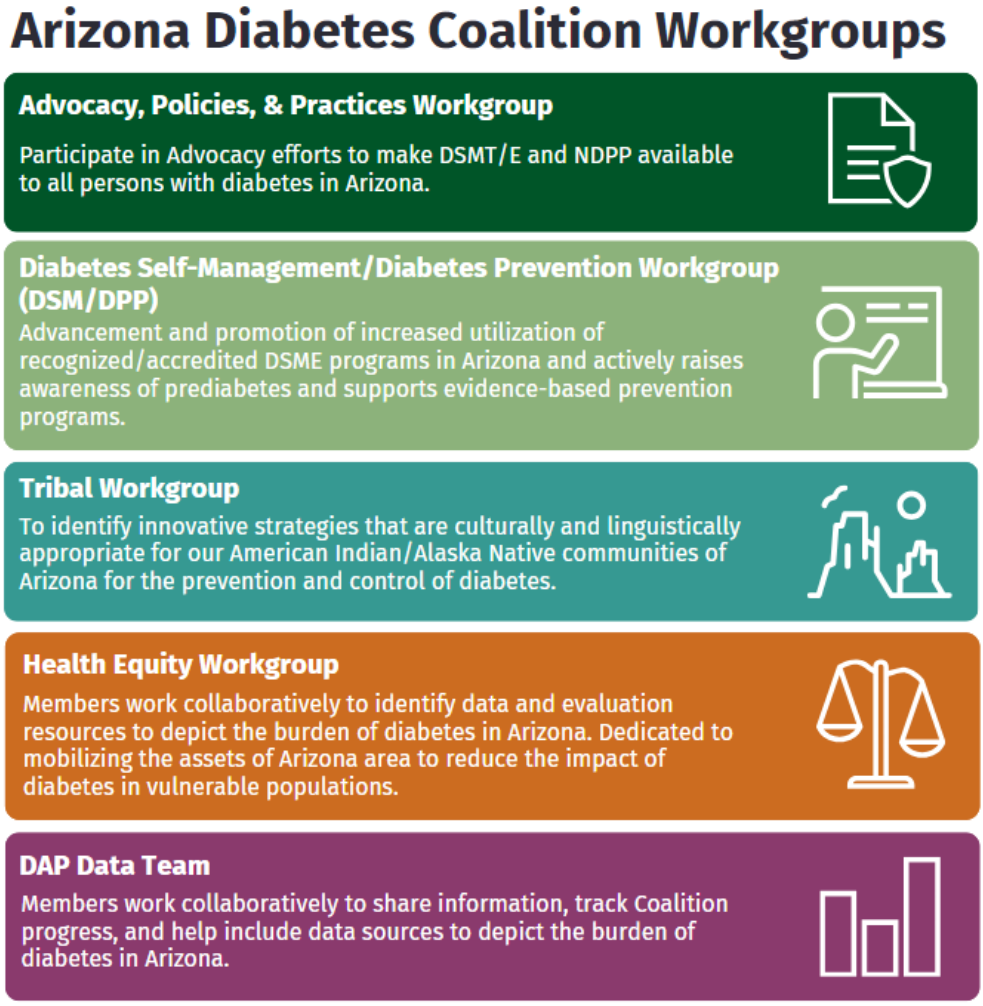
- Community mobilization by **creating and maintaining active partnerships at the state and local levels** that jointly pursue issues related to diabetes in communities across Arizona.
- **Public awareness and education** that improve awareness of diabetes prevention, diabetes management strategies and training opportunities for healthcare professionals and the general public.
- **Expanding diabetes prevention programming and training opportunities** across Arizona.

With the support of Vitalyst Health Foundation, the Leadership Council of the Arizona Diabetes Coalition participated in guided strategic planning sessions in October and November 2021 to re- evaluate the Coalition bylaws, priorities, and strategic plan. A consultant, Geronimo Consulting, LLC., facilitated the sessions to gather consensus and also

developed a roadmap to guide an efficient, statewide, comprehensive approach to diabetes services and information. This was a collaborative effort of many leaders and experts in diabetes coming together to achieve short, middle, and long- term desired goals to combat diabetes in Arizona. The 2022 Arizona Diabetes Coalition Roadmap continues to drive the work of the Council and Coalition. The strategic issues identified in the roadmap continue to be addressed independently by the four different Coalition workgroups that revised their charters to align with the new 2022 ADC Roadmap. This allowed each workgroup to focus and align its efforts to achieve its goal.

ADC Strategic Roadmap: 2022-2024

Focus Area	Public Policy	Education & Public Awareness	Membership Engagement	Funding	Equitable Representation
Goal	Monitor public policy and represent the coalition to influence and educate	Create a brand awareness plan for ADC to create awareness, information gathering and sharing via multiple outlets	Formalize a membership plan that includes recruitment, orientation and engagement opportunities with a focus on leadership and succession planning	Seek out and secure funding opportunities to support current and future work along with a case for support	Seek out and secure funding opportunities to support current and future work along with a case for support
Workgroup	Advocacy	DSME / DPP	EC & Nominating	Leadership Council	Health Equity & Tribal
Strategy	Work with members to identify opportunities and challenges	Utilize current tools and create new tools to disseminate information	Review what is currently working as well as missed opportunities	Review and create a working model to secure funding	Work with the Tribal and Health Equity Committees to create a working plan
SMARTIE Goals - The "How"	1. Create a plan within the Coalition and with other community partners for diabetes reimbursement (FY22-FY24) 2. Conduct market analysis of others working in the healthcare space for networking and collaboration opportunities (FY22) 3. Review current public policy and advocacy initiatives, put into writing to share with other potential partners - will be vetted by Coalition membership (FY22) 4. Create MOU for partnerships with defined goals (FY23) 5. Reach out to pre-defined groups for expanded Coalition work (FY23) 6. Working with other groups, define joint work goals and begin community engagement (FY24)	1. Create new workgroup charter with measurable goals and identify members with necessary skill sets (FY22) 2. Inventory past and current electronic and print collateral, determine items for continued use and make recommendations for new material (FY22) 3. Determine best plan (based on feedback) for production and dissemination for members and external audience (FY23) 4. Gather feedback via multiple approaches for new and revised materials (FY24)	1. Review current processes and systems to onboard new members and provide recommendations (FY22) 2. Engage members to understand how they can best support the Coalition and then incorporate this feedback (FY22) 3. Review and provide recommendations for leadership succession planning and implementation (FY22) 4. Analyze current membership composition to determine future membership growth and Council succession 5. Review all recommendations from FY22, then implement and revise goals based on feedback and successes (FY23) 6. Review committee structure and membership requirements and add FT staffing to coordinate membership (FY24)	1. Review all past and current initiatives, programs, successes and missed opportunities to create a baseline for future funders (FY22) 2. Craft comprehensive case for support that can be utilized for multiple audiences (FY22) 3. Scan the market for all potential funding opportunities including public and foundations. Review list from public policy collaborations for possible joint funding opportunities (FY22) 4. Create systems for tracking funding proposals and apply for a minimum of five opportunities (FY22) 5. Make changes to funding strategies based on feedback (FY23) 6. Create a plan (based on funding) for staffing and needed additional resources (FY23)	1. Create a plan to support this work including an environment scan, past approaches and a member-supported plan moving forward with measures of success (FY22) 2. Create and bring implementation of outreach efforts to intended populations (including other coalitions) to share and engage (FY22) 3. Evaluate plan along with outreach efforts for opportunities (FY23) 4. Create a plan to share successes with members and stakeholders, including funders and the public sector (FY24)



Arizona Health Care Cost Containment System (AHCCCS)

Founded in 1982, the Arizona Health Care Cost Containment System (AHCCCS) is Arizona's Medicaid program, a federal health care program jointly funded by the federal and state governments for individuals and families who qualify based on income level. Built on a system of competition and choice, AHCCCS is a $22 billion program that operates under an integrated managed care model, through a Research and Demonstration 1115 Waiver. Contracted health plans coordinate and pay for physical and behavioral health care services delivered by more than 93,000 health care providers to more than 2.2 million Arizonans.

ARIZONA HEALTH CARE COST CONTAINMENT SYSTEM

Arizona has the distinction of being the first state to create a “mandatory” managed care model, meaning that except for the American Indian/Alaska Native population and a few

other populations who under federal law cannot be mandated into managed care, all Medicaid members must be enrolled in a Managed Care Organization (MCO), including dual eligible and long-term care members. AHCCCS MCOs are funded through a prepaid capitation for the services provided to its membership, and are thus incentivized to promote health and wellness, ensure members have access to preventative services, and be innovative in identifying ways to improve outcomes, while also lowering costs.

Disease/Chronic Care Management

MCOs focus on diabetes as part of their requirement to implement a Disease/Chronic Care Management Program [42 CFR 438.3(s)] for members with high risk and/or chronic conditions that have the potential to benefit from a concerted intervention plan. The goal of the Disease/Chronic Care Management Program is to increase member self-management and improve practice patterns of providers, thereby improving healthcare outcomes for members.

The Disease Management Program includes but is not limited to:

- Members at risk or already experiencing poor health outcomes due to their disease burden
- Health education that addresses:
    - Appropriate use of health care services
    - Health risk-reduction and healthy lifestyle choices including tobacco cessation
    - Screening for tobacco use with the Ask, Advise, and Refer model and referrals to the Arizona Smokers Helpline utilizing the proactive referral process
    - Self-care and management of health conditions, including wellness coaching
    - Self-help programs or other community resources that are designed to improve health and wellness
- EPSDT services for members including education and health promotion for dental/oral health services
- Maternity care programs and services for pregnant women including family planning
- Interventions with specific programs that are founded on evidence-based guidelines
- Methodologies to evaluate the effectiveness of programs including education specifically related to the identified members' ability to self-manage their disease and measurable outcomes
- Methods for supporting both the member and the provider in establishing and maintaining relationships that foster consistent and timely interventions and an understanding of and adherence to the plan of care
- Components for providers include but are not limited to:
    - Education regarding the specific evidenced based guidelines and desired outcomes that drive the program
    - Involvement in the implementation of the program
    - Methodology for monitoring provider compliance with the guidelines

- Implementation of actions designed to bring the providers into compliance with the practice guidelines

Performance Measures

AHCCCS utilizes performance measures to monitor MCOs' compliance in meeting contractual requirements related to the delivery of care and services to members. Performance measure selection and methodologies utilized for calculating the measures align with that outlined in the CMS Adult and Child Core Set Lists and associated specifications. AHCCCS may utilize other performance measures and/or methodologies, such as National Committee for Quality Assurance (NCQA) Healthcare Effectiveness Data and Information Set (HEDIS®) or develop methodologies for measurement that are reflective of the Arizona system of care delivery model.

The 2022 MCO performance measures related to diabetes care that are required by AHCCCS include:

- Hemoglobin A1c Control for Patients With Diabetes
- Diabetes Short-Term Complications Admission Rate
- Diabetes Screening for People with Schizophrenia or Bipolar Disorder Who Are Using Antipsychotic Medications
- Diabetes Care for People with Serious Mental Illness: Hemoglobin A1c (HbA1c) Poor Control (>9.0%)

AHCCCS implemented the SSD (diabetes screening for adults with Schizophrenia or bipolar disorder who are using antipsychotic medications) performance measure for adult (PCP and BH) participants and the APM (Metabolic monitoring for children and adolescents on antipsychotics) for Peds BH participants. Participants were paid if they met their organization-specific performance measure targets at the end of each year (FFY20, 21, 22).

AHCCCS and university partners supported this effort by: **1)** creating measure detail guides describing the measure, attribution methodologies, numerator compliance, and denominator exceptions); **2)** hosting quality improvement collaboratives with participants and SMEs to identify hurdles and best practices to improve performance; **3)** analyzing data to identify prevalent root causes of noncompliance; **4)** documented best practices in "best practice audit guides"; **5)** held 1:1 workgroups and performed root cause analyses to identify opportunities for process improvement and; **6)** provided real-time, rolling performance measure dashboards to help determine if a "best practice" intervention made a measurable impact.

Diabetes Self-Management Training or Methodology and Data

In 2022, the Arizona Legislature approved an additional diabetes benefit. Effective Oct. 1, 2022, AHCCCS provides up to 10 program hours annually of diabetes outpatient self-management training services to members with new or existing diabetes diagnoses. The training must be prescribed by a primary care practitioner.

AHCCCS MCOs may bill G0108 and G0109 for this service, detailed description is found in Table 1. These codes are for diabetes self-management training services, either individually or in a group of two or more. Diabetes self-management training is done to teach the diabetic how to control and monitor blood glucose levels with the proper use of the monitoring device, dietary calculations and restrictions, and correct administration of diabetic medications. These codes are reported per 30-minute intervals. AHCCCS MCOs do not require prior authorization for the diabetes outpatient self-management training service.

Table 1. Diabetes Outpatient Self-Management Training Code Descriptions

AHCCCS Diabetes Outpatient Self-Management Training Code Descriptions	
G0108	Diabetes outpatient self-management training services, individual, per 30 minutes
G0109	Diabetes self-management training services, group session (2 or more), per 30 minutes

Total number of encounters submitted-related diabetes outpatient self-management training services for State Fiscal Years (SFY) 2023 (October 2022- September 2023) are shown in Table 2. MCOs have up to six months to submit encounter claims to AHCCCS.

Table 2. Diabetes Outpatient Self-Management Training Utilization

AHCCCS Diabetes Outpatient Self-Management Training Utilization – SFY 2023		
Procedure Codes	**Totals**	**Claims Totals**
G0108 & G0109	1496	$45,203

Arizona Department of Administration, Benefits Division (ADOA)

The Arizona Department of Administration was established by the Arizona State Legislature in 1973 to support the operation of state government, including providing medical and health benefits to roughly 133,000 active state and university employees, retirees, and COBRA members and their eligible dependents. In addition to medical, pharmacy, dental and vision, ADOA also maintains a statewide wellness program offering numerous health enhancement, education and prevention programs and services to all benefits eligible state employees. ADOA hosts on-site comprehensive mini-health screening at no cost, one time per calendar year to encourage them to "know their numbers", and for those who are eligible to receive a Hemoglobin A1c test to take appropriate steps if they are at risk.

In 2023, we implemented a Know Your Numbers campaign to regularly educate and communicate the importance of preventive screening along with the associated actions to take, such as tracking of lab and biometric values, and to seek appropriate medical resources to proactively manage health.

Digital Health Coaching Programs & Healthy Habits Challenges:
Live Healthy: Diabetes
Eat Well to Manage Blood Sugar
Balancing Blood Sugar
Check Your Feet
Meal Schedule
Snack
Track Your Blood Glucose
Processed Food
Wash Your Feet

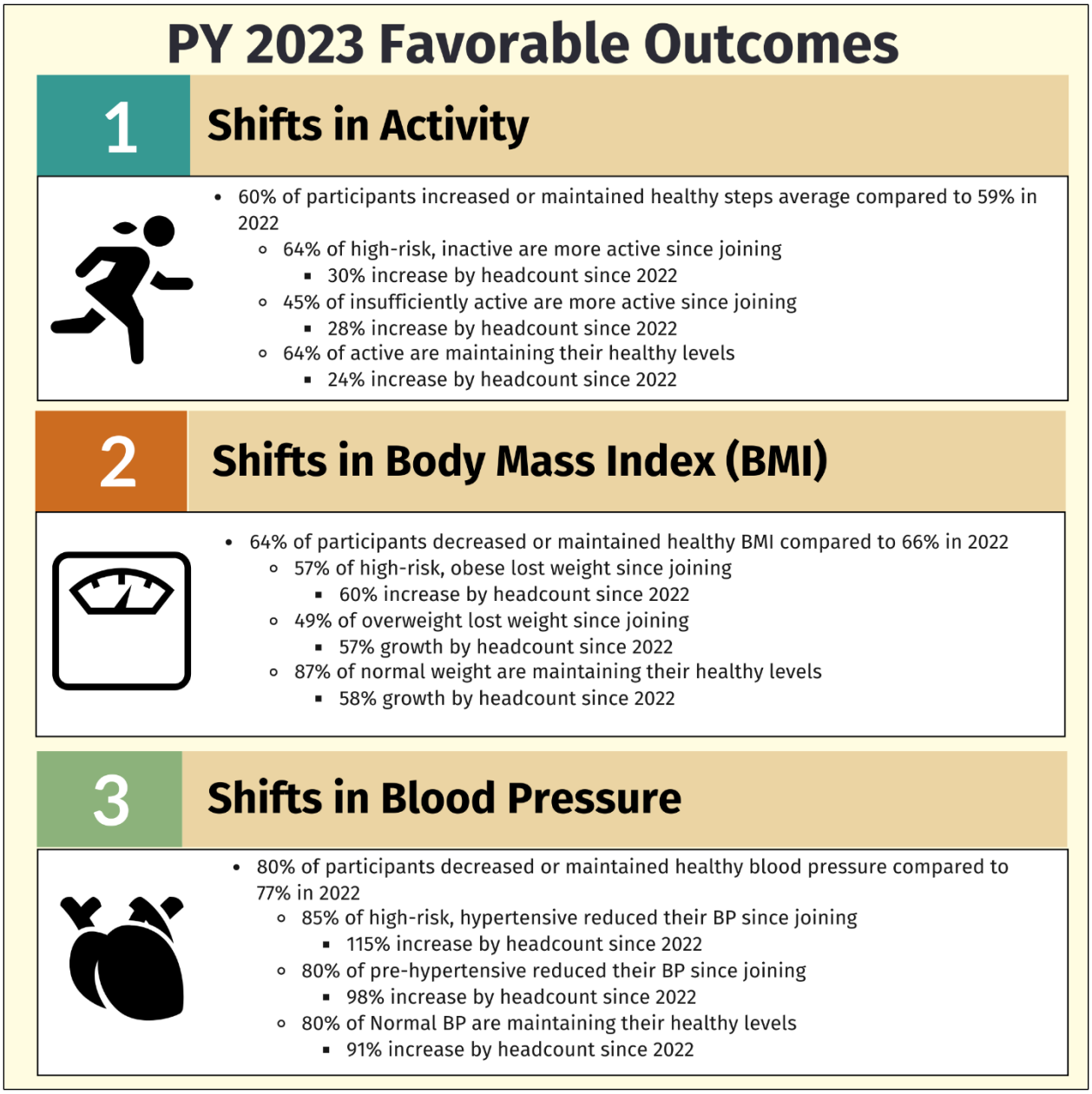
Other Resources:
Media Library
Nutrition Guide

*A complete list of resources can be found on the ADOA Wellness Benefits website at www.benefitoptions.az.gov/wellness

ADOA also provides a free online health risk assessment as part of the Health Impact Program (HIP) Virgin Pulse platform to employees, spouses and adult dependents. The My Health Check Survey assessment provides participants with a personalized report of their current health. Any employee at risk of developing diabetes or is at an increased risk for complications, are encouraged to participate in the platform's digital health coaching and Journeys, which are daily, self-guided courses to assist with building habits to reach a stated goal. There are more than 84 that focus on various aspects of well-being.

To encourage increased engagement, HIP offers a voluntary, incentive-based framework whereby employees earn points for regular engagement in healthful activities, wellbeing challenges, preventive services and programs. Points are awarded to employees in various activities such as qualified weight loss programs, mini-health screening - including blood glucose and hemoglobin A1C, online health assessment, digital health coaching, completion of a medical carrier sponsored disease management programs, educational webinar and campaigns, as well as other preventive annual physical, screenings/exams.

Significant favorable outcomes are displayed in the infographic below.



Lifestyle, Health Management, and Diabetes Education Programs

Our programs offer best in class, evidence-based approaches to address behavior change and prevention of chronic diseases like Type 2 diabetes, cardiovascular disease and high blood pressure. They use clinically proven research along with engaging online or at work experiences to deliver sustainable lifestyle changes and healthy outcomes.

Real Appeal©

Real Appeal© is a weight loss program and lifestyle management, using simple and manageable measures that can easily be integrated into daily life for long-term health benefits and lasting weight loss. It is a year-long web-based program using weekly sessions

around education and behavior change. For employees who qualify for the program as high risk, one-on-one personal coaching is also available. Real Appeal© is currently available at no-charge to all benefit eligible employees and dependents 18 years and older who are on one of the State of Arizona medical plans.

Wondr©

Wondr© is an online weight loss and lifestyle management program. The program provides weekly sessions for one year. The foundation of the class encourages the attendee to rediscover the pleasures of eating by retraining your brain by the way you eat. Encourages attendees to change how they eat, not what they eat and increase their activity level. This is also provided at no charge to all benefit eligible employees and dependents 18 years and older who are on one of the State of Arizona medical plans. The 2023 program metrics show a high participation rate and very favorable outcomes that support preventing the onset of Diabetes and with Diabetes management.

The Centers for Disease Control and Prevention indicates that a 5-10% loss of body weight leads to a decrease in blood pressure, cholesterol and blood glucose. The weight management programs continue being well utilized and show an increased amount of participation as well as improved outcomes, as the number of participants in both weight loss programs increased to 1,863 in PY 2023 when compared to the PY 2022 figure of 1,002. There were 715 participants with weight loss in PY 2023 while the number in PY 2022 was significantly higher at 985. While the average weight loss percentage was between 3% - 4.20%, 32% achieved a 5% or more weight loss. The combined programs resulted in a total of 10,049 pounds lost compared to 3,048 pounds in PY 2022.

Table 3 indicates that most individuals who participate in a weight loss program will lose some weight which is the goal of the programs.

Table 3. Plan Year 2023 Weight Management Programs

PY 2023 Weight Management Programs		
	Real Appeal©	**Wondr©**
Enrolled	684	1179
Participants with Weight Loss	259	456
Achieved 5% Weight Loss	254	342
Average Weight Loss	3.0%	4.2%
Total Pounds Lost	2,410	7,639

Am I Hungry? Mindful Eating for Diabetes

This is a prediabetes and diabetes management program that puts the participant in charge of their decisions instead of diets focused on restrictive dieting. This program addresses emotional eating, mindless eating and other habits. In addition, Am I Hungry teaches awareness of diabetes and ways to manage the condition. This 6-week course is offered online and is self-paced. This program is employee paid and offers an opportunity to participate in an ASU Research study whereby a percentage of the cost is refunded to those completing a pre and post survey.

ADOA continues to offer the National Diabetes Prevention Program in partnership with the University of Arizona Cooperative Extension and continues to provide National DPP across the state to employees and dependents over the age of 18. The program is designed for those who are at high risk of developing type two diabetes or who have been diagnosed with prediabetes. It is a proven lifestyle change program designed to cut the risk of developing diabetes in half. It provides educational support to teach participants how to develop healthy behaviors to prevent and manage diabetes. Developed by House Bill 2258: Diabetes Action Plan and Report Arizona Department of Health Services | Diabetes Action Plan and Report 2021 56 the Centers for Disease Control (CDC), this lifestyle changes program helps you reduce your Type 2 diabetes risk by learning new skills in losing weight, becoming more physically active and reducing stress. This is provided to state employees as part of the UA Cooperative Extension funding.

ADOA Benefits Diabetes Team

In 2022, ADOA Benefit Administration formed a strategy team to take a deep dive to better understand the impact of Diabetes with our membership. The goal is to reduce the burden of diabetes and improve quality of life for all people who have, or are at risk for, diabetes

Strategy & Actions

- Engage pre-diabetic population to slow down progress to diabetes by encouraging participation in programs and visiting their provider.
- Focus on disease management, formulary management or custom prior authorization, health impact program incentive
- Create a communication plan with a focus on sharing the importance of Diabetes Prevention Program and encourage program enrollment.

There have been year-over-year increases to the prevalence of diabetes in the population. There are 16,580 members (13% of total population) who have a diagnosis of gestational, pre-diabetes or diabetes. It's estimated that 10,781 members 8.42% of the population have Type I and/or Type II Diabetes. According to the American Diabetes Association, the National average is 11.3% (type I & II). There are members who may be undiagnosed.

We use two HEDIS values and two medication adherence percentages. The two HEDIS (evidence-based measures) will come from Medinsight and Vendor Ad Hoc A1c reports. CDC_A1C_G9_2022C - Comprehensive Diabetes Care: HbA1c Poor Control (>9.0%) and CDC_A1C_L8_2022C - Comprehensive Diabetes Care: HbA1c Control (<8.0%). Medication adherence >=80%: Patients

using their diabetes prescription drug, not based on the specific drug, will be considered adherent. For 2022, patients diagnosed with Type 1 or Type 2 diabetes, or type 1 and type 2 combined, the rate is at 78.09% (Goal is to get 80% of our members to reach 80% adherence). The 2023 rate was 79.51% which shows improvement from 2022.

There was a reduction in the percentage of diabetes diagnoses from PY 2022-2023 (Table 4) whereby the percentage of those with prediabetes increased which is attributed to increased awareness of and engagement in preventive screenings.

Table 4. Diagnosed Diabetes by Type, Plan Year 2022-2023

Group	PY2022		PY 2023	
Type 2 Diabetes	9,216	61%	9,784	58%
Type 1 Diabetes	837	6%	826	5%
Gestational Diabetes	389	3%	412	2%
Prediabetes	4,581	30% (of total diabetes population)	5,834	35%
Total Diabetes Population	15,023	12% (of complete ADOA membership)	16,856	13%
Complete ADOA Membership	*128,389*		*132,633*	

Arizona State Retirement System (ASRS)

For over 70 years the Arizona State Retirement System (ASRS) had provided retirement benefits to Arizona's public servants including teachers, employees of all three of Arizona's universities, community college districts, school districts and charter schools, of Arizona's 15 counties, municipal workers and other government employees. The ASRS proudly serves more than a half-million members, including more than 170,000 retired members. Over 55,000 retirees and their eligible dependents are enrolled in ASRS medical plans. For the retired members of ASRS, 26% of the Medicare Advantage and 25% of the non-Medicare members were identified to have diabetes. Yuma and Pinal counties had the highest concentrations of Medicare members with diabetes and Yuma and La Paz counties had the highest concentrations of non-Medicare members with diabetes. Note, the majority of members in all Plans diagnosed with diabetes reside in Metro Arizona (Maricopa, Pima and Pinal): 84% for Medicare Advantage, and 85% for non-Medicare.

Diabetes Support for Non-Medicare Members

The Diabetes Management Program is a comprehensive solution for non-Medicare members that receive benefits through the Arizona State Retirement System. The program is designed

to help individuals learn how to effectively manage their condition and its comorbidities (including depression) and limit disease progression. Members will better understand risk factors, how to maintain a healthy lifestyle, and adhere to physician treatment plans and medications. To do this, nurses address gaps in care and screen for co-morbidities and risk factors. In addition, nurses assess all diabetic members for depression and refer them to behavioral health resources, as necessary. Medical directors are available to review care plans and conduct peer-to-peer outreach to treating physicians. Regular monitoring (blood glucose, cholesterol, and A1c) and screening (dental, foot, and eye) are performed. Fully synchronized pharmacy and care management systems monitor adherence to prescribed medication and any compliance issues, to include identifying duplications and contraindications. These processes create deeper insights, allowing faster gap identification to drive better, more relevant member engagement, improve clinical outcomes and ultimately reduce costs.

ASRS uniquely leverages pharmacy touchpoints, including placing pharmacists on the care team. This only applies to those using OptumRx as their pharmacy benefit services provider.

In 2023, **25%** of ASRS employees who were *not* enrolled in Medicare had a diagnosis of diabetes; of these, **91%** were diagnosed with Type 2 diabetes.

High-risk members are identified and counseled on understanding, managing and averting any long- term health effects related to their condition. As needed, patients are referred to Diabetes Self- Management to gain skills and adopt a healthy lifestyle. Members are also encouraged to enroll in weight-loss, tobacco cessation or exercise programs, when appropriate. Nurses can schedule physician appointments and promote additional resources for members, including referring members to resources such as psychosocial services and community resources.

Of the ASRS non-Medicare plan members in 2023, 1,388 (25%) had a diagnosis of diabetes, of which 91% were diagnosed with type 2 diabetes.

Diabetes Support for Medicare Members

ASRS provides a virtual Diabetes Prevention Program that includes education on healthy eating, meal planning, and exercise led by a coach. Diabetic members with potential gaps in care, low medication adherence, and/or an elevated A1c blood sugar are enrolled in a Diabetes Support Program and may work with a nurse for education, care coordination, and to close out gaps in care. In addition, the members may also work with other healthcare professionals such as registered dieticians and pharmacists. Of ASRS Medicare Advantage plan members in 2023, 12,240 (26%) had a diagnosis of diabetes. Of these, 98% were diagnosed with type 2 diabetes.

Public Safety Personnel Retirement System

Established in 1968, the PSPRS provides retirement benefits for members serving in our communities throughout Arizona as police officers, firefighters, correctional officers, judges, and elected officials. PSPRS serves over 36,000 active members and 22,000 retired members. The data for PSPRS members is incorporated within the ASRS data as ASRS administers the medical plans for PSPRS members. Approximately 5,200 retirees and their eligible dependents are enrolled in ASRS medical plans.

Sonora Quest Laboratories

Sonora Quest Laboratories, a subsidiary of Laboratory Sciences of Arizona, is an Arizona-based joint venture between Banner Health and Quest Diagnostics, making up one of the nation's largest integrated laboratory systems with approximately 3,800 employees. We are the market share leader in clinical laboratory testing in Arizona, performing more than 97 million diagnostic tests per year. We offer a local comprehensive test menu that encompasses routine, molecular, prescription drug monitoring, genetics/genomics, and pathology testing services. Ninety-five percent of all testing is performed at our primary testing facilities located in Phoenix, Tucson, Flagstaff, Prescott, and Yuma.

Sonora Quest is a committed advocate for underserved populations, donating approximately $250,000 worth of in-kind testing to various nonprofit organizations. This support enables better access to essential testing, including basic blood panels, diabetes/blood sugar assessments, cholesterol screenings, STIs/AIDS/HIV tests, liver function evaluations, and PAP smears. Notable beneficiaries include the Prostate Onsite Project, Jewish Family & Children's Services, Mission of Mercy, and the American Diabetes Association. Additionally, Sonora Quest has maintained a longstanding partnership with JDRF, spanning over 20 years. Leveraging data analytics, Sonora Quest actively contributes to diabetes prevention and management initiatives, collaborating with organizations such as the Diabetes Leadership Council, Coalition, Arizona FQHCs, and Contexture.

Sonora Quest Laboratories has more than 70 Patient Service Centers located conveniently throughout Arizona and offers online appointment scheduling on desktop and mobile devices on SonoraQuest.com as a convenience to patients. We are contracted and considered in-network with most major health plans and offer reduced pricing for patients who wish to pay at time of service due to lack of insurance coverage or high-deductibles. We also offer patients several optional ways to obtain their own lab results.

APPENDIX 1: LEGISLATION

State of Arizona: House of Representative Fifty-Third Legislature Second Regular Session 2018

CHAPTER 94

HOUSE BILL 2258 AN ACT

AMENDING TITLE 36, CHAPTER 1, ARTICLE 2, ARIZONA REVISED STATUTES, BY ADDING SECTION 36-142; RELATING TO DIABETES.

Be in enacted by the Legislature of the State of Arizona:

section 1. Title 36, chapter1, article 2, Arizona Revised

Statutes, is amended by adding section 36-142, to read:

36-142. Diabetes information: report

A. THE DIABETES ACTION PLAN TEAM IS ESTABLISHED IN THE DEPARTMENT OF HEALTH SERVICES. THE TEAM IS COMPOSED OF THE HEAD OF THE FOLLOWING

ENTITIES OR THAT PERSON'S DESIGNEE:

1. THE ARIZONA DIABETES PROGRAM WITHIN THE DEPARTMENT OF HEALTH SERVICES.

2. THE ARIZONA HEALTH CARE COST CONTAINMENT SYSTEM.

3. THE PUBLIC SAFETY PERSONNEL RETIREMENT SYSTEM.

4. THE ARIZONA STATE RETIREMENT SYSTEM.

5. THE DEPARTMENT OF ADMINISTRATION BENEFITS SERVICES DIVISION.

6. DIABETES STAKEHOLDER ORGANIZATIONS, INCLUDING HEALTH INSURERS, A NATIONALLY RECOGNIZED DIABETES ASSOCIATION AND THE ARIZONA DIABETES COALITION.

B. THE TEAM SHALL COMPILE A REPORT ONCE EVERY TWO YEARS THAT INCLUDES THE FOLLOWING INFORMATION.

1. THE PREVALENCE IN THIS STATE OF:

(a) DIABETES BY TYPE.

(b) DIABETES BY AGE, RACE AND GENDER.

(c) COMPLICATIONS ASSOCIATED WITH DIABETES.

(d) PREDIABETES.

2. THE COSTS OF DIABETES IN THIS STATE.

3. THE ARIZONA DIABETES PROGRAM'S PLAN FOR REDUCING THE INCIDENCE OF DIABETES IN THIS STATE. IMPROVING DIABETES CARE AND REDUCING DIABETES-RELATED HEALTH DISPARITIES, INCLUDING PROPOSED ACTION STEPS.

4. A DESCRIPTION OF THE LEVEL OF COORDINATION THAT EXISTS BETWEEN THE DEPARTMENT OF HEALTH SERVICES AND HOSPITALS, THE DEPARTMENT'S CONTRACTED PARTNERS AND OTHER STAKEHOLDERS ON ACTIVITIES AND PROGRAMMATIC ACTIVITIES AND THE LEVEL OF COMMUNICATION ON MANAGING, TREATING OR PREVENTING ALL FORMS OF DIABETES AND ITS COMPLICATIONS.

C. THE REQUIREMENTS OF SUBSECTION B, PARAGRAPHS 1 AND 2 OF THIS SECTION ARE LIMITED TO THE DIABETES INFORMATION, DATA, INITIATIVES AND PROGRAMS WITHIN EACH AGENCY BEFORE THE EFFECTIVE DATE OF THIS SECTION, UNLESS THERE IS UNOBLIGATED FUNDING FOR DIABETES IN AN AGENCY THAT MAY BE USED FOR NEW RESEARCH, DATA COLLECTION AND REPORTING FOR THE PURPOSES OF SUBSECTION B, PARAGRAPHS 1 AND 2 OF THIS SECTION.

D. ON OR BEFORE JANUARY 1, 2019 AND ONCE EVERY TWO YEARS THEREAFTER, THE DEPARTMENT SHALL PROVIDE THE REPORT REQUIRED BY SUBSECTION B OF THIS SECTION. INCLUDING ITS RECOMMENDATIONS FOR ACTION, TO THE GOVERNOR, THE PRESIDENT OF THE SENATE AND THE SPEAKER OF THE HOUSE OF REPRESENTATIVES AND SHALL SUBMIT A COPY TO THE SECRETARY OF STATE.

APPENDIX 2: WHAT IS DIABETES?

According to the CDC, current estimates show that 38.4 million Americans had diabetes: roughly 11.6% of the U.S. population.[21] Approximately one-in-five adults who have diabetes and are unaware they have it.[3] To understand diabetes, it is important to understand how your body uses glucose and insulin. The main source of fuel for energy your body needs is glucose, a sugar. Glucose enters the body from the food broken down in digestion. This simple sugar travels through the bloodstream and enters the cells of the body with the help of insulin. Insulin, a hormone made in the pancreas, is the "key" that "opens" cells so the glucose can enter the cell and provide the body with energy.

Diabetes develops when insulin is either completely absent (type 1) or is in short supply or poorly used by the body (type 2). Without insulin, too much glucose remains in the bloodstream rather than entering the cells. If diabetes is not diagnosed and treated, blood glucose levels continue to rise, and over time leads to serious health complications, such as blindness, heart disease, stroke, kidney failure, nerve damage and lower limb amputations. Taking care of diabetes by eating the right foods, exercising regularly and taking medication, if prescribed, helps provide the best defense against serious complications.

Type 1 Diabetes

Type 1 diabetes represents approximately 5.7% of all diabetes cases.[21] Type 1 diabetes (also called juvenile diabetes or insulin dependent diabetes) occurs due to autoimmune attack on insulin producing pancreatic beta cells resulting in severe insulin deficiency.[3] People with type 1 diabetes require multiple daily injections of insulin, and if untreated can be fatal. Insulin is delivered by injection or insulin pump and must be used in conjunction with blood sugar monitoring, carefully balanced food intake and exercise to regulate healthy blood sugar levels. Without daily and carefully monitored blood sugar control, hypoglycemia or hyperglycemia can occur. Hypoglycemia is a common and potentially life-threatening condition in which the level of glucose in the blood drops below normal by not carefully balancing insulin intake with food and physical activity.[22] Hypoglycemia, if left untreated can result in seizures and loss of consciousness, and in severe cases, death. In comparison, hyperglycemia results when blood sugar becomes too high.[23] This can occur by skipping or not taking enough insulin to balance food intake. Signs of very high blood sugar include extreme thirst and urination, nausea, trouble seeing, poor concentration, confusion, drowsiness or coma.

Nationwide, Type 1 diabetes represents only **5%** of all diabetes cases; Type 2 represents **95%**.

Type 1 diabetes is usually diagnosed in children, teenagers and young adults and is characterized with a short duration of symptoms with sudden onset including polyuria, polydipsia and weight loss.[24] A very rare form (less than 4% of all diabetes cases) of diabetes called monogenic diabetes can strike newborns (Neonatal Diabetes Mellitus (NDM)) and teens (Maturity-Onset Diabetes of the Young (MODY)) and is often mistaken for type 2 diabetes.[25]

Monogenic diabetes results from a mutation of a single gene that is inherited from one or both parents and is often correctly diagnosed only after genetic testing.[25] There are no modifiable risk factors, such as obesity or high blood pressure, which are associated with or contribute to the development of type 1 diabetes. While there appears to be a genetic factor to the development of type 1 diabetes, many environmental factors may trigger and/or influence the severity of an autoimmune attack on insulin producing beta cells.[2]

Type 2 Diabetes

Type 2 diabetes accounts for 90%-95% of the total cases of diabetes in the United States.[5] Type 2 diabetes is caused by a combination of insulin resistance: largely due to obesity, and deficient insulin secretion by the pancreatic beta cells. As the need for insulin rises, the pancreas gradually loses its ability to produce adequate amounts to control blood glucose levels. Many factors have been linked to the development of type 2 diabetes as listed below in Table 5.

Table 5. Risk Factors for Type 2 Diabetes

Modifiable[26,27]	Non-Modifiable[26,27]	Socially Determined[28]
Overweight or obesity	Age 45 or over	Access to affordable healthy foods
Physical inactivity	Ethnicity	Access to affordable health care
Tobacco use	Family history, direct relative with diabetes	Access to affordable and safe physical activity
High blood pressure	History of gestational diabetes	Discrimination based on geography
Abnormal cholesterol levels	Polycystic Ovarian Syndrome (PCOS)	Discrimination based on race
History of prediabetes, impaired glucose tolerance	Acanthosis Nigricans (darkened skin around neck and armpits)	Discrimination based on socioeconomic status
Cardiovascular disease		

As noted above, a person's risk for developing diabetes can be influenced by many factors including age, family history, ethnicity and other factors that cannot be changed. While there are many factors that cannot be changed, there are factors that influence a person's health such as education attainment, access to affordable nutritious food, employment and access to affordable health care. Social determinants of health are the conditions in which a person is born, grows, lives, works and ages.

Prediabetes

Prediabetes is a term used to define those at a high risk of developing diabetes in the future and includes those that have elevated fasting blood glucose levels and those that have had a history of gestational diabetes.[29] Prediabetes is a serious yet reversible health condition where blood sugar levels are higher than normal but not high enough yet to be diagnosed as diabetes. Prediabetes puts you at increased risk for developing type 2 diabetes, heart disease and stroke.

More than one-third of Americans have prediabetes.[3] A person can have prediabetes for years but have no clear or defining symptoms, therefore it often goes undetected until serious health problems arise. Because there are no clear symptoms of prediabetes, it is important to be aware of the risk factors. Anyone who is considered overweight, 45 years or older or has a direct blood relative with diabetes or having gestational diabetes during pregnancy, and those that are active less than 3 days a week are at an increased risk of developing prediabetes. Additionally, it should be noted that African Americans, Hispanic/Latinos, and American Indians are at higher risk.[5]

Lifestyle intervention consisting of a diet containing foods lower in fat, foods with lower caloric content, and an increase in moderate physical activity of at least 150 minutes per week coupled with a small amount of weight loss of 5% to 7% of body weight and formative behavior modifications has been shown to reduce the incidence of diabetes conversion by as much as 58%.[30]

Drug or Chemical Induced Diabetes

Drugs used for management of various conditions can sometimes lead to abnormally elevated blood glucose or worsened previously existent diabetes.[31] Commonly used medications such as glucocorticoids, antipsychotics, thiazides, statins, antineoplastic agents, and beta blockers often put patients at higher risk of developing medication induced diabetes. If not screened, monitored, and managed appropriately, both acute and chronic complications can arise.

Diabetes in Pregnancy

Gestational Diabetes Mellitus (GDM)

Pregnant women who have never had a diagnosis of diabetes before but have high blood glucose levels during pregnancy are said to have gestational diabetes. According to National Vital Statistics System data in 2023, the percentage of mothers giving birth who received a diagnosis of diabetes during pregnancy (gestational diabetes) was determined to be 8.3% in the US which is less than the 11.5% which represents the percentage in Arizona.[32] Women who are overweight or obese, had GDM in a prior pregnancy, had larger babies (>9 pounds), high blood pressure, high cholesterol and/or heart disease, or have polycystic ovary syndrome are at a greater risk of GDM. In addition, women who have a family history of diabetes, over the age of 25 or are Hispanic, African American, American Indian/Alaskan Native or Pacific Islander are at an increased risk.[33,34]

The percentage of mothers giving birth in Arizona who were diagnosed with gestational diabetes was **11.5%**, compared to **8.3%** for the US.

Gestational diabetes occurs when the hormonal changes of pregnancy demand more insulin of the body than it would normally make or use efficiently, increasing insulin resistance. Gestational diabetes usually occurs in the second to third trimester or around 20-28 weeks gestation. Most women with GDM have healthy pregnancies due to proper blood sugar management; however, they are still at increased risks for possible complications such as high blood pressure and preeclampsia, late-term pregnancy loss, preterm labor and delivery complications resulting in cesarean section. Though gestational diabetes usually resolves itself postpartum, 5-10% of women will continue to have diabetes post pregnancy. In addition, having gestational diabetes greatly increases the risk of developing type 2 diabetes within 10 years by as much as 50%.[34] As these children age, they are also shown to have glucose intolerance and to be more overweight or obese as compared to their non-GDM counterparts (by as much as 10%).[35]

Pre-pregnancy Diabetes Mellitus

Distinct from gestational diabetes, pregestational diabetes occurs when a woman has insulin- dependent diabetes prior to pregnancy. In 2023, 1.3% (1,090) of births were to a woman who had pre gestational diabetes.[32] All diabetic women who wish to become pregnant are encouraged by their medical provider to carefully plan their pregnancies in advance, achieve controlled blood sugar levels, and maintain a healthy weight prior to pregnancy to achieve the best outcomes for both mother and baby. Prenatal care is essential for a healthy outcome, as normal blood sugar levels are essential during the formative first trimester. High levels of glucose in the blood prior to pregnancy and during the first trimester greatly

increase the risk of birth defects to the heart, brain, spinal cord, urinary tract and gastrointestinal system.[34] In addition, babies born to mothers with pregestational diabetes are at increased risk for complications before and after birth including large- birth weight (increasing risk of birthing injury), low blood sugar, preterm birth, jaundice and breathing problems.[35] With proper diabetes management including diet management and insulin therapy, blood glucose values are kept at normal levels greatly reducing serious health risks to the baby.

Complications of Diabetes

Diabetes is recognized as one of the leading causes of death and disability in the United States. Over time, people with chronically high levels of blood glucose suffer lasting and debilitating effects, including damage to their nerves and blood vessels.[3] Those with diabetes are also more likely to suffer from depression and mental health distress. Because of this long-term exposure to elevated levels of glucose, those with diabetes experience complications as described below.[2,3,27]

Heart Disease	- Death rates are two to four times higher for those with diabetes than those without - Stroke risk among those with diabetes is also two to four times higher than those without diabetes
High Blood Pressure	- It is estimated that 2 out of every 3 persons with diabetes also suffer from high blood pressure
Blindness and Eye Problems	- Diabetes is the leading cause of blindness among adults
Kidney Disease	- Diabetes is the leading cause of kidney failure, resulting in dialysis, transplant or end stage renal failure
Nervous System Disease	- An estimated 60%-70% of people with diabetes suffer from some form of nervous system damage, including neuropathy of the hands and feet and decreased gastric motility
Amputation	- More than 60% of non-traumatic lower limb amputations are a direct result of diabetes
Dental Diseases	- Nearly one-third of those with diabetes also suffer from periodontal disease
Complications of Pregnancy	- Birth defects are more common in babies born to mothers with poorly controlled glucose levels in the first trimester - Poorly controlled diabetes in the second and third trimesters can result in large birth weight babies, posing greater risk for complications during childbirth - Babies born to diabetic mothers are at a greater risk for developing diabetes later in life
Depression and Mental Health Distress	- The prevalence of elevated depressive symptoms is twice as high in adults with type 1 or type 2 diabetes compared to adults without diabetes. - There is an elevated risk for distress and possible depression for youth with type 1 or type 2 diabetes. - Depression is linked to poor blood glucose control among persons with type 1 or type 2 diabetes.
Cognitive Impairment	- Increased glucose levels are related to higher risk of poor cognitive performance and dementia. - Persons with hypoglycemic events are more likely to develop dementia.

APPENDIX 3: DIABETES PREVALENCE

Hospital and Emergency Department Discharges

In 2023, there were 386,494 diabetes related hospital discharges in Arizona, of which 10% were listed as the primary diagnosis. Where diabetes was a diagnosis in any category, the highest hospital discharge rates were among American Indian/Alaska Natives (8,996 per 100,000 population), females (4,521 per 100,000 population) and persons aged 55-64 (9,022 per 100,000 population). More details are shown below in Table 6.

Table 6. Diabetes-Related Hospital Discharges in Arizona by Race/Ethnicity, Sex, and Age Group, 2023

	Diabetes in Any Diagnosis Category		Diabetes as Leading Diagnosis	
	Total Number of Discharges	Rate (per 100,000 population)	Total Number of Discharges	Rate (per 100,000 population)
Statewide	386,494	4,440.1	37,094	458.9
Race/Ethnicity				
White Non-Hispanic	220,556	3,698.6	18,691	407.0
Hispanic/Latino	100,063	5,616.8	11,037	542.3
Black or African American	27,496	8,183.5	3,220	884.8
American Indian/Alaska Native	24,107	8,995.7	2,821	1,018.5
Asian or Pacific Islander	8,938	3,073.0	778	252.0
Sex				
Male	186,631	4,400.6	18,141	463.8
Female	199,851	4,521.0	18,952	492.8
Age Group				
0-17	3,245	197.5	1,603	97.6
18-24	6,038	860.4	2,065	294.3
25-34	21,592	2,097.9	5,783	561.9
35-44	35,428	3,883.6	5,568	610.4
45-54	55,992	6,522.2	5,919	689.5
55-64	80,653	9,022.4	6,796	760.3
65+	18,346	1,338.4	9,360	682.9

Source: Arizona Hospital Discharge Database, 2023

In 2023, type II diabetes represented the highest rate of diabetes related hospital discharges (in any diagnosis field) in Arizona, followed by type I (Table 7).

Table 7. Diabetes-Related Hospital Discharges, Rate, Cost, and Average Length of Stay in Arizona by Diabetes Type in any Diagnosis Category, 2023

Any Diagnosis				
	Total Number of Discharges	Rate	Cost	Average Length of Stay (days)
Statewide	386,494	4,440.1	$18,449,168,95	3.3
Underlying Conditions	301	3.9	$15,121,316	4.9
Drug or Chemical Induced	255	3.0	$34,787,917	7.9
Type 1	16,959	233.5	$680,120,936	2.9
Type 2	358,628	4,048.7	$17,420,043,862	3.3
Pregnancy Related	10,962	161.2	$315,765,578	2.6
Other	627	7.7	$31,583,633	3.4

Source: Arizona Hospital Discharge Database, 2023
*Drug or Chemical Induced Diabetes is a type of diabetes that can develop as a side effect of certain medications or chemicals.[52]

In 2023, Type 2 diabetes represented the highest rate of diabetes related hospital discharges (in primary diagnosis field) in Arizona, followed by Type 1 (Table 8).

Table 8. Diabetes-Related Hospital Discharges, Rate, Cost, and Average Length of Stay in Arizona by Diabetes Type in Primary Diagnosis Category, 2023

Primary Diagnosis				
	Total Number of Discharges	Rate	Cost	Average Length of Stay (days)
Statewide	37,094	458.9	$1,353,934,008	2.7
Underlying Conditions	40	0.5	$607,888	1.2
Drug or Chemical Induced	26	0.3	$834,053	2.9
Type 1	6,088	86.7	$200,688,578	2.4
Type 2	26,490	322.7	$1,039,649,546	2.9

Pregnancy Related	4,312	62.7	$108,320,750	2.3
Other	138	1.8	$3,833,193	2.3

Source: Arizona Hospital Discharge Database, 2023

As shown in Table 9, Emergency Department visits make up the most diabetes-related hospital discharges in Arizona in 2023.

Table 9. Diabetes-Related Hospital Discharges in Arizona by Visit Type, 2023

Visit Type	Number of Discharges with Diabetes Listed in Any Diagnosis Category	Number of Discharges with Diabetes Listed as Leading Diagnosis
Emergency	213,870	18,906
Inpatient	172,624	18,188

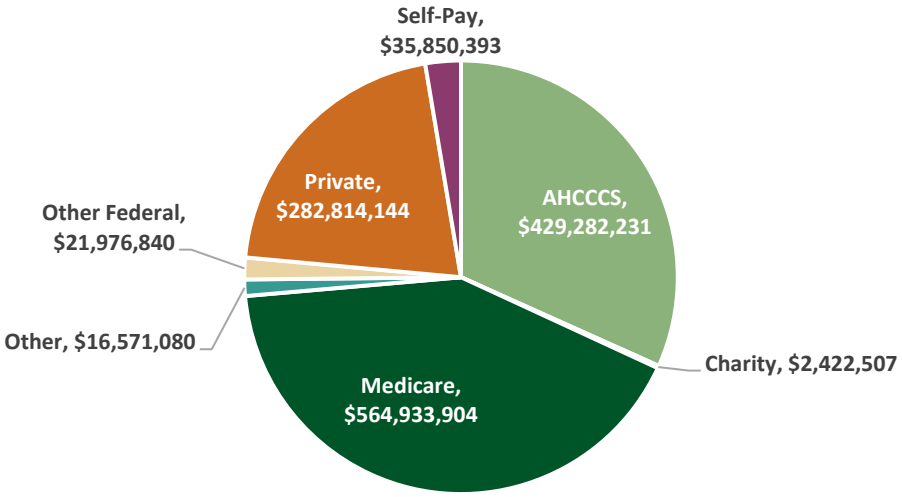
Source: Arizona Hospital Discharge Database, 2023

Patients using Medicare represented the highest number of diabetes related hospital discharges as well as the majority of costs. See Table 10 below for more details. The pie chart displays the total cost per payer when diabetes was the leading diagnosis.

Table 10. Diabetes-Related Hospital Discharges and Cost by Payer Type in Arizona, 2023

	Diabetes in Any Diagnosis Category		Diabetes as Leading Diagnosis	
Payer Type	Count	Total Cost	Count	Total Cost
AHCCCS	96,617	$3,601,959,651	14,331	$429,282,231
Charity	216	$19,974,796	28	$2,422,507
Medicare	194,120	$10,704,934,164	11,262	$564,933,904
Other	4,643	$265,879,398	522	$16,571,080
Other Federal	8,394	$362,002,193	796	$21,976,840
Private	71,986	$3,166,763,485	8,605	$282,814,144
Self-Pay	10,469	$326,091,109	1,546	$35,850,393

Source: Arizona Hospital Discharge Database, 2023



Morbidity

In 2022, an estimated 742,658 Arizonans were told that they ever had diabetes, according to the weighted BRFSS data. The highest estimated prevalence of diabetes was among males (14.1%), participants aged 65 and older (24.0%), Hispanic / Latinos (16.6%) and American Indians/Alaska Natives (16.6%), participants who reported less than a high school education (24.3%), and earned less than $15,000 a year (20.5%). (Table 11)

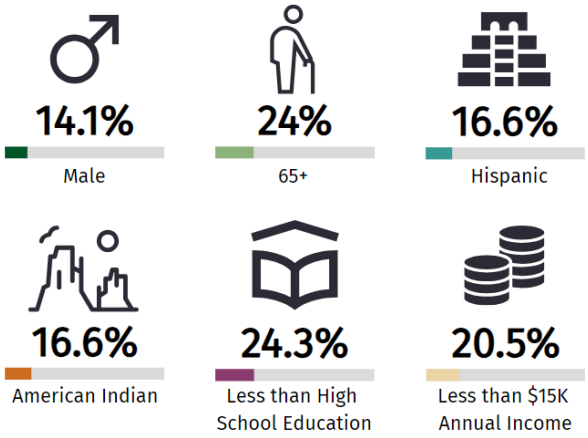


Table 11. Estimated Prevalence and Weighted Count of Arizona BRFSS Respondents Who Were Told by a Healthcare Provider That They Ever Had Diabetes, 2022

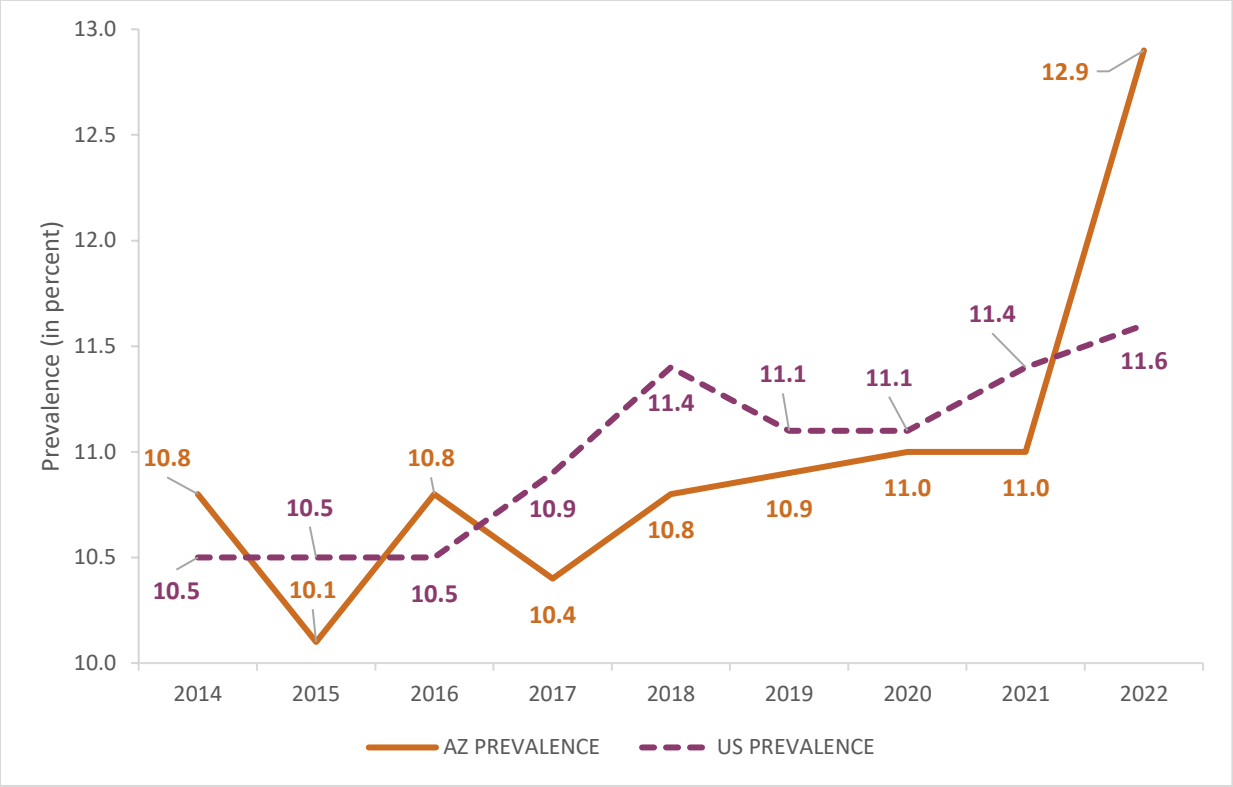
	Estimated Prevalence (%)	Weighted Count
Arizona Total	12.9	742,658
Gender		
Male	14.1	397,804
Female	11.8	344,854
Age		
18-24		
25-34	4.1	7,569
35-44	6.5	41,002
45-54	13.9	60,438
55-64	20.4	117,026
65+	24	174,880
Race/Ethnicity		
White Non-Hispanic	11.1	341,879
Black/African American	11.7	34,126

	Estimated Prevalence (%)	Weighted Count
Hispanic	16.6	263,368
American Indian/Alaska Native	16.6	33,777
Asian/Pacific Islander	10.7	25,371
Other*	7.7	13,210
Education		
Less than High school graduate	24.3	169,147
High school graduate/GED	11.9	169,412
Some college/technical school	12.4	245,765
College/technical school graduate	9.7	157,367
Income		
Less than $15,000	20.5	64,207
$15,000 to $24,999	17.3	75,110
$25,000 to $34,999	17.4	112,817
$35,000 to $49,999	12	73,259
$50,000 to $74,999	13	96,846
$75,000 +	8.8	151,011
Body Mass Index (BMI)		
Underweight	7.2	7,700
Normal weight	6.1	96,210
Overweight	12.1	204,878
Obese	20.9	357,741
Have Any Health Care Coverage		
Yes	13.9	679,516
No	7.4	42,694
Have a Personal Doctor		
Yes	15.1	657,197
No	6	79,542
Could Not See a Doctor Because of Cost		
Yes	12	81,913
No	13.1	658,273
Current Smoker		
No	12.8	584,114
Yes	14.6	95,602
Employment Status		
Employed/Self Employed	8.2	259,539
Out of Work	12	32,919
Homemaker	12.9	39,934
Student	2.2	4,610
Retired	23.2	294,956
Unable to Work	29	99,624
Marital Status		
Married/Unmarried Couple	14.1	438,803
Previously Married	17.1	127,759
Widowed	22.9	89,737
Never Married	5.8	81,788

Source: Arizona BRFSS 2022

The prevalence of Arizona BRFSS respondents who were told they ever had Diabetes by a healthcare provider increased steadily from 2014 to 2022. In 2022, the prevalence of Arizona BRFSS respondents who were told they had diabetes was higher than that of the United States. (Figure 12)

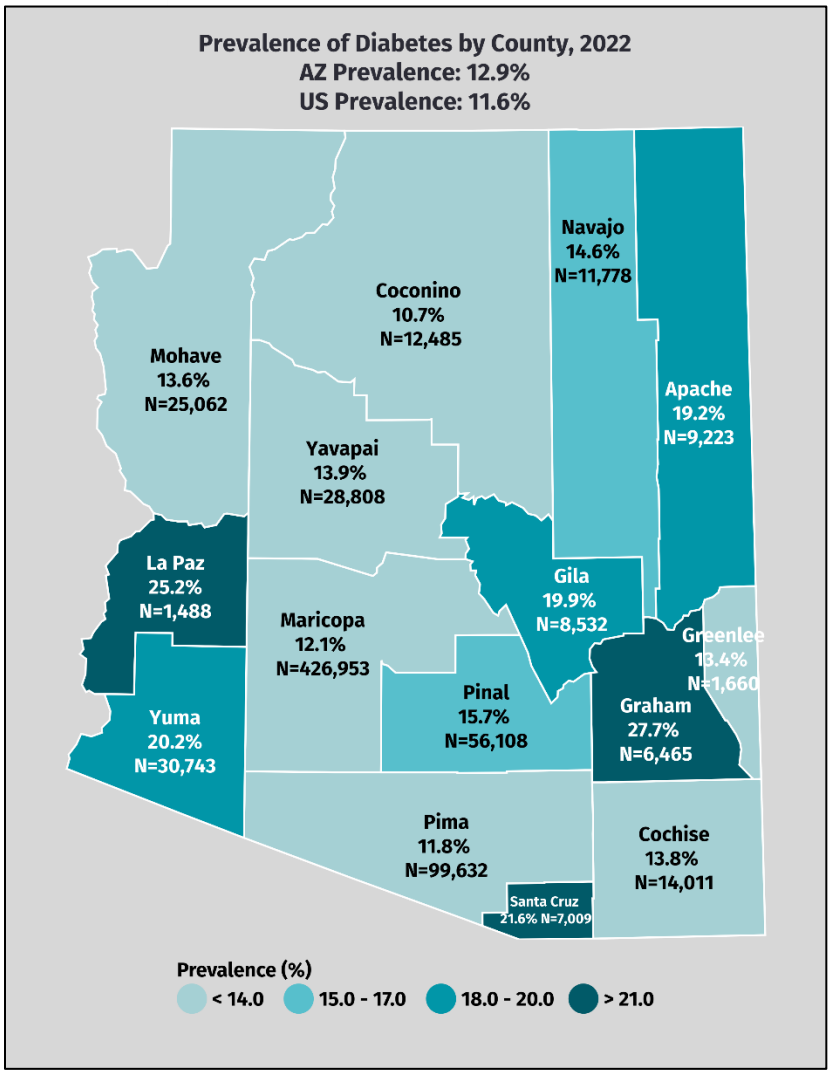
Figure 12. Prevalence of Arizona BRFSS Respondents Who Were Told They Ever Had Diabetes by a Healthcare Provider, AZ and US 2014-2022



Source: Arizona BRFSS 2022

In 2022, the estimated prevalence of Arizona BRFSS respondents who were told they ever had Diabetes was highest in Graham (27.7%), La Paz (25.2%) and Santa Cruz Counties (21.6%). (Figure 13)

Figure 13. Prevalence of Arizona BRFSS Respondents Who Were Told They Ever Had Diabetes by a Healthcare Provider, AZ and US 2014-2022



Source: Arizona BRFSS 2022

This 2025 Diabetes Action Plan and Report (DAP) uses BRFSS data to generate the state and county level prevalence averages above. Additionally, the DAP uses payer data from Medicare, Medicaid (AHCCCS), and a large portion of a privately insured population. Each of these payers submit claims data to ADHS, as mandated by the DAP requirements outlined in House Bill 2258. Data submitted includes diabetes prevalence estimations among their enrolled members which are shown in table 14 below for comparison.

Table 14. Prevalence of Enrolled Members Reported by Arizona Payers (Medicaid, Medicare, and Private Insurance), 2022 and 2023.

Agency	Time Period	Overall Diabetes Rate	Type 1 Diabetes Rate	Type 2 Diabetes Rate	Prediabetes Rate	Gestational Rate
AHCCCS*	2022	7.9	5.3	71.7	15.8	3.0
	2023	8.5	4.9	68.8	18.7	2.8
HSAG	2022	18.5	3.8	97.8	1.4	0.0
	2023	18.4	3.8	97.8	1.2	0.0
ADOA	2022	11.7	5.6	61.3	30.5	2.6
	2023	12.7	4.9	58.0	34.6	2.4
ASRS / PSRS	Medicare Plan 2023	24.9				
	Non-Medicare Plan 2023	25.7				

Source: Arizona Payer Prevalence Data Submissions, 2022 and 2023.
Note: Rate is per 100 persons
*Denominator is the average number of enrolled members for January through December.

Mortality

In 2023, there were 2,332 deaths in Arizona where diabetes was the leading cause of death. The highest mortality rates were among American Indian / Alaska Natives, (84.6 per 100,000 population), males (32.0 per 100,000 population) and persons aged 65 and older (118.2 per 100,000 population). (Table 15)

Table 15. Count and Rate per 100,000 Population of Diabetes-Related Death, Arizona 2023

	Count	Rate (per 100,000 population)
Statewide	2,332	25.2
Race/Ethnicity		
White non-Hispanic	1,398	19.5
Hispanic/Latino	508	33.7
Black or African American	137	44.4
American Indian/Alaska Native	219	84.6
Asian or Pacific Islander	60	23.3
Sex		
Male	1,434	32
Female	898	17.3
Age Group		
0-17	4	0.2
18-24	3	0.4
25-34	26	2.5

	Count	Rate (per 100,000 population)
35-44	73	8
45-54	186	21.7
55-64	420	47
65+	1,620	118.2

Source: Arizona Vital Statistics, 2023

In 2022, Type 2 diabetes represented the most diabetes-related deaths (per 100,000 population) among Arizonans. (Table 16)

Table 16. Count and Rate per 100,000 Population of Diabetes-Related Death by Diabetes Type, Arizona 2023

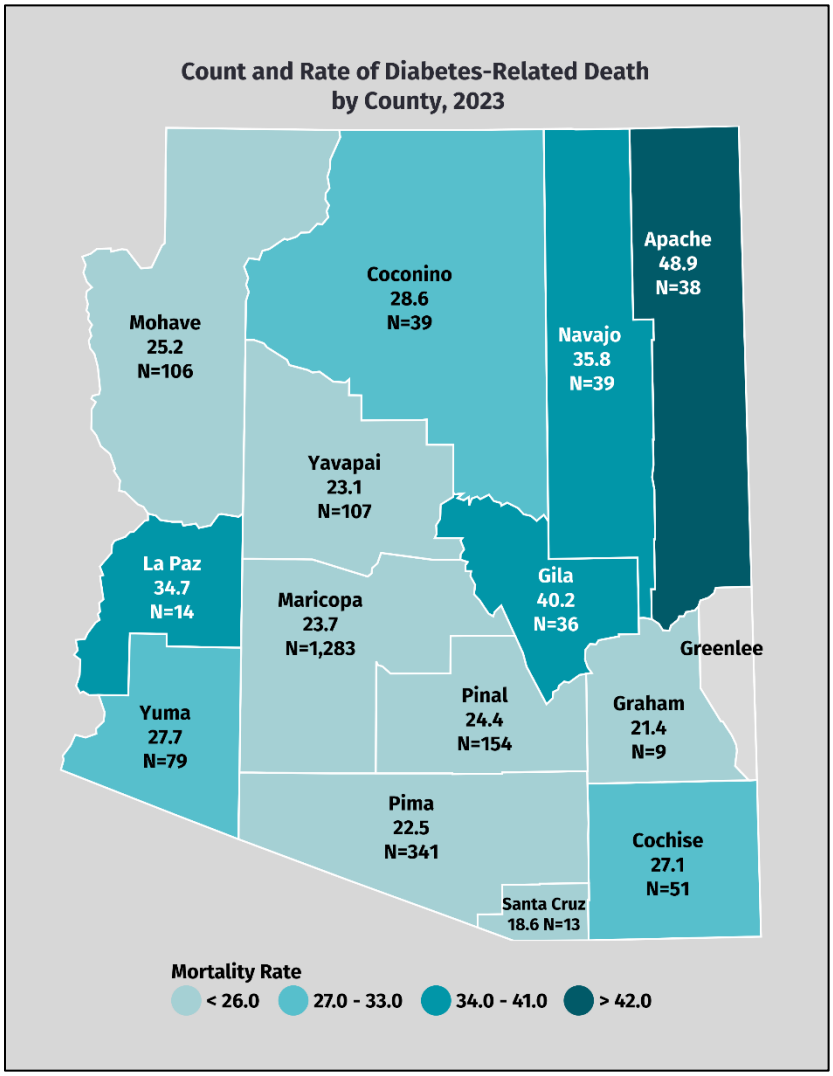
Diabetes Type	Count	Rate (per 100,000 population)
Underlying Conditions	0	0
Drug or Chemical Induced	0	0
Type 1	73	0.9
Type 2	968	9.9
Pregnancy Related	0	0
Other	0	0
Unspecified	1,291	13.5

Source: Arizona Vital Statistics, 2023

*Unspecified diabetes mellitus is a term used to describe an individual that has been diagnosed with diabetes, but the specific type of diabetes is not stated or cannot be determined based on the available medical information. This could also be due to the use of the incorrect ICD-10 code.

In 2023, Apache (48.87), Gila (40.24) and Navajo (35.83) counties had the highest rate (per 100,000 population) of diabetes-related deaths in Arizona. (Figure 17)

Figure 17. Count and Rate per 100,000 Population of Diabetes-Related Death by County, Arizona 2023



Source: Arizona Vital Statistics, 2023; Counts less than 6 have been suppressed

APPENDIX 4: FINANCIAL COSTS OF DIABETES IN ARIZONA

A Cost Estimate Baseline for Diabetes in Arizona

Cost estimates for diabetes in Arizona require sustainable cross functional health care data frameworks and a periodic cost estimate cadence to produce a reliable cost estimate model. Alignment of data systems in two public health systems, Syndromic Surveillance and Hospital Discharge Data, and their common message formats (i.e., HL7, electronic health records) may provide the data framework to develop a sustainable Arizona diabetes cost estimate model. Current data frameworks provide information that at times omits information or is collected for an earlier period.

Table 18 below identifies eight sources currently assessing the burden or cost of diabetes in Arizona. Historically, the Arizona Department of Health Services (ADHS) Diabetes Burden Report was Arizona's source of the cost of diabetes in Arizona. The burden report's cost data source was Hospital Discharge Data.

Table 18. Data Sources Used to Approximate Diabetes-Related Burden

Organization	Name of Report (linked)
Arizona Department of Health Services	AZ Hospital Discharge Data
Centers for Disease Control	Data and Statistics
American Diabetes Association	2022 *Economic Report* and 2024 State Fact Sheet
UnitedHealth Foundation	America's Health Rankings
National Centers for Health Statistics (CDC)	National Health and Nutrition Examination Survey (NHANES)
Robert Wood Johnson Foundation	County Health Rankings and Roadmaps
Sanofi: Managed Care Digest Series	Arizona Type 2 Diabetes Report™

Diabetes Cost Estimation Resources – not an exhaustive list

Cost Estimation Research/Method

Diabetes costs are typically broken into direct medical or indirect costs. Direct costs are associated with diabetes-related medical billing. Indirect costs may be financial burdens wherein diabetes has contributed to other primary, secondary, and tertiary conditions such as diseases of the heart, kidney disease, blindness, lower leg amputations and arthritis. Indirect costs also include absenteeism, reduced productivity while at work, or inability to work as a result of disease-related disability. These financial costs could also be described as explicit or implicit costs. The ADHS Hospital Discharge Database (HDD) is the primary source of information for the cost of diabetes used in the development of this report.

Every five years, the American Diabetes Association (ADA) publishes a comprehensive analysis reporting the financial burden of living with diabetes in the United States—the most recent release in 2023. *The Economic Costs of Diabetes in the U.S. in 2022 (Economic Report)* estimates the economic burden at the population and per capita levels in 2022 that combines U.S. population demographics, diabetes prevalence from national survey data, economic data, and health care cost data. These data, along with health resource use and associated medical costs, consider age, sex, race/ethnicity, comorbidities and health service category to calculate the Cost of Diabetes Economic Model. The ADA's data sources include national surveys, Medicare standard analytic files, and claims data for a large commercially insured population in the U.S. To align with the ADA's Cost of Diabetes Economic Model updated in the *2022 Economic Report*, Arizona diabetes costs will be described as direct medical and indirect costs. ADA's cost model is an inflation and growth adjusted model associated with diabetes prevalence.

Arizona Diabetes Operational and Financial Data

The following State of Arizona data sources were used:

- UnitedHealthcare on behalf of ASRS and PSPRS - Medical Data
- Arizona Department of Administration - Medical Data
- AHCCCS - Medical Data
- Behavioral Risk Factor Surveillance System (BRFSS)
- Hospital Discharge Data

The following external data sources were used:

- American Diabetes Association - *Economic Costs of Diabetes in the U.S. in 2022*

These data sources were selected due to the availability of data, historic relevance and role of state institutions providing support to prevent, control, and treat diabetes. Access to financial codes to support the cost estimate was also a large factor in identifying state data sources.

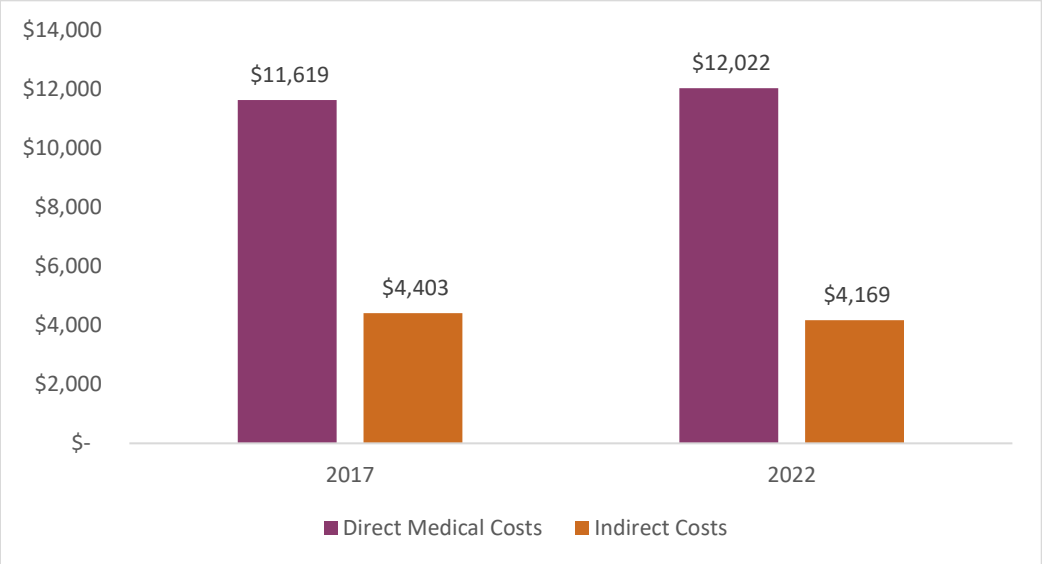
Arizona uses the ADA Cost of Diabetes Economic Model from the *2022 Economic Report* as

well as the ADA 2024 AZ State Fact Sheet's diabetes per capita cost estimate to reference direct medical and indirect costs for 2025. This will provide a per capita cost estimate for different Arizona populations that lack specific per capita cost.

The total estimated cost of diagnosed diabetes has increased since 2017. In 2022 the total estimated cost was calculated to be $412.90 billion4. The direct medical costs totaled $306.6 billion and the indirect medical costs attributable to diabetes reached $106.3 billion dollars. After adjusting for inflation, the 2022 Economic Report showed that the direct medical costs of diabetes increased by 7% from 2017-2022. Other national findings show that health care costs attributable to diabetes have increased in the ten years (2017-2022) by $80 billion, from $227 billion in 2012 to $307 billion in 2022.

When compared to the 2023 ADHS Hospital Discharge Database (HDD), it is noted that financial burden estimates are smaller. This disparity is largely due to data differences in ICD9 and ICD10 transitions and data interpretations at the individual state level. As noted in the tables below, there were 386,494 discharges from inpatient hospital care or the Emergency Department due to diabetes in 2023, with the majority of hospital stays occurring within the Medicare and Medicaid populations.

Figure 19. Average Direct and Indirect Costs Associated with Diabetes in the US, 2017-2022



Source: American Diabetes Association, Economic Cost of Diabetes in the U.S. 2022

The time frame for the Arizona diabetes cost estimate within this report is based on one year, primarily using data from the 2023 Hospital Discharge Data. This cost estimate may further help identify data elements and structures required to develop a model. While this cost estimate is a point estimate, additional years of data are needed to develop a cost estimate model similar to the model developed by the ADA.

Table 20 illustrates that the overall cost of diabetes episode treatment increased 23% from 2022 to 2023, and the burden of the cost was greatest among those with diabetes and other comorbidities.

Table 20. Diabetes Episodes Treatment Groups

Diabetes Episodes Treatment Groups					
Episode	**Max Year Episode Description**	**Total Episodes**	**Average Cost per Episode**	**Plan Paid per Episode**	***Total Costs**
2022	Diabetes, w comp, w comorb, w surg	151	$24,335	$21,481	$3,674,658
2022	Diabetes, w comp, w comorb, wo surg	2,508	$14,513	$13,096	$36,397,855
2022	Diabetes, w comp, wo comorb, wo surg	29	$9,456	$8,689	$274,221
2022	Diabetes, wo comp, w comorb, w surg	9	$13,326	$9,684	$119,937
2022	Diabetes, wo comp, w comorb, wo surg	6,591	$6,257	$5,691	$41,241,022
2022	Diabetes, wo comp, wo comorb, wo surg	584	$7,453	$6,767	$4,352,581
					$86,060,274
Episode	**Max Year Episode Description**	**Total Episodes**	**Average Cost per Episode**	**Plan Paid per Episode**	***Total Costs**
2023	Diabetes, w comp, w comorb, w surg	193	$29,920	$27,101	$5,774,564
2023	Diabetes, w comp, w comorb, wo surg	2,505	$15,966	$14,584	$39,995,938
2023	Diabetes, w comp, wo comorb, wo surg	48	$14,893	$13,397	$714,857
2023	Diabetes, wo comp, w comorb, w surg 13	13	$15,982	$14,900	$207,761

Diabetes Episodes Treatment Groups					
Episode	Max Year Episode Description	Total Episodes	Average Cost per Episode	Plan Paid per Episode	*Total Costs
2023	Diabetes, wo comp, w comorb, wo surg	7,034	$7,719	$7,065	$54,293,881
2023	Diabetes, wo comp, wo comorb, wo surg	639	$7,660	$7,032	$4,894,911
					$105,881,912

Note: comp = complications; comorb = comorbidity; surg = surgery; * Includes pharmacy costs. Source: Arizona Department of Administration (ADOA) Benefits Data 2022 and 2023.

Table 21 shows diabetes-related discharge counts and total costs by county. Residents of Maricopa, Pima and Pinal Counties were responsible for 82% of the total cost associated with diabetes-related hospitalizations and emergency department visits in Arizona. However, La Paz County represented the highest average cost per diabetes hospital discharge ($55,808).

Table 21. Diabetes-Related and Diabetes-Specific Hospitalization or Emergency Department Discharges and Costs by County, 2023

Diabetes Any Category, 2023		
	Total Discharges	Total Cost
Statewide	386,494	$18,449,168,958
County		
Apache	2,554	$137,877,983
Cochise	8,200	$318,490,450
Coconino	5,303	$195,358,137
Gila	4,286	$156,015,237
Graham	1,829	$51,174,931
Greenlee	359	$13,027,401
La Paz	1,358	$75,787,446
Maricopa	228,936	$11,051,858,560
Mohave	15,260	$816,395,924
Navajo	6,382	$299,563,279
Pima	56,039	$2,841,938,281
Pinal	28,251	$1,286,768,345
Santa Cruz	3,562	$153,420,373
Yavapai	14,803	$532,616,870
Yuma	9,373	$518,875,741

Data Source: Arizona Hospital Discharge Database, 2023; Hospital location (county), includes all encounters (resident and non- residents of Arizona); Diabetes ICD-10 codes included: E08, E09, E10, E11, E13, O24

Table 22 displays diabetes-related costs from Emergency and Inpatient encounters from the Arizona Hospital Discharge Database. Inpatient hospitalizations were responsible for 85% of the total cost associated with diabetes-related hospitalizations and emergency department visits in Arizona.

Table 22. Diabetes-Related Hospitalization or Emergency Department Discharges and Costs by Diagnosis Type, 2023

Diabetes Any Category, 2023		
	Total Discharges	Total Cost
Statewide	386,494	$18,449,168,958
Diagnosis Type		
Emergency	213,870	$2,844,031,032
Inpatient	172,624	$15,605,137,926

Data Source: Arizona Hospital Discharge Database, 2023; Hospital location (county), includes all encounters (resident and non- residents of Arizona); Diabetes ICD-10 codes included: E08, E09, E10, E11, E13, O24

Table 23 illustrates diabetes-related total cost, and the number of hospital or emergency room discharges by diabetes type. The discharge counts and cost by diabetes type are compared to the statewide totals of 386,494 discharges and $18,449,168,958, respectively. Type 2 diabetes is responsible for 94% of the total cost associated with diabetes-related hospitalizations and emergency department visits in Arizona. Drug or chemical induced diabetes represented the highest average costs per hospital discharge ($136,432).

Table 23. Diabetes-Related and Diabetes-Specific Hospitalization or Emergency Department Discharges and Costs by Diabetes Type, 2023

Diabetes Any Category, 2023		
	Total Discharges	Total Cost
Statewide	386,494	$18,449,168,958
Diabetes Type		
Underlying Conditions	301	$15,121,316
Drug or Chemical Induced	255	$34,787,917
Type 1	16,959	$680,120,936
Type 2	358,628	$17,420,043,862
Pregnancy Related	10,962	$315,765,578
Other	627	$31,583,633

Data Source: Arizona Hospital Discharge Database, 2023; Hospital location (county), includes all encounters (resident and non- residents of Arizona); Diabetes ICD-10 codes included: E08, E09, E10, E11, E13, O24

Table 24 displays diabetes-related total cost and the number of hospital or emergency room discharges stratified by payer type. Patients with private insurance accounted for 18.6% of the diabetes-related hospital or emergency room encounters, while two main federal payers, Medicaid (AHCCCS) and Medicare, account for 75% of the statewide total. Medicare patients with diabetes alone accounted for 58% of the total cost associated with diabetes-related

hospitalizations and emergency department visits in Arizona. However, Charity patients represented the highest average cost of diabetes related hospital discharges ($92,476).

Table 24. Diabetes-Related and Diabetes-Specific Hospitalization or Emergency Department Discharges and Costs by Payer Type, 2023

Diabetes Any Category, 2023		
	Total Discharges	Total Cost
Statewide	386,494	$18,449,168,958
Payer Type		
AHCCCS	96,617	$3,601,959,651
Charity	216	$19,974,796
Medicare	194,120	$10,704,934,164
Other	4,643	$265,879,398
Other Federal	8,394	$362,002,193
Private	71,986	$3,166,763,485
Self-Pay	10,469	$326,091,109

Data Source: Arizona Hospital Discharge Database, 2023; Hospital location (county), includes all encounters (resident and non- residents of Arizona); Diabetes ICD-10 codes included: E08, E09, E10, E11, E13, O24

Table 25 displays diabetes-related total cost and the number of hospital or emergency room discharges stratified by race/ethnicity. The discharge counts and cost by diabetes type are compared to the statewide totals of 386,494 discharges and $18,449,168,958, respectively. Hispanic/Latino patients with diabetes account for the second largest group as it relates to diabetes-related hospitalizations and emergency department visits. White non-Hispanic patients with diabetes accounted for 61% of the total cost associated with diabetes-related hospitalizations and emergency department visits in Arizona. White non-Hispanic patients with diabetes also had the highest average cost of diabetes related hospital discharges ($51,312).

Table 25. Diabetes-Related and Diabetes-Specific Hospitalization or Emergency Department Discharges and Costs by Race/Ethnicity, 2023

Diabetes Any Category, 2023		
	Total Discharges	Total Cost
Statewide	386,494	$18,449,168,958
Race/Ethnicity		
White Non-Hispanic	220,556	$11,316,871,207
Hispanic/Latino	100,063	$4,187,791,659
Black or African American	27,496	$1,155,775,138
American Indian/Alaska Native	24,107	$1,058,272,873
Asian or Pacific Islander	8,938	$438,071,119

Data Source: Arizona Hospital Discharge Database, 2023; Hospital location (county), includes all encounters (resident and non- residents of Arizona); Diabetes ICD-10 codes included: E08, E09, E10, E11, E13, O24

Table 26 illustrates the diabetes-related total cost and the number of hospital or emergency room discharges stratified by age group. All diabetes types, including type 1 and gestational diabetes, are considered included within the hospitalization/emergency discharge data which may account for costs and hospitalization within the two youngest age groups: 0-17 and 18-24. Adults age 65 and older with diabetes accounted for 56% of the total cost associated with diabetes-related hospitalizations and emergency department visits in Arizona. Adults age 65 and older also represented the highest average cost of diabetes related hospital discharges($56,202).

Table 26. Diabetes-Related and Diabetes-Specific Hospitalization or Emergency Department Discharges and Costs by Age Group, 2023

Diabetes Any Category, 2023		
	Total Discharges	Total Cost
Statewide	386,494	$18,449,168,958
Age Group		
0-17	3,245	$81,176,240
18-24	6,038	$160,156,731
25-34	21,592	$614,624,910
35-44	35,428	$1,162,624,823
45-54	55,992	$2,220,977,463
55-64	80,653	$3,894,181,939
65+	18,346	$10,315,354,384

Data Source: Arizona Hospital Discharge Database, 2023; Hospital location (county), includes all encounters (resident and non- residents of Arizona); Diabetes ICD-10 codes included: E08, E09, E10, E11, E13, O24

APPENDIX 5: DATA MEASURES AND SOURCES INCLUDED IN DIABETES ACTION PLAN AND REPORT

The financial data reported in this section is limited to what was accessible within the allocated budget, time limitations and agency expertise.

- 2019 Arizona State Health Assessment
- 2021 Arizona State Health Assessment
- 2022 Arizona State Health Assessment
- 2021 Diabetes Action Plan and Report Previous Recommendations
- 2023 Diabetes Action Plan and Report Previous Recommendations
- 2022 Sanofi - Arizona Type 2 Diabetes Report™
- Arizona State Retirement System | UnitedHealth Group Diabetes Data Request 2021-2022
- Arizona State Retirement System | UnitedHealth Group Diabetes Data Request 2022-2023
- Phoenix Area IHS Statement for ADHS – 2023 Diabetes Action Plan and Report
- Arizona Health Care Cost Containment System (AHCCCS) Population Highlights 2024

CDC/Arizona Behavioral Risk Factor Surveillance System (BRFSS)

The BRFSS is the nation's premier system of health-related telephone surveys that collects state data about residents regarding their behaviors that influence individual health, chronic conditions and their use of preventive services. The BRFSS is an ongoing data collection system gathering information on adult health-related behaviors of non-institutionalized residents 18 years of age and older. Only one (1) adult per household is interviewed and the participants are not compensated for their time.

A standardized questionnaire (~75 questions) is used with questions determined by the state BRFSS coordinator and the CDC. Participants of the survey are determined by random sampling telephone survey, using disproportionate stratified sampling, random digit dialing, and a Computer Assisted Telephone Interviewing (CATI) system using a sample size of 4,700 over a twelve (12) month survey period (sample size 95% confidence interval of ±3%). Each survey has the potential to represent 96.3% of all households that have landline telephones and cell phones. Monthly data files are sent to the Arizona BRFSS program and reports are prepared. Data is weighted based on Arizona population demographics and takes into account the number of adults and telephone lines in the household, cluster size, stratum size and age/race/sex distribution of the general population.

CORE QUESTION: DIABETES (ASKED EVERY YEAR)

Q. Has a doctor, nurse, or other health professional EVER told you that you have diabetes?

1. Yes

2. Yes, but female told only during pregnancy

3. No

4. No, prediabetes or borderline diabetes

7. Don‘t know / Not sure

9. Refused Diabetes in Arizona

MODULE 1: PREDIABETES (LAST TIME ASKED IN 2020)

Q. Have you had a test for high blood sugar or diabetes within the past three years?

1. Yes

2. No

7. Don’t know / Not sure

9. Refused

ICD-10 Codes: International Classification of Diseases Codes

The International Classification of Diseases (ICD) codes are used to classify diseases and other health problems recorded on many types of health and vital records, including death certificates and health records. In this report, the ICD-10-CM International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) were used. Additional information on these codes from the National Center for Health Statistics can be found here: CDC - National Center for Health Statistics. A full description of the ICD-10 codes can be found here: ICD-10-CM Browser Tool

- Mortality: ICD-10 Diagnosis Codes
- Diabetes: E10-E14

ICD-10 Codes for Diabetes Due to an Underlying Condition

- Diabetes mellitus due to underlying condition: E08
  - Diabetes mellitus due to underlying condition with hyperosmolarity: E08.0
    - …… without nonketotic hyperglycemic-hyperosmolar coma (NKHHC): E08.00
    - …… with coma: E08.01
  - Diabetes mellitus due to underlying condition with ketoacidosis: E08.1
    - …… without coma: E08.10
    - …… with coma: E08.11
  - Diabetes mellitus due to underlying condition with kidney complications: E08.2
    - Diabetes mellitus due to underlying condition with diabetic nephropathy: E08.21
    - Diabetes mellitus due to underlying condition with diabetic chronic kidney disease: E08.22
    - Diabetes mellitus due to underlying condition with other diabetic kidney complication: E08.29
  - Diabetes mellitus due to underlying condition with ophthalmic complications: E08.3
    - Diabetes mellitus due to underlying condition with unspecified diabetic retinopathy: E08.31
      - …… with macular edema: E08.311
      - …… without macular edema: E08.319
    - Diabetes mellitus due to underlying condition with mild nonproliferative diabetic retinopathy: E08.32
      - …… with macular edema: E08.321
      - …… without macular edema: E08.329
    - Diabetes mellitus due to underlying condition with moderate nonproliferative diabetic retinopathy: E08.33
      - …… with macular edema: E08.331
      - …… without macular edema: E08.339
    - Diabetes mellitus due to underlying condition with severe nonproliferative diabetic retinopathy: E08.34
      - …… with macular edema: E08.341
      - …… without macular edema: E08.349
    - Diabetes mellitus due to underlying condition with proliferative diabetic retinopathy: E08.35
      - …… with macular edema: E08.351
      - …… without macular edema: E08.359
    - Diabetes mellitus due to underlying condition with diabetic cataract: E08.36
    - Diabetes mellitus due to underlying condition with other diabetic ophthalmic complication: E08.39
  - Diabetes mellitus due to underlying condition with neurological complications: E08.4
    - Diabetes mellitus due to underlying condition with diabetic neuropathy, unspecified: E08.40
    - Diabetes mellitus due to underlying condition with diabetic mononeuropathy: E08.41

    - Diabetes mellitus due to underlying condition with diabetic polyneuropathy: E08.42
    - Diabetes mellitus due to underlying condition with diabetic autonomic (poly)neuropathy: E08.43
    - Diabetes mellitus due to underlying condition with diabetic amyotrophy: E08.44
    - Diabetes mellitus due to underlying condition with other diabetic neurological complication: E08.49
- Diabetes mellitus due to underlying condition with circulatory complications: E08.5
    - Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy without gangrene: E08.51
    - Diabetes mellitus due to underlying condition with diabetic peripheral angiopathy with gangrene: E08.52
    - Diabetes mellitus due to underlying condition with other circulatory complications: E08.59
- Diabetes mellitus due to underlying condition with other specified complications: E08.6
    - Diabetes mellitus due to underlying condition with diabetic arthropathy: E08.61
        - Diabetes mellitus due to underlying condition with diabetic neuropathic arthropathy: E08.610
        - Diabetes mellitus due to underlying condition with other diabetic arthropathy: E08.618
    - Diabetes mellitus due to underlying condition with skin complications: E08.62
        - Diabetes mellitus due to underlying condition with diabetic dermatitis: E08.620
        - Diabetes mellitus due to underlying condition with foot ulcer: E08.621
        - Diabetes mellitus due to underlying condition with other skin ulcer: E08.622
        - Diabetes mellitus due to underlying condition with other skin complications: E08.628
    - Diabetes mellitus due to underlying condition with oral complications: E08.63
        - Diabetes mellitus due to underlying condition with periodontal disease: E08.630
        - Diabetes mellitus due to underlying condition with other oral complications: E08.638
    - Diabetes mellitus due to underlying condition with hypoglycemia: E08.64
        - ..... with coma: E08.641
        - ..... without coma: E08.649
    - Diabetes mellitus due to underlying condition with hyperglycemia: E08.65
    - Diabetes mellitus due to underlying condition with other specified complication: E08.69
- Diabetes mellitus due to underlying condition with unspecified complications: E08.8
- Diabetes mellitus due to underlying condition without complications: E08.9

ICD-10 Codes for Drug or Chemical Induced Diabetes

- Drug or chemical induced diabetes mellitus: E09
  - Drug or chemical induced diabetes mellitus with hyperosmolarity: E09.0
    - …… without nonketotic hyperglycemic-hyperosmolar coma (NKHHC): E09.00
    - …… with coma: E09.01
  - Drug or chemical induced diabetes mellitus with ketoacidosis: E09.1
    - …… without coma: E09.10
    - …… with coma: E09.11
  - Drug or chemical induced diabetes mellitus with kidney complications: E09.2
    - Drug or chemical induced diabetes mellitus with diabetic nephropathy: E09.21
    - Drug or chemical induced diabetes mellitus with diabetic chronic kidney disease: E09.22
    - Drug or chemical induced diabetes mellitus with other diabetic kidney complication: E09.29
  - Drug or chemical induced diabetes mellitus with ophthalmic complications: E09.3
    - Drug or chemical induced diabetes mellitus with unspecified diabetic retinopathy: E09.31
      - …… with macular edema: E09.311
      - …… without macular edema: E09.319
    - Drug or chemical induced diabetes mellitus with mild nonproliferative diabetic retinopathy: E09.32
      - …… with macular edema: E09.321
      - …… without macular edema: E09.329
    - Drug or chemical induced diabetes mellitus with moderate nonproliferative diabetic retinopathy: E09.33
      - …… with macular edema: E09.331
      - …… without macular edema: E09.339
    - Drug or chemical induced diabetes mellitus with severe nonproliferative diabetic retinopathy: E09.34
      - …… with macular edema: E09.341
      - …… without macular edema: E09.349
    - Drug or chemical induced diabetes mellitus with proliferative diabetic retinopathy: E09.35
      - …… with macular edema: E09.351
      - …… without macular edema: E09.359
    - Drug or chemical induced diabetes mellitus with diabetic cataract: E09.36
    - Drug or chemical induced diabetes mellitus with other diabetic ophthalmic complication: E09.39
  - Drug or chemical induced diabetes mellitus with neurological complications: E09.4
    - …… with diabetic neuropathy, unspecified: E09.40
    - …… with diabetic mononeuropathy: E09.41
    - …… with diabetic polyneuropathy: E09.42
    - …… with diabetic autonomic (poly)neuropathy: E09.43
    - …… with diabetic amyotrophy: E09.44

    - …… with other diabetic neurological complication: E09.49
- Drug or chemical induced diabetes mellitus with circulatory complications: E09.5
    - Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy without gangrene: E09.51
    - Drug or chemical induced diabetes mellitus with diabetic peripheral angiopathy with gangrene: E09.52
    - Drug or chemical induced diabetes mellitus with other circulatory complications: E09.59
- Drug or chemical induced diabetes mellitus with other specified complications: E09.6
    - Drug or chemical induced diabetes mellitus with diabetic arthropathy: E09.61
        - Drug or chemical induced diabetes mellitus with diabetic neuropathic arthropathy: E09.610
        - Drug or chemical induced diabetes mellitus with other diabetic arthropathy: E09.618
    - Drug or chemical induced diabetes mellitus with skin complications: E09.62
        - Drug or chemical induced diabetes mellitus with diabetic dermatitis: E09.620
        - Drug or chemical induced diabetes mellitus with foot ulcer: E09.621
        - Drug or chemical induced diabetes mellitus with other skin ulcer: E09.622
        - Drug or chemical induced diabetes mellitus with other skin complications: E09.628
    - Drug or chemical induced diabetes mellitus with oral complications: E09.63
        - Drug or chemical induced diabetes mellitus with periodontal disease: E09.630
        - Drug or chemical induced diabetes mellitus with other oral complications: E09.638
    - Drug or chemical induced diabetes mellitus with hypoglycemia: E09.64
        - …… with coma: E09.641
        - …… without coma: E09.649
    - Drug or chemical induced diabetes mellitus with hyperglycemia: E09.65
    - Drug or chemical induced diabetes mellitus with other specified complication: E09.69
- Drug or chemical induced diabetes mellitus with unspecified complications: E09.8
- Drug or chemical induced diabetes mellitus without complications: E09.9

ICD-10 Codes for Type 1 (Juvenile) Diabetes

- Type 1 diabetes mellitus: E10
  - Type 1 diabetes mellitus with ketoacidosis: E10.1
    - …… without coma: E10.10
    - …… with coma: E10.11
  - Type 1 diabetes mellitus with kidney complications: E10.2
    - Type 1 diabetes mellitus with diabetic nephropathy: E10.21
    - Type 1 diabetes mellitus with diabetic chronic kidney disease: E10.22
    - Type 1 diabetes mellitus with other diabetic kidney complication: E10.29
  - Type 1 diabetes mellitus with ophthalmic complications: E10.3
    - Type 1 diabetes mellitus with unspecified diabetic retinopathy: E10.31
      - …… with macular edema: E10.311
      - …… without macular edema: E10.319
    - Type 1 diabetes mellitus with mild nonproliferative diabetic retinopathy: E10.32
      - …… with macular edema: E10.321
      - …… without macular edema: E10.329
    - Type 1 diabetes mellitus with moderate nonproliferative diabetic retinopathy: E10.33
      - …… with macular edema: E10.331
      - …… without macular edema: E10.339
    - Type 1 diabetes mellitus with severe nonproliferative diabetic retinopathy: E10.34
      - …… with macular edema: E10.341
      - …… without macular edema: E10.349
    - Type 1 diabetes mellitus with proliferative diabetic retinopathy: E10.35
      - …… with macular edema: E10.351
      - …… without macular edema: E10.359
    - Type 1 diabetes mellitus with diabetic cataract: E10.36
    - Type 1 diabetes mellitus with other diabetic ophthalmic complication: E10.39
  - Type 1 diabetes mellitus with neurological complications: E10.4
    - Type 1 diabetes mellitus with diabetic neuropathy, unspecified: E10.40
    - Type 1 diabetes mellitus with diabetic mononeuropathy: E10.41
    - Type 1 diabetes mellitus with diabetic polyneuropathy: E10.42
    - Type 1 diabetes mellitus with diabetic autonomic (poly)neuropathy: E10.43
    - Type 1 diabetes mellitus with diabetic amyotrophy: E10.44
    - Type 1 diabetes mellitus with other diabetic neurological complication: E10.49
  - Type 1 diabetes mellitus with circulatory complications: E10.5
    - Type 1 diabetes mellitus with diabetic peripheral angiopathy without gangrene: E10.51
    - Type 1 diabetes mellitus with diabetic peripheral angiopathy with gangrene: E10.52
    - Type 1 diabetes mellitus with other circulatory complications: E10.59
  - Type 1 diabetes mellitus with other specified complications: E10.6
    - Type 1 diabetes mellitus with diabetic arthropathy: E10.61

        - Type 1 diabetes mellitus with diabetic neuropathic arthropathy: E10.610
        - Type 1 diabetes mellitus with other diabetic arthropathy: E10.618
    - Type 1 diabetes mellitus with skin complications: E10.62
        - Type 1 diabetes mellitus with diabetic dermatitis: E10.620
        - Type 1 diabetes mellitus with foot ulcer: E10.621
        - Type 1 diabetes mellitus with other skin ulcer: E10.622
        - Type 1 diabetes mellitus with other skin complications: E10.628
    - Type 1 diabetes mellitus with oral complications: E10.63
        - Type 1 diabetes mellitus with periodontal disease: E10.630
        - Type 1 diabetes mellitus with other oral complications: E10.638
    - Type 1 diabetes mellitus with hypoglycemia: E10.64
        - …… with coma: E10.641
        - …… without coma: E10.649
    - Type 1 diabetes mellitus with hyperglycemia: E10.65
    - Type 1 diabetes mellitus with other specified complication: E10.69
- Type 1 diabetes mellitus with unspecified complications: E10.8
- Type 1 diabetes mellitus without complications: E10.9

ICD-10 Codes for Type 2 Diabetes

- Type 2 diabetes mellitus: E11
  - Type 2 diabetes mellitus with hyperosmolarity: E11.0
    - …… without non-ketotic hyperglycemic-hyperosmolar coma (NKHHC): E11.00
    - …… with coma: E11.01
  - Type 2 diabetes mellitus with kidney complications: E11.2
    - Type 2 diabetes mellitus with diabetic nephropathy: E11.21
    - Type 2 diabetes mellitus with diabetic chronic kidney disease: E11.22
    - Type 2 diabetes mellitus with other diabetic kidney complication: E11.29
  - Type 2 diabetes mellitus with ophthalmic complications: E11.3
    - Type 2 diabetes mellitus with unspecified diabetic retinopathy: E11.31
      - …… with macular edema: E11.311
      - …… without macular edema: E11.319
    - Type 2 diabetes mellitus with mild nonproliferative diabetic retinopathy: E11.32
      - …… with macular edema: E11.321
      - …… without macular edema: E11.329
    - Type 2 diabetes mellitus with moderate nonproliferative diabetic retinopathy: E11.33
      - …… with macular edema: E11.331
      - …… without macular edema: E11.339
    - Type 2 diabetes mellitus with severe nonproliferative diabetic retinopathy: E11.34
      - …… with macular edema: E11.341
      - …… without macular edema: E11.349
    - Type 2 diabetes mellitus with proliferative diabetic retinopathy: E11.35
      - …… with macular edema: E11.351
      - …… without macular edema: E11.359
    - Type 2 diabetes mellitus with diabetic cataract: E11.36
    - Type 2 diabetes mellitus with other diabetic ophthalmic complication: E11.39
  - Type 2 diabetes mellitus with neurological complications: E11.4
    - Type 2 diabetes mellitus with diabetic neuropathy, unspecified: E11.40
    - Type 2 diabetes mellitus with diabetic mononeuropathy: E11.41
    - Type 2 diabetes mellitus with diabetic polyneuropathy: E11.42
    - Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy: E11.43
    - Type 2 diabetes mellitus with diabetic amyotrophy: E11.44
    - Type 2 diabetes mellitus with other diabetic neurological complication: E11.49
  - Type 2 diabetes mellitus with circulatory complications: E11.5
    - Type 2 diabetes mellitus with diabetic peripheral angiopathy without gangrene: E11.51
    - Type 2 diabetes mellitus with diabetic peripheral angiopathy with gangrene: E11.52
    - Type 2 diabetes mellitus with other circulatory complications: E11.59
  - Type 2 diabetes mellitus with other specified complications: E11.6
    - Type 2 diabetes mellitus with diabetic arthropathy: E11.61

        - Type 2 diabetes mellitus with diabetic neuropathic arthropathy: E11.610
        - Type 2 diabetes mellitus with other diabetic arthropathy: E11.618
    - Type 2 diabetes mellitus with skin complications: E11.62
        - Type 2 diabetes mellitus with diabetic dermatitis: E11.620
        - Type 2 diabetes mellitus with foot ulcer: E11.621
        - Type 2 diabetes mellitus with other skin ulcer: E11.622
        - Type 2 diabetes mellitus with other skin complications: E11.628
    - Type 2 diabetes mellitus with oral complications: E11.63
        - Type 2 diabetes mellitus with periodontal disease: E11.630
        - Type 2 diabetes mellitus with other oral complications: E11.638
    - Type 2 diabetes mellitus with hypoglycemia: E11.64
        - …… with coma: E11.641
        - …… without coma: E11.649
    - Type 2 diabetes mellitus with hyperglycemia: E11.65
    - Type 2 diabetes mellitus with other specified complication: E11.69
- Type 2 diabetes mellitus with unspecified complications: E11.8
- Type 2 diabetes mellitus without complications: E11.9

ICD-10 Codes for Diabetes Related to Pregnancy and Childbirth

- Diabetes mellitus in pregnancy, childbirth, and the puerperium: 024
  - Pre-existing diabetes mellitus, type 1, in pregnancy, childbirth and the puerperium: 024.0
    - Pre-existing diabetes mellitus, type 1, in pregnancy: 024.01
      - …… first trimester: 024.011
      - …… second trimester: 024.012
      - …… third trimester: 024.013
      - …… unspecified trimester: 024.019
    - Pre-existing diabetes mellitus, type 1, in childbirth: 024.02
    - Pre-existing diabetes mellitus, type 1, in the puerperium: 024.03
  - Pre-existing diabetes mellitus, type 2, in pregnancy, childbirth and the puerperium: 024.1
    - Pre-existing diabetes mellitus, type 2, in pregnancy: 024.11
      - …… first trimester: 024.111
      - …… second trimester: 024.112
      - …… third trimester: 024.113
      - …… unspecified trimester: 024.119
    - Pre-existing diabetes mellitus, type 2, in childbirth: 024.12
    - Pre-existing diabetes mellitus, type 2, in the puerperium: 024.13
  - Unspecified pre-existing diabetes mellitus in pregnancy, childbirth and the puerperium: 024.3
    - Unspecified pre-existing diabetes mellitus in pregnancy: 024.31
      - …… first trimester: 024.311
      - …… second trimester: 024.312
      - …… third trimester: 024.313
      - …… unspecified trimester: 024.319
    - Unspecified pre-existing diabetes mellitus in childbirth: 024.32
    - Unspecified pre-existing diabetes mellitus in the puerperium: 024.33
  - Gestational diabetes mellitus: 024.4
    - Gestational diabetes mellitus in pregnancy: 024.41
      - …… diet controlled: 024.410
      - …… insulin controlled: 024.414
      - …… unspecified control: 024.419
    - Gestational diabetes mellitus in childbirth: 024.42
      - …… diet controlled: 024.420
      - …… insulin controlled: 024.424
      - …… unspecified control: 024.429
    - Gestational diabetes mellitus in the puerperium: 024.43
      - …… diet controlled: 024.430
      - …… insulin controlled: 024.434
      - …… unspecified control: 024.439
  - Other pre-existing diabetes mellitus in pregnancy, childbirth, and the puerperium: 024.8

    - Other pre-existing diabetes mellitus in pregnancy: 024.81
        - …… first trimester: 024.811
        - …… second trimester: 024.812
        - …… third trimester: 024.813
        - …… unspecified trimester: 024.819
    - Other pre-existing diabetes mellitus in childbirth: 024.82
    - Other pre-existing diabetes mellitus in the puerperium: 024.83
- Unspecified diabetes mellitus in pregnancy, childbirth and the puerperium: 024.9
    - Unspecified diabetes mellitus in pregnancy: 024.91
        - …… first trimester: 024.911
        - …… second trimester: 024.912
        - …… third trimester: 024.913
        - …… unspecified trimester: 024.919
    - Unspecified diabetes mellitus in childbirth: 024.92
    - Unspecified diabetes mellitus in the puerperium: 024.93

ICD-10 Codes for Other Types of Diabetes

- Other specified diabetes mellitus: E13
  - Other specified diabetes mellitus with hyperosmolarity: E13.0
    - …… without nonketotic hyperglycemic-hyperosmolar coma (NKHHC): E13.00
    - …… with coma: E13.01
  - Other specified diabetes mellitus with ketoacidosis: E13.1
    - …… without coma: E13.10
    - …… with coma: E13.11
  - Other specified diabetes mellitus with kidney complications: E13.2
    - Other specified diabetes mellitus with diabetic nephropathy: E13.21
    - Other specified diabetes mellitus with diabetic chronic kidney disease: E13.22
    - Other specified diabetes mellitus with other diabetic kidney complication: E13.29
  - Other specified diabetes mellitus with ophthalmic complications: E13.3
    - Other specified diabetes mellitus with unspecified diabetic retinopathy: E13.31
      - …… with macular edema: E13.311
      - …… without macular edema: E13.319
    - Other specified diabetes mellitus with mild nonproliferative diabetic retinopathy: E13.32
      - …… with macular edema: E13.321
      - …… without macular edema: E13.329
    - Other specified diabetes mellitus with moderate nonproliferative diabetic retinopathy: E13.33
      - …… with macular edema: E13.331
      - …… without macular edema: E13.339
    - Other specified diabetes mellitus with severe nonproliferative diabetic retinopathy: E13.34
      - …… with macular edema: E13.341
      - …… without macular edema: E13.349
    - Other specified diabetes mellitus with proliferative diabetic retinopathy: E13.35
      - …… with macular edema: E13.351
      - …… without macular edema: E13.359
    - Other specified diabetes mellitus with diabetic cataract: E13.36
    - Other specified diabetes mellitus with other diabetic ophthalmic complication: E13.39
  - Other specified diabetes mellitus with neurological complications: E13.4
    - Other specified diabetes mellitus with diabetic neuropathy, unspecified: E13.40
    - Other specified diabetes mellitus with diabetic mononeuropathy: E13.41
    - Other specified diabetes mellitus with diabetic polyneuropathy: E13.42
    - Other specified diabetes mellitus with diabetic autonomic (poly)neuropathy: E13.43
    - Other specified diabetes mellitus with diabetic amyotrophy: E13.44
    - Other specified diabetes mellitus with other diabetic neurological complication: E13.49

- Other specified diabetes mellitus with circulatory complications: E13.5
    - Other specified diabetes mellitus with diabetic peripheral angiopathy without gangrene: E13.51
    - Other specified diabetes mellitus with diabetic peripheral angiopathy with gangrene: E13.52
    - Other specified diabetes mellitus with other circulatory complications: E13.59
- Other specified diabetes mellitus with other specified complications: E13.6
    - Other specified diabetes mellitus with diabetic arthropathy: E13.61
        - Other specified diabetes mellitus with diabetic neuropathic arthropathy: E13.610
        - Other specified diabetes mellitus with other diabetic arthropathy: E13.618
    - Other specified diabetes mellitus with skin complications: E13.62
        - Other specified diabetes mellitus with diabetic dermatitis: E13.620
        - Other specified diabetes mellitus with foot ulcer: E13.621
        - Other specified diabetes mellitus with other skin ulcer: E13.622
        - Other specified diabetes mellitus with other skin complications: E13.628
    - Other specified diabetes mellitus with oral complications: E13.63
        - Other specified diabetes mellitus with periodontal disease: E13.630
        - Other specified diabetes mellitus with other oral complications: E13.638
    - Other specified diabetes mellitus with hypoglycemia: E13.64
        - ..... with coma: E13.641
        - ..... without coma: E13.649
    - Other specified diabetes mellitus with hyperglycemia: E13.65
    - Other specified diabetes mellitus with other specified complication: E13.69
- Other specified diabetes mellitus with unspecified complications: E13.8
- Other specified diabetes mellitus without complications: E13.9
- Diabetes mellitus due to underlying condition with hypoglycemia without coma: E08.649
- Use Additional code to identify site of ulcer (L97.1-L97.9, L98.41-L98.49)

APPENDIX 6. STATE PROFILE OF ORGANIZATIONS

Arizona Health Care Cost Containment System (AHCCCS)

About: AHCCCS is Arizona's Medicaid program, a federal health care program jointly funded by the federal and state governments for individuals and families who qualify based on income level. Eligibility is based on income. In addition, AHCCCS has programs for special populations which are described on this webpage: https://www.azahcccs.gov/Members/GetCovered/.

Contact: 801 E Jefferson St Phoenix, AZ 85034; 602-417-4000 or toll free: 800-654-8713; Hours: 8 am to 5 pm

Website: www.azahcccs.gov

Clinical Pharmacy Innovation Services, LLC

About: Founded by pharmacist, Dr. Nicole Scovis, Clinical Pharmacy Innovation Services (CPIS), LLC offers consulting expertise in pharmacist engagement as well as clinical service design and implementation and provides education on the role of the pharmacist on the healthcare team in various settings. CPIS has sought to improve the state of diabetes in Arizona through engagement with projects for pharmacist-led diabetes prevention (DPP) and diabetes self-management and education support (DSMES). In addition to pharmacist-focused work, CPIS works with National non-profit organizations specifically addressing the needs of underserved communities and Social Determinants of Health in the prevention and treatment of diabetes and cardiovascular disease. Work with National non-profit organizations also includes a focus to improve access to and confidence in vaccines to avoid vaccine-preventable disease in persons with diabetes.

Contact: Nicole Scovis, PharmD, BCPS, BCACP; nicole.scovis@gmail.com; (520) 355-5192

Contexture

About: Contexture is a nonprofit organization that operates Arizona's health information exchange (HIE) and "CommunityCares," the state's social determinants of health (SDOH) closed-loop referral system, powered by Unite Us. With support from the Arizona Health Care Cost Containment System (AHCCCS), Contexture provides the CommunityCares SDOH closed-loop referral system to participating organizations, which enables the exchange of SDOH referral information between healthcare and community organizations in accordance with applicable state and federal laws. CommunityCares is a free tool designed to connect healthcare and community service providers to streamline the referral process and foster easier access to vital services to help address the social service needs of all Arizonans, including access to food, transportation, housing and other social care needs. CommunityCares is offered at no cost across the state of Arizona for all healthcare and community service providers. Community Based Organizations can receive up to $17,000 in incentives by participating in the program.

Contact: communitycares@contexture.org

Website: https://contexture.org/communitycares

Diabetes Network of Arizona

About: The Diabetes Network of Arizona is dedicated to transforming the lives of individuals affected by diabetes by providing education, empowerment, and fostering connections within the community. Our mission is to redefine the experience of living with chronic illness, ensuring that every person impacted by diabetes receives the knowledge, resources, and support necessary to lead a fulfilling and empowered life. Through our comprehensive programs and initiatives, we strive to create a society that is well-informed about diabetes, where individuals are equipped with the tools to effectively manage their condition, and where a strong network of support exists to uplift and inspire one another. Reach out and learn more about type 1 support, resources, and engagement opportunities.

Contact: 1 (888)-4MYTYPE or info@diabetesnetworkaz.org

Website: https://www.diabetesnetworkaz.org/

Health Services Advisory Group (HSAG)

About: Health Services Advisory Group (HSAG) is the Quality Innovation Network-Quality Improvement Organization (QIN-QIO), Medicaid External Quality Review Organization (EQRO), and End-Stage Renal Disease (ESRD) Network contractor for Arizona. As a QIN-QIO of Arizona, HSAG brings Medicare beneficiaries, providers, and communities together in data-driven initiatives such as chronic disease management that increase patient safety, make communities healthier, better coordinate post-hospital care, and improve clinical quality.

Contact: ptaggarse@hsag.com; 602-614-8942

Website: https://www.hsag.com

Mercy Care

About: Mercy Care is a local, not-for-profit Medicaid managed care health plan, serving members in Arizona since 1985. We provide access to physical and behavioral health care services for Medicaid--eligible families, children, seniors, individuals with developmental/cognitive disabilities, and children and families involved with the child welfare system. Must meet Medicaid eligibility requirements and apply for coverage via AHCCCS.

Contact: munnl@mercycareaz.org; 602-659-2072

Website: http://www.mercycareaz.org

San Luis Walk-In Clinic, Inc.

About: Regional Center for Border Health, Inc./San Luis Walk-In Clinic, Inc. is a nonprofit organization with a network of rural health clinics providing a wide array of services. These include a specialized clinical dietetics and nutrition department that offers 20 comprehensive nutrition

sessions covering diabetes management, prevention, gestational diabetes, obesity, weight management, general nutrition, baby first foods, and medical nutrition therapy. Our team of registered dietitians works closely with medical providers to deliver personalized care for community members.

Contact: mpenuelas@rcfbh.org

Website: http://www.slwic.org

Sonora Quest Laboratories

About: Sonora Quest Laboratories, a subsidiary of Laboratory Sciences of Arizona, is an Arizona-based joint venture between Banner Health and Quest Diagnostics, making up one of the nation's largest integrated laboratory systems with approximately 3,800 employees. We are the market share leader in clinical laboratory testing in Arizona, performing more than 97 million diagnostic tests per year. We offer a local comprehensive test menu that encompasses routine, molecular, prescription drug monitoring, genetics/genomics, and pathology testing services. Ninety-five percent of all testing is performed at our primary testing facilities located in Phoenix, Tucson, and Yuma.

Contact: pam.jackson@sonoraquest.com; 9-5 M-F; 602-815-4945

Website: http://www.sonoraquest.com

Sun Health Wellness

About: With a rich history in the West Valley, Sun Health began its journey in 1970 with the opening of Boswell Memorial Hospital. In 1988, Sun Health expanded its services by establishing the Del E. Webb Hospital. In 2008, the organization sold both hospitals to Banner Health and committed to long term philanthropic support. Over the past decade, Sun Health has developed the Center for Health and Wellbeing, which has been dedicated to diabetes prevention and education.

Contact: julia.deen@sunhealth.org; 623-471-9355

Website: https://sunhealthwellness.org

Teri Elkins, MPH, CHES

About: Teri Elkins is a Public Health Consultant specializing in building sustainability for the National Diabetes Prevention Program (National DPP), Medicare Diabetes Prevention Program (MDPP) and Diabetes Self-Management Education and Support (DSMES) programs. She has expertise in credentialing and contracting with Medicare and health insurance payers, reimbursement and claim submissions, as well as strategic program planning.

Contact: terileaelkins@gmail.com

Website: https://www.hsag.com

University of Arizona Cooperative Extension

About: The University of Arizona Cooperative Extension is the community-engaged, county-based arm of the University. Our mission is to bring evidence-based outreach to all Arizonans. Our

Diabetes Prevention Program is offered statewide, in person or over Zoom, in English or in Spanish, free of charge whenever possible.

Contact: vdasilva@arizona.edu

Website: http://www.preventdiabetesaz.org

Unlimited Potential

About: We are an ADA recognized program providing 1:1 and group diabetes class. We also are accredited with CDC for National DPP as well as with Medicare for MDPP. IntegraLife was carefully chosen to emphasize our mission of maintaining integrity, our integrative approach to nutrition and lifestyle medicine, and the importance for us to play an integral role in your overall health care. We take most insurance plans and those we don't we always try to get authorization to see each and every person.

Contact: executivedirector@unlimitedpotentialaz.org; 602-305-4742

Website: http://www.unlimitedpotentialaz.org

APPENDIX 7. ADLC HISTORICAL ORGANIZATIONS*

3 Mavens Consulting LLC	Ft. McDowell Yavapai Nation	Pima County Department of Public Health
Abrazo Health Systems	Gila River Indian Community	Regional Center for Border Health
Adelante Healthcare	Health Choice Arizona	Salt River Pima-Maricopa Indian Community
Aetna	Health Net Access	Sanofi
American Diabetes Association	Health Services Advisory Group	Scottsdale Healthcare
Area Agencies on Aging	Hualapai Tribe	SinfoniaRX
Arizona Community Health Workers Association	Humana	Sonora Quest Laboratory
Arizona Department of Health Services	Indian Health Services: Phoenix	St. Joseph Hospital and Medical Center
Arizona Department of Administration	Integrated Wellness Club	St. Vincent de Paul Family Wellness Center
Arizona Living Well Institute	Inter-Tribal Council of Arizona	Sun Health Center for Health and Wellbeing
Arizona Public Health Association	Mariposa Community Health Center	Sun Life Family Health Center
Arizona State University: Southwest Interdisciplinary Research Center	Mercy Care Health Plan	Tabula Rasa HealthCare
Banner Health System	Mountain Park Health Center	Tohono O'odham Nation
Blue Cross Blue Shield of Arizona	National Association of Hispanic Nurses	Tuba City Regional Healthcare Corporation
Campesinos Sin Fronteras	National Kidney Foundation of Arizona	University of Arizona: College of Pharmacy
Carondelet Health Network	Native Americans for Community Action, Inc.	University of Arizona: Mel and Enid Zuckerman College of Public Health
Celerion	Native Health Community Health Center	United Healthcare
Chandler Regional Medical Center	Navajo Area Indian Health Services	Valleywise
Cigna Medical Group	Navajo Nation Special Diabetes Program	Vitalyst Health Foundation
Cochise County Health Department	NIH, NIDDK; Phoenix Office	White River Indian Health Service
ConTrías Policy Associates, LLC	North Country Healthcare	Winslow Indian Health Center
Desert Senita Community Health Center	Northern Arizona VA Health Care System	Yavapai County Community Health Services
El Rio Community Health Center	Novo Nordisk, Inc.	Yavapai Regional Medical Center
Equality Health	Pascua Yaqui Tribe	Yuma County Public Health Services District

*As of December 1, 2022

APPENDIX 8. GLOSSARY OF TERMS AND ABBREVIATIONS

Behavioral Risk Factor Surveillance Survey (BRFSS) – a telephone survey that is administered nationally on an annual basis, and asks standardized questions aimed at assessing the prevalence of risk factors for a variety of diseases and threats to health and quality of life and to measure changes in the population's risk.

Blood Pressure – the pressure, measured in millimeters of mercury (mmHg), exerted against the artery walls. Also considered to be the force required by the heart to move blood through the vascular system.

- Diastolic blood pressure – the measurement of pressure in the arterial system during the resting phase of the cardiac cycle when the coronary arteries fill and perfusion of the myocardium takes place. Diastole refers to the resting of the heart.
- Systolic blood pressure – the measurement of pressure in the arterial system during the contraction of the heart when blood is forced out of the left ventricle into the arterial system.

Body Mass Index (BMI) – a height to weight ratio field measurement which is correlated to an increased risk of cardiovascular diseases. BMI is in units of kg/m2 and is derived by taking the bodyweight of an individual in kilograms and dividing it by the height of that individual in meters squared. Absolute values are used to interpret BMI in adults and CDC's published growth charts for age and gender are used to interpret BMI in children.

Cardiovascular Disease – refers to a broad spectrum of heart and blood vessel diseases, including heart disease, stroke, and peripheral vascular disease. Atherosclerosis is the underlying disease process of all major forms of cardiovascular disease.

Confidence Interval – A confidence interval is a range of values that a person can be 95% certain contain the true average of a population.

Diagnosed Diabetes – participants were classified as having diagnosed diabetes if they answered "yes" to the question: "Other than during pregnancy, have you ever been told by a doctor or health professional that you have diabetes or sugar diabetes?"

Direct Costs – costs that are clearly and directly associated with the production of goods or services.

Disparities – refers to the gaps in the quality of health and health care across racial, ethnic, and socioeconomic groups.

Hemoglobin A1c – a component of hemoglobin that binds with glucose. Abbreviated, HbA1c or A1c. A1c levels depend on glucose concentration in the blood, the higher the concentration, the higher the A1c levels. A1c levels are not influenced by daily nutritional intake or daily blood sugar fluctuations, but reflective of 6-8 weeks prior to measurement. A1c levels are reliable indicators of insulin efficiency and is used to measure the effectiveness of diet, exercise and medication in the glucose control in those with diabetes. A1c is also monitored for those at an elevated risk of developing diabetes. A1c levels between 5.7- 6.4 are considered to be prediabetic and above 6.5 to be diabetic.

Hospital Discharges – the number of inpatients discharged from short-stay hospitals where some type of disease was the first listed diagnosis. Discharges include people both living and dead.

Indirect Costs – costs or expenses that are not directly accountable to a cost object.

Medicare – the health insurance program administered by the U.S. government, covering people who are either 65 or older, or who meet other special criteria.

Medicaid – the health insurance program to millions of Americans, including eligible low-income adults, children, pregnant women, elderly adults and people with disabilities. Medicaid is administered by states, according to federal requirements.

Mortality – rate of death expressed as the number of deaths occurring in a population of a given size within a specified time interval.

Prevalence – the frequency of a particular condition within a defined population at a designated time.

Risk Factors – attributes or characteristics of a person's lifestyle that increase the likelihood of developing a disease or condition.

Socio-Economic Status – a measure of an individual's place within a social group based on various factors, including income and education.

Total Diabetes – combined overall prevalence of diagnosed and undiagnosed diabetes.

Undiagnosed Diabetes – participants were classified as having undiagnosed diabetes if they did not report a diagnosis of diabetes by a health care provider and their fasting (8-12 hours) plasma glucose was greater than or equal to 126 mg/dL or their hemoglobin A1c was greater than or equal to 6.5%.

Weight Status – Body Mass Index (BMI) was calculated as measured weight in kilograms divided by measured height in meters squared and rounded to one decimal place.

Overweight was defined as a BMI greater than or equal to 25 or less than 30. Obesity was defined as a BMI greater than or equal to 30. Normal or underweight was defined as a BMI less than 25.

A1c – Hemoglobin A1c **ADA** – American Diabetes Association **ADCES** – Association of Diabetes Care and Education Specialists **ADHS** – Arizona Department of Health Services **AHCCCS** – Arizona Health Care Cost Containment System (AZ Medicaid) **BMI** – Body Mass Index **BRFSS** – Behavioral Risk Factor Surveillance System **CDC** – Centers for Disease Control and Prevention **CDCES** – Certified Diabetes Care and Education Specialist **CDE** – Certified Diabetes Educator **CHW** – Community Health Worker **CVD** – Cardiovascular Disease **DM** – Diabetes Mellitus **DPRP** – CDC's Diabetes Prevention Recognition Program **DSMES** – Diabetes Self-Management Education Support	**DSMT** - Diabetes Self-Management Training (Medicare terminology) **EHR** – Electronic health records **ESRD** – End-Stage Renal Disease **GDM** – Gestational Diabetes Mellitus **HDD** – Hospital Discharge Data **HIE** – Health Information Exchange **IGT** – Impaired Glucose Tolerance **MBEP** – Medicaid Beneficiary Enrollment Project **MCO** – Managed Care Organization **MDPP** – Medicare Diabetes Prevention Program **National DPP** – National Diabetes Prevention Program **NHANES** – National Health and Nutrition Examination Survey **NHIS** – National Health Interview Survey **NIH** – National Institutes of Health **UHA** – Umbrella Hub Arrangement **USDA** – United States Department of Agriculture **VS** – Vital Statistics

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