

Arizona Health Education Centers
12th Annual Interprofessional RHPP Conference
Poster Presentation
Part One



Introduction

This community needs assessment project focused on exploring the various social determinants within the Tohono O'odham Nation. Through collaborative efforts with tribal members, our interprofessional team aimed to identify unique social determinants of health that impact the community's well-being. Our immersion experience provided valuable insight into the strengths and challenges faced by the Nation. By conducting this assessment, we aspire to pave a way for targeted interventions and foster a stronger bond between our scholarly group and the Tohono O'odham Nation.

History and Culture

The Tohono O'odham Nation, whose name means "Desert People", has a rich history deeply rooted in the arid lands of the Sonoran Desert. Traditionally nomadic, they roamed vast territories in what is now Southern Arizona and northern Mexico, sustaining themselves through hunting, gathering, and agriculture. With a matrilineal society, women play essential roles in decision-making and passing down cultural traditions. Today, the Tohono O'odham maintain a strong connection to their heritage through ceremonies, art, and language, embodying resilience in the face of historical challenges such as colonization and forced assimilation.

Methods

- Experiential learning in collaboration with tribal members on the Tohono O'odham Nation: Borderlands and Sells, Arizona
 - Includes time spent at Tohono O'odham 85th annual rodeo
- Windshield surveys and reflections documented observations at cultural sites, the US-Mexico border, and Sells Hospital, gaining insights into healthcare barriers and community responses to the COVID-19 pandemic
- Publicly available data also informed the community needs assessment



Purpose Statement

We respect and acknowledge that the research that we have been able to participate in is solely reliant on the contributions and support of the Tohono O'odham nation. We especially thank Miguel Flores, Kendall Jose, Beverlene Johnson, and Cynthia C. Manuel, who put in incredible effort to enrich our experiences and provide us with valuable knowledge. Our scholar cohort has put together a group statement that we would like to uphold as we move forward in our careers:

- We believe that Tribal Nations have a right to self-determination in identifying and addressing health problems within their community.
- As future health professionals, our group seeks to engage with tribal nations in equal partnership in an effort to reaching tribal health goals.
- We commit to being active lifelong learners before we become teachers
- We are thankful to the Tohono O'odham Nation for their hospitality, for sharing their stories and teaching us about Tohono O'odham history/culture.



"Community" Description

- The Tohono O'odham Nation is located in Southern Arizona with a land mass comparable to the state of Connecticut (approx. 2.8 million acres) divided by the US-Mexico border and comprises 11 districts
- Located within Pima, Pinal, and Maricopa counties
- Over 62 miles of remote international (US-Mexico) border
- Residential areas are rural and scattered with low population density



Environment

- The border includes the San Miguel Gate, which allows for members of both sides of the border to cross into the reservation
- Limited utilities like electricity and water due to expense of utility hookup
- Minimally paved roads contributing to dust pollution
- Persistent dust, both due to natural dust devils and to border patrol presence
- 3 main transportation services: Pima County Rural Transit, Ajo Transportation Company Public Transportation, San Xavier Access Route
- Tribe has its own cellular tower for high-speed internet access and wireless network in community areas, however 95% of individuals do not have no access or poor access within their homes

Food Sovereignty

- San Xavier Co-op Farm is run by tribal members to strengthen traditional desert agricultural practices and nutrition
- The farm is on the Tohono O'odham Nation in the San Xavier District in the ancestral village of Wa:k
- Committed to healthy farming practices and growing traditional crops to support cultural values and economic development
- Guided by values of the Tohono O'odham Himdag, or Way of Life:
 - Respect for Land
 - Sacredness of Water
 - Respect for Elders Respects for Animals
 - Respect for Plants

Healthcare

- Healthcare services are delivered through Tohono O'odham Nation Health Care (TONHC) which is a tribally run, self-determined system (P.L. 93-638)
- TONHC comprises 1 hospital in Sells and 3 outpatient clinics in San Simon, San Xavier, and Santa Rosa
- The Tohono O'odham Nation Health Care
 - Telehealth appointments are available
 - Health Transportation Services:
 - Non-emergency transportation to health appointments anywhere on the Nation



Findings

Strengths:

- ◆ Value of cultural practices and community adhesion
- ◆ Control over tribal healthcare system through P.L. 93-638
- ◆ Continued celebration of traditional beliefs and practice

Areas of Opportunity:

- ◆ Economic instability and limited job opportunities

Conclusion

- Limited access to healthcare and economic opportunities, coupled with geographic isolation, pose significant challenges, yet the community's resilience and cultural heritage are evident strengths.
- Following community-based participatory research principles, we will continue to partner with key stakeholders to engage in work that is meaningful to the Tohono O'odham Nation and include the health priorities of the community.

References



Adrian Noriega, Ashley Ungor, Bailyn Arkin, Diyana Ahmad, Hailey Chamberlain, Joshua Gmyrek, Kevin Ball, Kylie Malilay, Lindsay Stryhas, Lodz Joseph-Lemon, Marie-Eve McHugh, Prabhjot Kaur, Ruben Puha, Tessa Thurman, Trevor Kuehl, Wadana Hamzazai
CAAHEC Mentors: Carol Moffett Ph.D., FNP-BC, CDE, FAANP & Judith Ochieng Ph.D, DNP, FNP-BC, PMHNP-BC

INTRODUCTION

The purpose of this presentation is to report the results of a team-based field experience and to identify the medical and social needs of individuals in Apache Junction, Arizona.

HISTORY & CULTURE

- Residents of Apache Junction take great pride in their history and have incorporated it into the workings of the city
- Located near the Superstition Mountain
- Ancestral lands of the O'Odham and Hohokam tribes
- Residents have embraced the legend of the Lost Dutchman
 - Jacob Waltz, "the Dutchman", is said to have located a previously lost gold mine in the Superstitions in the 1870s, hiding caches of gold within the mountain, though the mine has never been found
- AJ celebrates the legend with: Superstition Mountain Lost Dutchman Museum, Lost Dutchman State Park, Lost Dutchman Days Rodeo, Lost Dutchman Marathon, and Dutchman Dog Park, among others.



METHODS

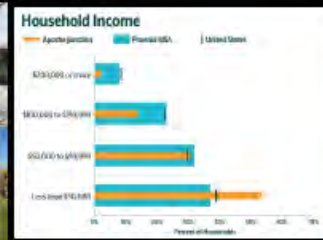
- Immersion 1: October 2023
 - Windshield survey
 - Presentation from Cheri DeBree - Horizon director of organizational development
 - Approached local community members that voluntarily shared their perspective of the strengths and needs of the city
 - Interviewed members and providers from Horizon Health and Wellness and learned that one of the most crucial things they are lacking is dental care
- Immersion 2: February 2024
 - Presentation from A. T. Still University dental students about affordable dental care options provided by their university
 - Presentation from Tiffany Cole - Genesis Project regarding homeless and hungry population
 - Presentation and activities at Horizon Health
 - Planting in community garden
 - Presentation from Jamie Sullivan - Parks & Rec

DEMOGRAPHICS

- 2020 census data:
 - Population of 38,499
 - Estimated growth of 6.07% since the data was gathered
 - 80.8% identify as White
 - 17.3% identify as Hispanic or Latino
 - Median age is 53.9 years
- 34.1% of the population is >65 years of age
- Individuals without health insurance is 8.5% in AJ vs 10.3% in Arizona
- Disability rate of 22.6% vs 13.6% in Arizona

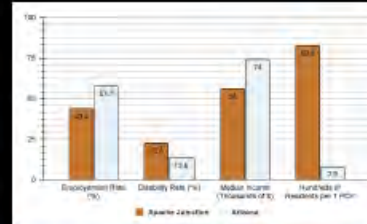
ECONOMICS

- Employment is 43.4% (below AZ rate of 57.7%)
- Median household income of \$56,209 (\$74,568 in AZ)
- Poverty rate is 12.2% (12.5% in AZ)
- Largest employers are Banner Health, Walmart, Boeing



COMMUNICATION & ELECTRICITY

- Approximately 16.6% of households in Apache Junction do not have an internet subscription vs. 7.9% in Pinal County as a whole
 - 33% of households with <\$20,000 income do not have internet access
- Electricity supplied by SRP
 - Avg. cost of 12.14 cents/kwh (AZ avg = 14.17)
 - 8% increase (+\$12) in monthly electricity cost since 2022



STRENGTHS

- Tight-knit community with rich history
- Many parks and activities
- Effective police, fire, and medical services
- Good air quality and safe water

AREAS FOR IMPROVEMENT

- Affordable and convenient dental care
- Affordable and convenient housing options
- More PCPs
- Public transportation
- Disability services (emphasized by Genesis & Horizon Health)
- Internet access

ACKNOWLEDGEMENTS

We thank the following individuals and organizations for enriching our understanding of the Apache Junction community and its social and medical needs:

- Horizon Health & Wellness:
 - Angela Webb, DNP - Medical director
 - Melanie Dunn
 - Cheri DeBree - Director of organizational development
 - Lavie Kurtz - Master gardener
- Genesis Project:
 - Trinity Cole - Executive director
- AJ Parks and Recreation:
 - Jamie Sullivan - Superintendent
- ATSU Dental Outreach:
 - Anna Gunter - DMD student
 - Jordan Andrade - DMD student



ENVIRONMENT, SAFETY & TRANSPORTATION

- Average air quality index of 48.8 (good)
- Sewer system provided by Apache Junction Sewer District
 - 115 miles of pipes to transport wastewater to water reclamation facility (WRF)
- AJ water district and Arizona water provide water for the residents
 - Meets all required safety standards and regulations for water (for all chemicals) as of 2023
- 11 spacious parks
- No regular public transportation options
 - Many use bicycles (must be registered with the city)
- Fire/medical served 12,279 called in 2021/2022
 - Avg response time: 00:04:47
 - 91% of contents/property were saved from fires
- Fire/medical in 2021/2022:
 - Distributed 285 AEDs
 - Trained 800 community members in CPR

HEALTH RESOURCES

- Medical:
 - Horizon health and wellness (no dental)
 - A single 20-bed hospital with 0.4 hospital beds/1000 AJ residents
 - No skilled nursing facilities or licensed home health agencies
 - Primary care providers have a population to provider ratio of 8,257:1 (AZ average = 747:1)
 - Community bridges (SUD & Mental Health)
- Food, shelter, clothing, and safety:
 - Genesis project
 - Feeds, clothes, and hydrates the hungry and homeless
 - HOPE women's center
 - Salvation Army
 - Superstition community food bank

REFERENCES

Scan the QR code or access the link below to view the references for this poster and the corresponding paper.



Link: <https://docs.google.com/document/d/1uXy0pDy8ICXP10F2dnWmDjVnEDXGdNHnTjTbAAk/edit?usp=sharing>

A COMMUNITY ASSESSMENT OF PAYSON, ARIZONA

Center for Excellence in Rural Education (CERE) AHEC Scholars 2023-2025: Manuel Acosta, Lilianna Avalos, Victor Paul Carpena, Marin Carter, Leslie Diaz-Martin, Katharine Eakin, Laura Eells, Jenna Glovsky, Emily Hinojosa, Kristina Iott, Emily Kessel, Maranda Koch, Jenny Larson, Samantha Milewski, Leanne Neu, Farnoush Sarikhani, Jami Smith, Sara Wienke
School Affiliations: Arizona State University, Northern Arizona University, The University of Arizona, Faculty Advisor: Dr. Alan Michels

INTRODUCTION

Located in Gila County, nestled below the Mogollon Rim, lies Payson, AZ. This town is roughly 20 square miles in area and located approximately 90 miles from Phoenix, AZ. Historically, Payson was known as a hub for logging, mining, and cattle ranching. Today, it is a popular tourist destination and retirement community (Town of Payson, 2013).

The needs of this rural community were studied through a Windshield Survey, round table discussions, and online research. Payson was found to be primarily populated by aging residents, contributing to a unique set of challenges faced by this town. The incidence of health issues were compared between Gila and Maricopa Counties and the United States as a whole. The results confirm a higher prevalence of various health conditions and disabilities in Gila County, comparatively.

This analysis was able to encompass the strengths, weaknesses, and areas of opportunity within the community of Payson. The most critical needs were identified and contributed to the development of a service learning project to creatively address concerns presented.

BACKGROUND INFO

Median Age 59
Median Household Income \$60,905
88.9% of Residents Identify as Caucasian
Main Economic Contributor Tourism
Population 16,653

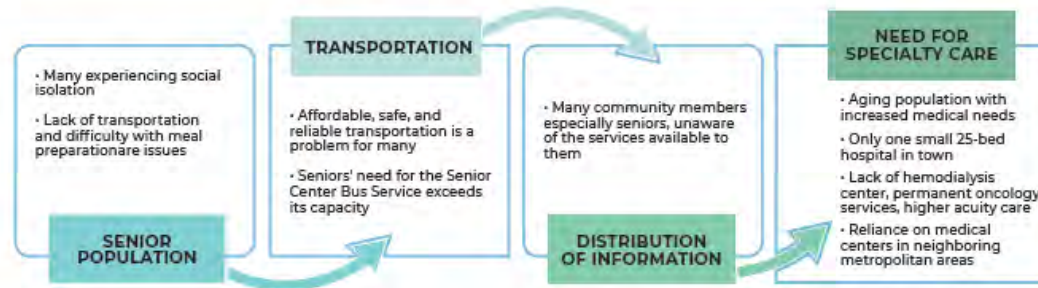
METHODS

Windshield Survey
Scavenger Hunt | 10/23
Round Table Discussions
Key Local Community Members
Online Research
Collected from the US Census Bureau, Payson General Plan, Local News Reports, & Local Business Websites

WINDSHIELD SURVEY

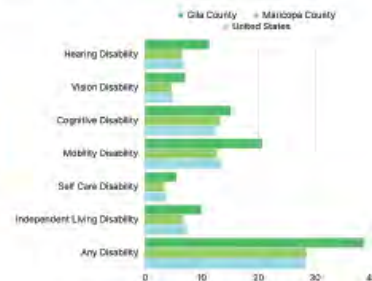
NUTRITION	HOUSING	TRANSPORTATION	RECREATION	VALUES & BELIEFS	EDUCATION
Many fast-food restaurants line the Beeline Highway with local eateries off the main road	Combination of new homes, gated communities, historical homes, mobile homes, and trailers	Beeline Bus Service, taxi, Senior Center bus service	4 Public parks 56 Scenic trails	62 Churches and places for religious gatherings	6 Schools total with only two high schools (one in person and one online)
3 major grocery store chains located in the center of town	Many neighborhoods lacking safe roads	Limited hours of operation	Public spaces for community gathering	Strong sense of community	Classes Monday-Thursday
		Unsafe road conditions around many transit stops			Elevated high school dropout rates
					Eastern Arizona Payson Campus

ROUND TABLE DISCUSSION FINDINGS



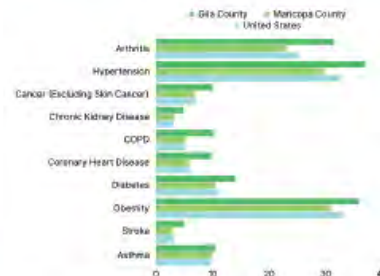
ONLINE RESEARCH FINDINGS

Prevalence of Disabilities in Adults Over the Age of 18 in Gila County Compared to Maricopa County and the US



Gila County has a higher prevalence of all types of disabilities compared to Maricopa County and the United States.

Prevalence of Various Health Conditions in Adults Over the Age of 18 in Gila County Compared to Maricopa County and the US



Gila County has a higher prevalence of many health conditions listed above compared to Maricopa County and the United States.

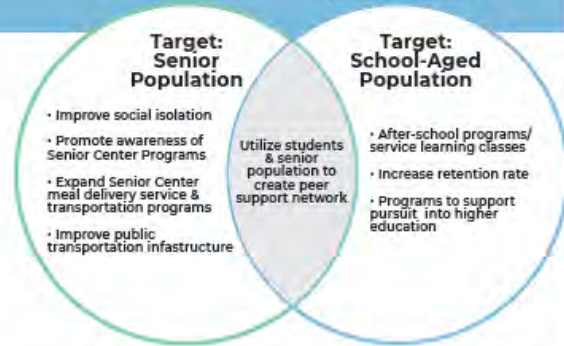
COMMUNITY RESOURCES

- BANNER PAYSON MEDICAL CENTER**
 - Emergency Services, Labor and Delivery, Physical Therapy, Respiratory Therapy
 - Lacking permanent oncologist, specialty care services, high acuity care, & dialysis center
- PAYSON SENIOR CENTER**
 - Free transportation service, socialization, clubs, crafts, and physical activity programs
 - Lacking service on the weekends and unsafe parking and sidewalks surrounding building
- NUTRITION FOR SENIORS**
 - Weekday meal delivery services through Senior Center
 - Lack of volunteers to deliver meals, need for service exceeds capacity of program
 - Food insecurity for many senior individuals
- NEIGHBORS**
 - Neighbors step in to provide transportation, meals, and other support when resources are unavailable

COMMUNITY STRENGTHS

- Tight-knit with strong sense of togetherness
- Many local events and resources available
- Significant community involvement

POTENTIAL AREAS FOR INTERVENTION



REFERENCES & ACKNOWLEDGEMENTS



A Community Assessment of Williams and Ash Fork, AZ



AHEC Scholars '23-25 Meriem Allahwerdy, Faith Allen, Dylan Barash, Marlo Beaudoin, Carli Endsley, Courtney Finkbeiner, Yalda Haidrey, Julie Kimani, Alaina Metz, Aubrey Michels, Laurel Montague, Daniel Nguyen, Kimberly Osborn, Stacy Ruthier, Jeremy Sakkas, Alyssa Titus, Grace Wanjiru, Nylee Zale

COLORADO PLATEAU
CENTER FOR HEALTH PROFESSIONS
IN NORTHWEST ARIZONA

INTRODUCTION

This presentation displays an interprofessional community assessment of Williams and Ash Fork, AZ. Williams and Ash Fork lie along the I-40 West of Flagstaff, approximately 18 miles apart.

Despite their proximity to one another, the two cities have distinct infrastructures, economies, and resources that lend themselves to unique disparities. The purpose of this analysis is to identify potential points of intervention to support the health needs of these communities.



METHODS

ACTIVE

- Two groups independently assess towns of Williams and Ash Fork
- Note demographics and infrastructure of each town
 - Pharmacies, grocery stores, schools, etc.
- Observe and talk with members of the community on pertinent subjects

ONLINE

- Survey government and census data
- Browse in town offerings on websites such as Google, Yelp, etc.

PRESENTATIONS

- Community member-delivered talks relating to Social Determinants of Health into the two towns

DEMOGRAPHICS

Williams, AZ		Ash Fork, AZ	
Population: 3,854 in 2024		Population: 488 in 2024	
Race	Percentage	Race	Percentage
White	52.98%	White	93.31%
Two or more races	12.85%	Two or more races	14.10%
Asian	1.83%	Other races	10.58%
Black or African American	1.25%		
Other race	30.75%		

Residents Living in Poverty

Williams: 10.8%	Ash Fork: 11.4%	Arizona: 10.5%	United States: 12.8%
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Veteran Status

Williams: 9.9%	Ash Fork: 14.1%	Arizona: 7.9%	United States: 6.2%
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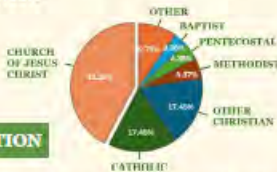
Per Capita Household Income

Williams: \$26,277	Ash Fork: \$26,200	Arizona: \$30,819	United States: \$41,864
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RESULTS

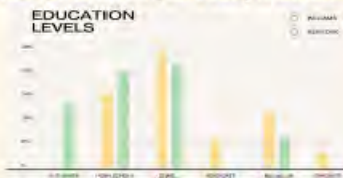
VALUES & BELIEFS

- 30.3% of the people in Williams are religious
- Williams leans liberal while Ash Fork leans conservative



EDUCATION

- There is one elementary/middle school, one high school, and a community library in Williams
- There is PreK and K-12, and a library in Ash Fork



NUTRITION

- Both cities have a WIC Clinic providing nutrition education, support, and supplemental foods to qualifying groups of people
- Ash Fork obesity rate is 17.7% vs 21.1% in Williams
- 19.9% of Coconino County residents experience food insecurity
- One grocery store in Williams serves both communities, leaving Ash Fork as a food desert primarily dependent on Family Dollar

ECONOMICS

HOUSING

- Low-income housing is limited and has a waiting list
- Significant increase in homelessness during summer months, with many people camping out in the woods

UTILITIES

- Both cities have low risk water quality reports
- Majority of Ash Fork is off-grid without electricity, sewage or water systems
 - Water scarcity & rationing for those who haul water

EMPLOYMENT

- Ash Fork has 3 Flagstone mining queries & few shops
- Williams has thriving tourism economy with many restaurants and shops
- Unemployment rate is 8.5% in Williams and 18.1% in Ash Fork

HEALTH & SOCIAL SERVICES

- Medically underserved communities
- One healthcare center in Williams (North Country Healthcare) for both towns
- Two pharmacies
- Medevac and ambulance services
- Nearest emergency services, specialist, and hospital are in Flagstaff



North Country Healthcare, Williams, AZ
(Currently the only healthcare provider for the Williams-Ash Fork area)

TRANSPORTATION

- Majority rely on personal vehicles and carpooling
- AHCCCS health insurance will drive patients to and from appointments 15 times a year (1 ride = 1 way)
- Senior Center in Williams has 2 volunteers that will drive patients to and from appointments when available

SAFETY

Williams:

- Two fire stations
- AMR ambulance service
- Justice center
- Currently, 14 cops in the city



Fire Station in Williams

Ash Fork:

- One volunteer fire station (6 volunteers who respond from their homes outside of Ash Fork)
- No police department (rely on neighboring towns)



Volunteer Fire Station in Ash Fork

ENVIRONMENT & RECREATION

- Both in close proximity to Grand Canyon National Park
- Williams is mountainous with abundant trees & lakes
 - Multiple parks, playgrounds & community centers
- Ash Fork is dry with sparse trees, grass, or lakes
 - One park, a museum, & a sinkhole attraction

	Williams	Ash Fork
Size (sq. miles)	43.3	2.3
Avg temperature (°F)	48.7	54.5
Annual Snowfall (in)	48.35	16.22
Homes valued below \$200,000 (%)	35%	70%

SUMMARY

STRENGTHS

- Strong social ties and support
- Flourishing tourism in Williams as a "Gateway to the Grand Canyon"
- Ash Fork's school serves as a community hub

CHALLENGES

- Food insecurity
- No public transit and transportation challenges
- Ash Fork has unique challenges
 - Limited economic opportunities
 - Only point of care closing as of Jan 2024 with no replacement as of Feb 2024
 - Off-the-grid living leads to scarce water and poor electricity/internet service

POTENTIAL COMMUNITY INTERVENTIONS

- Food Security
- Transportation Access
- Telehealth Access

CONCLUSION

Although census data notes the relative wealth and needs of the towns, many fall through the gaps on these assessments. This is partly due to a large seasonal unhoused community. For patients and people in need, transportation can often be prohibitive, with both towns being rural and many health services located in Flagstaff, a 40+ minute drive away. No public transportation exists to get patients to appointments, and insurance or volunteer provided trips are often so limited that they fail to adequately meet needs for patients with chronic conditions. With only one grocery store, access to healthy foods is limited further complicating prevention and management of chronic diseases.



ACKNOWLEDGEMENTS



THE UNIVERSITY OF ARIZONA
Arizona AHEC
Area Health Education Centers



COLORADO PLATEAU
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AT NORTH COUNTRY HEALTHCARE

A Community Assessment of Rio Rico, Arizona



SAAHEC Scholars 2023-2025

Lourdes Acuña, Munthir Almoslem, Ardine Balili, Elisabeth Chapman, Puja Chhetri, Michael Demangone, Jennifer Enriquez, Silvia Esparza-Guerrero, Lakin Gardner, Kathryn Hamman, Briann Hicks, Siobhan Honer, Theresa Lobato, Alejandro Lopez, Leslie Lopez, Hana Malkoc, Neil Patel, Joshua Perez

INTRODUCTION

The purpose of this presentation is to report the results of a team-based community needs assessment identifying areas of strength and areas for opportunity in Rio Rico, Arizona.



HISTORY AND CULTURE

Rio Rico, Arizona is part of what we know today as Southern Arizona. The first settlers were the Apache, Yaqui, and Hohokam people. In 1539 Spanish explorer and monk Fray Marcos de Niza was one of the first Europeans that came to the area. In the late 1600s, the Spanish sent Father Eusebio Francisco Kino to establish Catholic faith missions in what is known now as Southern Arizona. Father Kino named the Santa Cruz River which means "Holy Cross." Through the Gadsden Purchase in 1854, the U.S. acquired the areas that are now known as Arizona and New Mexico. In 1899 a land deal led to the establishment of Santa Cruz was established in 1899 by Arizona's 20th territorial assembly. The historical events that transpired in and around what is known today as Rio Rico help us understand the cultural background of today's community.

METHODS

Primary Data Sources

- Engaged in interprofessional meetings to learn about the social determinants of health
- Interviewed stakeholders and community members
- Performed a windshield survey

Secondary Data Sources

- Census Data
- Online Research

WINDSHIELD SURVEY

Conducted on October 7, 2023 via vehicles and on foot. Scholars divided into five groups and toured different areas of Rio Rico, engaging with various local residents, businesses, and community members through various parks and areas of town.

FINDINGS

Demographics

- Population of 20,549 in 2020
- 88.8% Hispanic or Latino
- 8.3% under the age of 5
- 30% under the age of 18
- 10.8% ages 65+

Education

- 82.6% high school graduates or higher
- 21.5% bachelor's degrees or higher

Values and Beliefs

- Christianity (specifically Catholicism) are the main religions

Economics and Income

- Annual income averaging \$54,554
- 17.5% of people living in poverty in 2021, surpassing the national average
- 83% of students enrolled at Rio Rico High School were eligible for free meals in 2022
- Produce packaging is the major industry in the area
- Law enforcement is embedded in the community as many Border Patrol agents specifically reside in Rio Rico

Communication

- 98.6% of the land benefit from some form of cellular technology
- 95.6% of households have a computer between 2017 and 2021
- 84.5% of households have broadband internet access between 2017 and 2021
- Rio Rico relies on seven independent contractors delivering mail through contracts obtained from the United States Postal Service (USPS)
- Rio Rico lacks its own newspaper

Nutrition

- Only one grocery store located in the city center (Garrett's Supermarket)
- Next closest option for groceries is Walmart 9 miles south in Nogales
- Challenge in terms of access to healthy foods is 13% compared to the state's 8%

Housing

- Median home value is \$163,500
- 81.8% homeowners
- Houses range in age including new builds
- Signs of multigenerational living arrangements
- Houses appear mostly well maintained
- No major construction of new housing developments at this time

FINDINGS

Safety and Transportation

- 85.8% of residents commuted alone, 7.79% carpooled, and 5.62% worked at home in 2021
- There are no signs of public transportation or bike lanes on most thoroughways
- Limited lighting, signage, and road guards in many places
- Personal automobiles are needed for transport
- Fire stations are well established and distributed within the community
 - Rio Rico Medical & Fire District provides the following services: fire protection, emergency medical services, rescue, public education and fire prevention

Physical Environment

- Management of trash, sewage, and water quality is intricately tied to a bi-national agreement known as Minute 276
 - Permitting Mexico to deliver up to 9.9 million gallons of wastewater daily to the Nogales International Wastewater Treatment Plant
- Liberty Utilities Corporation takes charge of regulating natural gas and water/wastewater in homes
- UniSource, a sister company with TEP, provides electricity to approximately 243,000 customers in Arizona including the Rio Rico area
- In 2021, the Arizona Department of Environmental Quality (ADEQ) did not find any dust particles to be less than 10 microns in diameter

Health & Community Resources

- Rio Rico has been designated as a medically underserved area (AZMUA) by the Arizona Department of Health Services
- 3 licensed pharmacies certified, 3 certified ambulance services, and 3 primary care providers serve Rio Rico
- Ratio of 9,000 people to one provider
- Mariposa Health Center in Rio Rico serves the healthcare needs of the community
- No emergency or acute care in Rio Rico
- One hospital in Santa Cruz County: the Holy Cross Hospital located in Nogales, AZ
 - 25 beds
 - 24 hours 7 days a week
 - Emergency care, rehabilitation, mammography, and ultrasound services provided



Mariposa Health Center in Rio Rico serves the healthcare needs of the community

SUMMARY & ANALYSIS OF RESULTS

Areas of Strength

- Strong family support systems
- High education rates
- Range of services provided through Mariposa Health Center
- Access to medical financial support

Areas for Opportunity

- Limited education efforts targeting antibiotic stewardship and risk of antibiotic resistance
- Lack of cultural competency within short term and travel healthcare providers
- Limited access to specialty care providers
- Lack of Level 1 trauma center south of border patrol checkpoint
- Limited availability of nutritious foods locally

CONCLUSIONS

Rio Rico is a rural community located just north of Nogales in Southern Arizona. Designated as a medically underserved area, Mariposa Health Center is the only healthcare provider within the community. The nearest hospital is the Holy Cross Hospital in Nogales. The nearest level 1 trauma center is located beyond a border patrol in Tucson, over 60 miles north. The proximity to Mexico further complicates healthcare access, prompting some community members to seek treatment across the border. These circumstances pose significant hurdles in medical management within the community.

REFERENCES



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Arizona AHEC
Area Health Education Centers

Yuma, Arizona: Community Needs Assessment

Wieland, B., Gonzalez, V., Azar, I., Becerra, A., Ryan, S., Monze E., Moore, H., Warner, M., Leunen, M., Contreras, Y., Tepsing, C., Wang, C., Moskowitz, C., Wallace, A., Swinson-Mollica, K., Rubio, V., Nash, K., Armenta, R., Tubbs, K., AHEC Scholars 2023-2024 & Schwarz, J. (Mentor).

INTRODUCTION

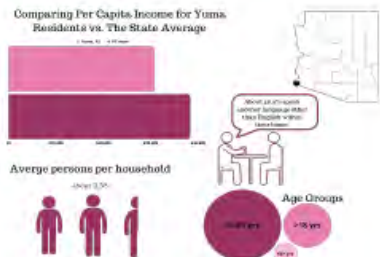
The purpose of this poster is to discuss the strengths and disparities of the Yuma Arizona as well as it's healthcare needs and areas of opportunity as highlighted by the interprofessional community leaders of the Western Area Health Education Center (WAHEC) scholars of Arizona. WAHEC's purpose is to improve the retention, diversity, quality, and efficiency of health professionals in underserved communities.

HISTORY

Yuma, Arizona occupied since 13,000 B.C. was fought over by the Spaniards and the Cocopah tribes around 1540. Ultimately, after years fighting for control it was the Quechens stayed in Yuma. However in 1848 it became part of the United States, and remains what it is now. A bordertown that is important for agriculture and home to about 98,000 Americans, Latinos, and tribal people.



DEMOGRAPHICS



METHODS

Data was collected through secondary research via a combination of observation and external online searches. External online research was conducted by using parameters to include only peer reviewed articles from a government database or a reputable journal. Observation of the community resources was conducted during WAHEC organized excursions to the US/Mexico border, Regional Center for Border Health (RCBH) Migrant Refugee Center, RCBH San Luis Medical Mall, Cocopah Reservation Community Center, and Crossroads Mission.

TRAVEL

- Yuma is a gateway for trade with Mexico, including commerce, travel, and medical tourism.
- CDC reports:
 - Mexico as the most common destination for medical care in 11 states, including Arizona.
- Regional Center for Border Health
 - provides mobile units "Healthy Buzz" to better reach the community.
 - coordinate transportation for refugees entering Yuma.

ECONOMICS

- Employment**
 - Yumas largest source of employment is the agricultural industry and the military.
- Unemployment**
 - The city of Yuma has an unemployment rate of 18%.
- Household Income**
 - The median household income is ~ \$33,000
 - 28% lower than national average.

ENVIRONMENT

- Agriculture is the largest producer of gross economic income, bringing in an estimated 4 billion dollars while producing 90 percent of North America's leafy greens.
- In Yuma county, around 65% of the population live more than three miles away from a municipal park.



NUTRITION

- Yuma falls well below the mark when it comes to access and education of healthy activity.
- The rate of obesity is ~13% higher than the national average, having doubled since 1999.
- Yuma Regional Medical Center
 - "YRMC Healthy Kids"
- Regional Center for Border Health
 - Nutrition and Food Services Management Program
 - Public Nutrition Education

WATER

- 74% of all of Arizona states water is allocated to Yuma agriculture
- Yuma County Water Report in 2022 detailed that there are non-negligible low levels of cryptosporidium cysts in the drinking water which can cause abdominal infection.



HEALTHCARE RESOURCE



- Regional Center for Border Health**
 - CAPAZ-Mex, Medical Discount Network provides affordable healthcare on both sides of the border
 - National Promotoras Conference and Community Health Outreach, which teaches community outreach workers best practices in community awareness
 - Integrated Paramedic and Preventive Care Coordination, which addresses gaps in healthcare delivery
 - Youth Summer Program Nuestros Ninos, which identifies underserved/disadvantaged families

HEALTHCARE CONCERN: ANTIBIOTIC RESISTANCE

- Public data from Yuma Regional Medical Center shows higher E. Coli antibiotic resistance rates when compared to similar institutions.
 - 14% of the E. Coli isolates are extended-spectrum Beta-Lactamases (ESBLs)
 - 30% of E. Coli isolates are resistant to Levofloxacin
- May be a result of accessible prescription medications around Yumas geographical location.

Table 1. Percentages of Hospital E. Coli that Require ESBL

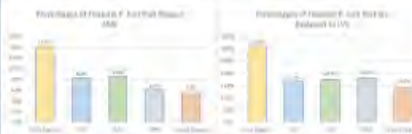
	Yuma Regional	TMC	NAH	KRMC	Yavapai Regional	p-value:
Non-ESBL E.coli	1638	1807	817	1696	2138	
ESBL E.coli	286	352	77	309	65	
Total	1924	2159	894	2005	2203	
Percentages	15.97%	8.23%	8.61%	6.04%	5.40%	<0.001

p-value obtained from chi-square test between Yuma and All Other Medical Centers

Table 2. Percentages of Hospital E. Coli that are Resistant to LVX

	Yuma Regional	TMC	NAH	KRMC	Yavapai Regional	p-value:
E.coli S-LVX	314	1640	754	1480	1024	
E.coli R-LVX	590	329	160	325	169	
Total	904	1969	914	1805	1193	
Percentages	30.99%	16.72%	17.51%	18.01%	14.05%	<0.001

p-value obtained from chi-square test between Yuma and All Other Medical Centers



HEALTH STATUS

- Top 5 leading causes of death in Yuma County (2020)**
- COVID-19 (22.2%)
 - Heart disease (17.9%)
 - Cancer (14.6%)
 - Unintentional injuries (5.7%)
 - Diabetes (4.0%)

SUMMARY

Areas of Opportunity

- Healthcare Institutions
 - PCP, behavioral health, mental health, specialized care
- Ratio of healthcare providers to patients
- Education initiatives
 - nutrition, physical activity, medical knowledge
- Spaces for physical activity
 - gyms, parks, schools
- Unemployment rates
 - Improving Pay for Agricultural Workers
 - Continued water conservation efforts
- Provide education regarding antibiotic resistance and encourage the stemming of inappropriate antibiotic use.

Strengths

- Border for Regional Health
 - expanding mental health services to the community
 - expanding food education to the community
 - mobile services for critical care continuity
 - primary treatment and transportation coordination for refugees into Yuma
 - Coordination with local schools, government institutions, and Cocopah Indian Reservation for holistic community care.
- Strong sense of community
- City of Yuma's Transparency with Governmental Reports for the city's utilities, parks, etc.

CONCLUSION

After examining the community of Yuma County, Arizona and recognizing the health disparities, lack of economic stability, and overall healthcare education. Yuma needs assistance in creating accessible and affordable healthcare. Through the assistance of grants, programs like WAHEC, and government funding it is the hope of these community leaders that healthcare services be made more available to alleviate healthcare and educational disparities within the Yuma Community.

REFERENCES



Coccidioidomycosis (Valley Fever) in Southern Arizona: Building Capacity for Rural Health Management

Foley, R.¹, McLafferty, A.², Chavez, O.¹, and Tarrango, A.² (AIH-AHEC Scholars 2023- 2025)
1. University of Arizona; 2. Northern Arizona University

PURPOSE

To provide recommendations for successful Valley fever (VF) care in rural settings.

BACKGROUND

- Fungal infection caused by inhaling spores found in dust of endemic areas^{7, 22}
- 95% of cases in Arizona occur in 3 counties: **Pinal, Pima, and Maricopa**, all of which have **significant rural territories**⁸
- Currently, all Valley Fever specialty services are located in urban centers^{11,22}
- Nearly 60% of Valley fever cases are mild, however 30% will require medical care and 10% will experience serious complications^{8, 22}
- Geographic disparities place rural patients at higher risk
- **Dearth of information/research on VF management in rural settings**

Figure 1 Right: Coccidioides left lung cavity pneumonia²²



Figure 2 Left: Coccidioides spherule in granuloma²²

Figure 3 Right: Erythema nodosum: Large, tender nodules on Valley fever patient²²

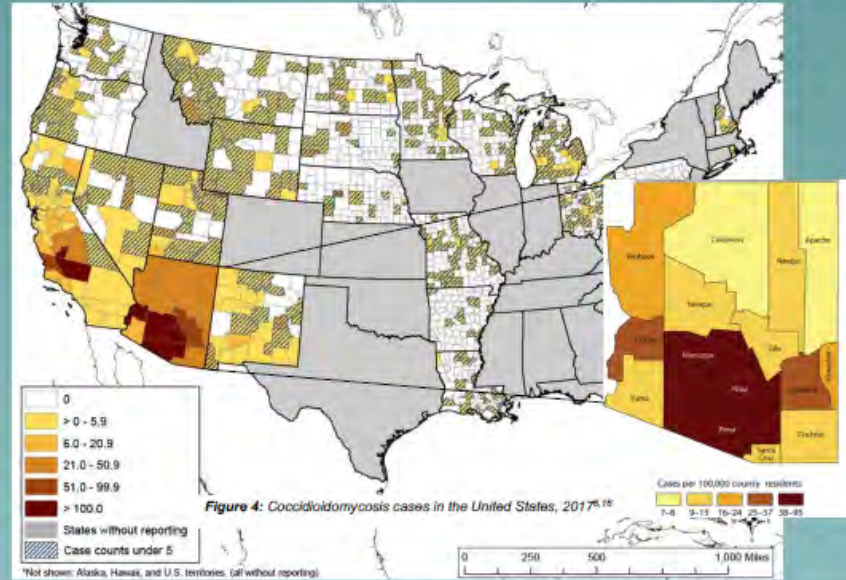


Figure 4: Coccidioidomycosis cases in the United States, 2017¹⁸

RURAL RISK FACTORS

- **Occupations that disrupt soil**⁸
 - Agricultural or construction
- **Lack of paved roads**⁸
- **Poor access to specialty services**
- **High risk population demographics**
 - Ethnic minorities, those living with diabetes mellitus, high pregnancy rates^{7, 8, 14}

METHODS

- **Key Stakeholder Interviews:**
 - Valley Fever Center for Excellence¹²
 - Valley Fever Patients⁹
 - Tribal Public Health Officials^{17, 18, 21}
 - Lab Testing Facilities^{13, 20}
 - Rural Health PCPs¹⁵
- **Comprehensive literature review**
 - MeSH criteria: "Valley Fever," "Coccidioidomycosis," "Primary Care," "Rural Health."

FINDINGS

Testing:

- Only **3 out of 10 providers** in AZ correctly test for VF when indicated²
- Lack of lab infrastructure in remote areas causes delay of results²¹
- **Serology**, histology culture, imaging

Diagnosis:

- **>80% patients get misdiagnosed**¹
- Varied knowledge of VF per rural health professional interviews: from minimal to moderate; all indicated value of further education/resources

Treatment:

- Supportive care only for uncomplicated cases^{11, 22}
- **Refer those with complicated VF or risk factors to a specialist.**^{11, 22}
 - Specialists in urban centers only
- **Physical therapy**- useful for Residual Fatigue Syndrome^{4, 5, 8, 11, 12, 19}

SUMMARY/ Recommendations:

- Building infrastructure, rural provider education, and increasing access to experts can all improve rural VF care.
- **Infrastructure**
 - Improve lab testing capability
 - Self-ordered VF testing option²⁰
 - Address rural dust exposure^{7, 8}
- **Rural Provider Education**
 - Primary Care management from CDC and VFCE Guidelines²²:

1 Consider the diagnosis

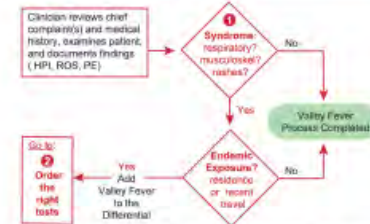


Figure 5. Excerpt from the "Valley Fever (coccidioidomycosis): A training manual for primary care providers"²²

- **Improve Physical Therapy options**^{4,5,11,19,22}
 - Provider education on PT benefits
 - Increase availability of rural PT
- **Expert Consultation**
 - Support rural Telehealth capability¹²
 - Connect rural health professionals with experts such as VFCE²²
 - Offer translators in Tribal nations^{17, 18}

ACKNOWLEDGEMENTS



References



THE UNIVERSITY OF ARIZONA
Arizona AHEC
Area Health Education Centers

Purpose of the Project

Ozempic has become a popular medication for patients with type 2 diabetes mellitus. It has many benefits including: HbA1c reduction, low risk of hypoglycemia, weight loss, and cardiovascular benefits (Clements et al., 2021)

The purpose of this project is to evaluate the efficacy of Ozempic on the reduction of HbA1c, and compare rural clinic data to national data.

Problem

Diabetes affects approximately 38 million people in the United States alone. Many health concerns in this population result from poorly controlled blood glucose, and cardiovascular related diseases are the leading cause of death and health complications for these patients. A one percent decrease in HbA1c can yield a 15-17% decrease in cardiovascular risk (An et al., 2020; Kelsey et al., 2022).

Setting

Rural primary care clinic, Safford, Graham County, AZ.

Patient Population

Inclusion criteria: Adults with a diagnosis of type 2 diabetes who were prescribed Ozempic as part of their treatment regimen along with other diabetic medications.

Exclusion criteria: Fewer than 2 data points (HbA1c), Documented limited access to medication (pharmacy or insurance issues), and documented poor compliance with medication

Clinical Question

In diabetic patients, how does the use of Ozempic affect their HbA1c over a six to nine month period, when compared to prior treatment?

Review of the Literature

In a consensus report the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD) established recommendations for diabetic management including the use GLP-1 medications in several scenarios with semaglutide as the preferred GLP-1 in most cases (Buse et al., 2019; ElSayed et al., 2022).

Systematic review and meta analysis of GLP-1 medications showed injectable semaglutide (Ozempic) to have a greater impact on HbA1c reduction than other medications in the same class with a mean reduction of 1.76% (Chun & Butts, 2020; Clements et al., 2021; Zaazouee et al., 2022)

Clinic Results

Clinic data showed a mean HbA1c reduction of 1.67%
Mean HbA1c prior to Ozempic - 8.98%
Mean HbA1c following Ozempic - 7.31%
50% of patients included in the sample had an HbA1c of 7% or less after 6-9 months on Ozempic.

Proposed Best Practice

Metformin remains the preferred initial treatment for patients with type 2 diabetes due to the high safety profile, efficacy, and cost (ElSayed et al., 2022).

For patients with persistent hyperglycemia despite metformin use a second medication can be added taking into account efficacy, risks for hypoglycemia, comorbid conditions, impact on weight, side effects and cost (ElSayed et al., 2022).

With that criteria in mind the a GLP1 such as Ozempic may be included as second agent. Current ADA recommendations prefer a trial of a GLP1 before basal insulin (ElSayed et al., 2022).

Conclusion

National data suggests that including Ozempic can reduce HbA1c by 1.76%.
Clinic data showed a mean HbA1c reduction of 1.67% with 50% of the sample population maintaining an HbA1c of 7% or less.

Ozempic is an effective treatment option for reduction of elevated HbA1c in Type 2 Diabetes.

References





Purpose

To promote appropriate patient referrals to primary care for biophysical etiologies of depressive symptoms by educating behavioral health providers (BHPs) on Biophysical Etiologies of Depressive Symptoms (BEDS)

Background

- A significant number of patients presenting in primary care have depressive symptoms.
- Integrating primary care and behavioral health is the gold standard for treating these patients.
- Many patients present directly to a BHP for their depressive symptoms in a settings unaffiliated with a primary care clinic.
- A BEDS education session may increase BHP awareness and confidence in PCP screening referrals.

Methods

- A 30-minute depressive mimics educational intervention (DMEI) will be delivered at a time convenient to the BHPs.
- A pre-intervention survey identifying BHP knowledge and comfort referring will be administered.
- Post-intervention survey-style and Likert questions will assess BHP knowledge and intention to change.

Theoretical Framework

- Kurt Lewin's Three-Step Model of Change is used widely for organizational change



Sample DMEI material

CHANTS is an acronym for physiologic causes of depressive symptoms

1. Chronic pain and chronic disease
2. Hormonal imbalances
3. Anemias
4. Nutritional deficiencies
5. Thyroid and parathyroid disorders
6. Sleep disorders

Sample Survey Questions

- *When I see a new patient, I always ask if they have a PCP (True/False)*
- *I know how to recognize common physiologic causes for depressive symptoms (Likert Scale)*
- *Hypothyroidism can cause depressive symptoms like fatigue and weight gain (True/False)*
- *If I think a patient's depression could have a physiologic component, I will encourage the patient to see a PCP (Likert Scale)*

Results: Summer 2024

References



Mediterranean Diet vs. Type 2 Diabetes in Native American Populations of Arizona

Miranda M. Ayala, UA Nursing Student

Purpose

- Implementing the Mediterranean diet for the management of Type 2 Diabetes in Native American populations as an alternative to pharmacological methods due to cultural beliefs.

Background

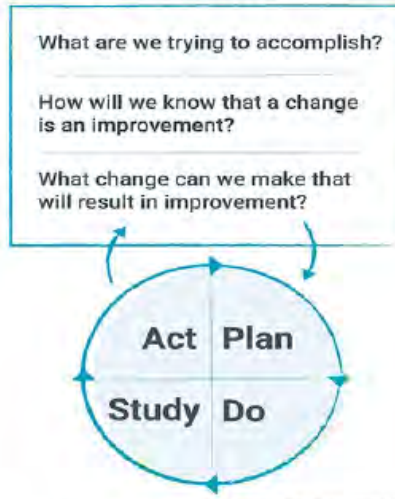
- Type 2 Diabetes is a type of diabetes created by an unhealthy diet and physical inactivity, which exhausts the pancreas to produce too much insulin and eventually leads to insulin deficiency.
- The Mediterranean diet can possibly be revolutionary for treatment of the "plague of the 21st century" (Milenkovic et al., 2021).
- Native American groups with Type 2 Diabetes had the highest prevalence of diabetes at 21.2% (Figure 6) compared to other racial/ethnic groups (ADHS, n.d.).
- Complications associated with Type 2 Diabetes in Native American groups have a higher risk for strokes, diabetic neuropathy, diabetic retinopathy, heart disease, arterial ulcers, etc.
- The Mediterranean diet in managing Type 2 Diabetes has been shown to improve glucose metabolism, increase insulin sensitivity along with lipid profile, and lessens CVD risk (Milenkovic et al., 2021).



Figure 3: Recommended food groups in the Mediterranean diet pyramid (Milenkovic et al., 2021).

Method

Model for Improvement



Source: Adapted from 'The Improvement Guide' (2008)

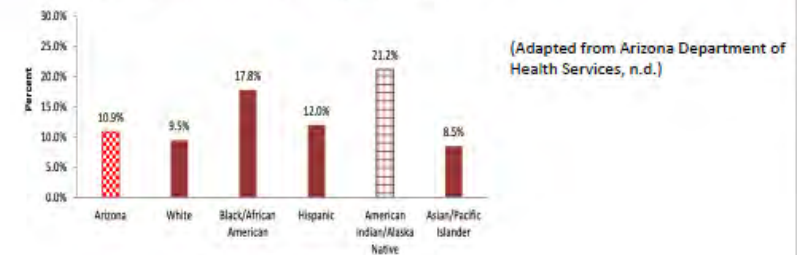
(Adapted from the Institute for Healthcare Improvement, n.d.)

Implications: How Can We Improve Type 2 Diabetes in Native Americans?

- Education on the purpose of the Mediterranean diet and how it can improve the clinical outcomes of Type 2 diabetes.
- Patient adherence can be achieved by listening to your patient's perspective based on their compliance with the Mediterranean diet.
- Recommending the types of food groups consumed as well as seeking food alternatives that can help improve patient well-being.
- Observing for improvement by checking blood glucose levels, weight, heart health, etc.
- Planning how the patient is incorporating the Mediterranean diet as a lifestyle change and provide follow-ups on what has changed and what has not changed.

Findings

Figure 6. Percentage of Arizona Adults with Diabetes by Race/Ethnicity, BRFSS 2019¹⁵



(Adapted from Arizona Department of Health Services, n.d.)

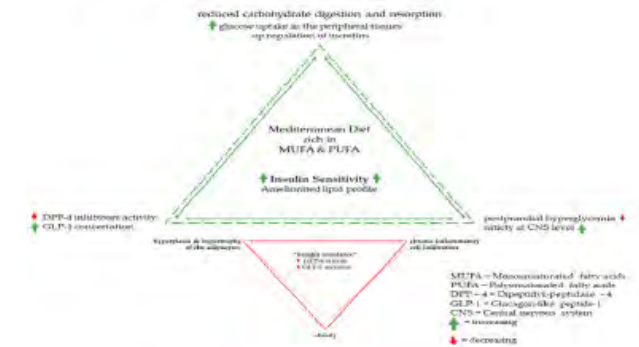


Figure 4: Mediterranean diet vs. Insulin resistance, possible mechanisms (Milenkovic et al., 2021).

Conclusions

- The Mediterranean diet can manage Type 2 diabetes in Native Americans by improving glucose metabolism and increase insulin sensitivity.
- Patient adherence is important because the effectiveness of treatment will more likely result in desired health outcomes.

References

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- Milenkovic, T., Bozhinovska, N., Macut, D., Macut-Bjekic, J., Rahelic, D., Asimi, Z. V., & Burekovic, A. (2021). Mediterranean diet and type 2 diabetes mellitus: A perpetual inspiration for the scientific world. A review. *Nutrients*, 13(4), 1307. <https://doi.org/10.3390/nu13041307>
- Institute for Healthcare Improvement. (n.d.). *How to improve: Model for improvement*. <https://www.ihl.org/resources/how-to-improve>

STATIN THERAPY: PREVENTION OF ATHEROSCLEROTIC CARDIOVASCULAR DISEASE IN PATIENTS WITH TYPE 2 DIABETES

College of Health & Human Services

School of Nursing

Jessica I. Walker

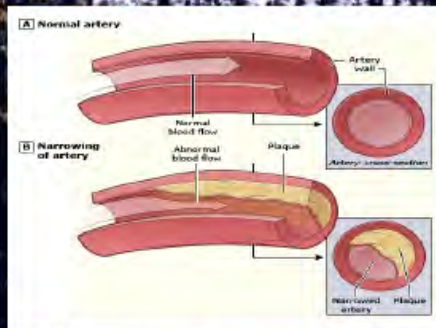
Faculty Sponsor: Shelly Vaughn, DNP

Purpose of the Project

The project's purpose is to improve healthcare outcomes in patients with type 2 diabetes aged 40-75 by reducing their risk of atherosclerotic cardiovascular disease (ASCVD) through the initiation of statin medications.

Problem

- Diabetes and hyperglycemia result in chronic inflammation, leading to damage to endothelial function and microvascular damage.
- Atherosclerotic disease manifests in arteries throughout the body, leading to coronary artery disease, cerebral vascular disease, and peripheral artery disease.
- ASCVD is the leading cause of death in the United States.
- The Centers for Medicare and Medicaid Services (CMS) determine reimbursement based on the quality measure of diabetic patients being prescribed moderate-dose statin medications.



Patient Population & Setting

- Rural primary care clinic, Sierra Vista, Cochise County, AZ.
- Outpatient primary care clinics
- Adult patients age 40-75 years old with type 2 diabetes.
- Over 11% of the population in Cochise County has diabetes, exceeding Arizona's overall prevalence.

Clinical Question

In (P) patients with type 2 diabetes between the ages of 40-75, (I) will screening for statin therapy during routine diabetes management visits (O) increase adherence to the American Diabetes Association guidelines for statin therapy (C) compared to annual wellness visits over the CMS annual evaluation period?

High-intensity statin therapy (lowers LDL cholesterol by ≥50%)	Moderate-intensity statin therapy (lowers LDL cholesterol by 30-49%)
Atorvastatin 40-80 mg	Atorvastatin 10-20 mg
Rosuvastatin 20-40 mg	Rosuvastatin 5-10 mg
	Simvastatin 20-40 mg
	Pravastatin 40-80 mg
	Lovastatin 40 mg
	Fluvastatin XL 80 mg
	Pitavastatin 1-4 mg

Review of the Literature

The literature review indicates that statin medications effectively reduce the severity and rate of atherosclerosis in diabetic patients.

Statin medications effectively reduce the early stages of atherosclerosis, endothelial dysfunction, and inflammation across demographics.

High-dose statin medications are underutilized.

Statin medications are effective as a form of primary and secondary prevention of ASCVD in diabetic patients.

The risk of developing diabetes secondary to statin use is insignificant.

Proposed Best Practice

- In addition to lifestyle modifications, best practice guidelines recommend moderate to high-intensity statin therapy for primary and secondary prevention of ASCVD in diabetic patients aged 40-75.
- Screen diabetic patients during routine diabetes management visits for statin use and medication tolerance.
- Avoid low-intensity statins if higher doses are tolerated.

Conclusion

Recommend all diabetic patients be screened for a statin therapy regimen during diabetes management office visits as they often occur more frequently than annual wellness visits.

Recommend educating office staff and medical assistants to recognize diabetic patients not on statin medications and alert the provider.

Incorporate patient education to include ASCVD risk and prevention into current diabetes education.

References



Appropriate statin use in older patients

College of Health & Human Services

School of Nursing

Lionel Vasquez

Faculty Sponsor: Tanya Harding, DNP

Purpose of the Project

There is a gap in recommendations for cardiovascular disease in the geriatric population. There is no current U.S. Preventive Services Task Force recommendation on statin use in primary prevention of cardiovascular disease in adults 75 and older. Cardiovascular risk calculators are not for use in the 75 or older population. This project will assess benefits and possible harms of statin use so that providers can make an informed decision on statin therapy for their patients 75 and older.

Problem

Myalgias and muscles weakness are common complaints with statin use in the clinical setting and the main reason that patients discontinue therapy. Older patients are often at a greater risk for adverse effects from medications and at a greater risk for falls. The side effects from statin use may indirectly increase risk of falls which is the leading traumatic cause for emergency room visits in the geriatric population.

Setting

Primary care systems in countries where statin therapy is utilized for the primary and secondary prevention of cardiovascular disease

The literature covered were many types of studies including retrospective cohort studies, systematic reviews and controlled trials.

Patient Population

Patients 75 and older and, if available, separated between "middle old"/"old" (75-84) and "oldest old"/"old old" (85 and up). This project focused on primary as well as secondary prevention meaning those at risk for a cardiovascular event as well as those who have already had one and at risk for another.

Clinical Question

(P) Are old and oldest old patients with CVD risk factors (I) who initiate statin therapy (C) compared to those who do not (O) having reduced comorbidities and increased length of life (T) over the span of 10 years

Review of the Literature

The literature review had mixed results. While some studies showed a benefit for secondary prevention of CVD particularly for patients with diabetes, others showed no significant reduction in cardiovascular events.

As with statin use in all adults, the studies with controls do not seem to match clinical observation when it comes to occurrence of myalgias. While most studies observed an increased risk of myalgias in patients especially those over 80, one controlled study found no increased risk of myalgia between statin and placebo.

Studies appear to be in agreement that benefit of statin use declines in later ages even for secondary prevention. While not common among all studies, the risk of myalgia and risk of falls and breaks appears to also increase with age.

Proposed Best Practice

It would be appropriate to perform fall risk assessments on every patient in this group and make management decisions based on those results. Reassessment of fall risk and labs should be done periodically, especially during the first 2 years of statin therapy.

There are other management strategies that may be more appropriate for use in older patients including only dietary interventions and treating to a goal LDL instead of indiscriminate high intensity statin therapy. Studies treating to a goal of 50-70 have shown noninferiority. This is appropriate for high risk patients. A goal of 100 is normally appropriate. The mediterranean diet is superior to a low fat diet to reduce CV events.

For patients starting on statins who experience myalgias, a 30 day medication holiday may help the patient determine if the statin is the cause of the myalgia. Lower intensity statins and lower doses than just high dose atorvastatin and rosuvastatin should be utilized as they may result in reduction of side effects. Other strategies to reduce myalgia are scheduled breaks in the calendar from statins and alternate day dosing.

Conclusion

There is less benefit and more risk to using statins in patients 75 and older. There is also less guidance and data to rely on. Patients should be assessed for risk of falls. Because there is no calculator, clinicians have to understand the factors that increase the risk of CV events. Weight loss and mediterranean diet should be initiated. Statin of choice and goal of therapy should be customized to the patient and their risk of fall/CV profile. It is of particular importance to educate patients on side effects so that they understand the risks of initiating statin therapy and their options. Patients should be reassessed periodically.

Avian Influenza Surveillance within the State of Arizona.

Jones, P.M., Faley, T.O.C., Kraberger, S., Regney, M., Lund, M., Lacson, J., Wright, J.M., Kaiser, N.A., Olivo, D., Custer, J., McGraw, K., Varsani, A., Scotch, M.

INTRODUCTION

Avian Flu is caused by the Influenza A virus; a segmented, RNA virus classically subtyped by its hemagglutinin (H) and neuraminidase (N) segments. Certain subtypes are known to cause greater disease burdens and are labeled high pathogenicity avian influenza (HPAI).

Since its emergence onto the world stage, HPAI has impacted human health and well being in numerous ways. A 2018 study by A. Luleino et. Al. estimated that annually up to 650,000 deaths worldwide are due to respiratory failure with associated influenza A/B infection.¹ Most of these deaths occurred in populations older than 65 and in those with comorbidities. A 2024 metanalysis found that the elderly and unvaccinated are more likely to be negatively affected in terms of personal cost, quality of life, and life years lost.²

Beyond direct human infection, avian flu has a heavy economic cost, primarily through its effect on the poultry industry. Since January 2022 over 80 domestic/ commercial birds have been infected with HPAI, leading to an estimated \$1 billion loss for the poultry industry as well as a \$660 million cost for the US government.^{3,4}

Arizona is a part of the Pacific flyway, a migratory route that extends from the western edge of Mexico to Northern Canada and Alaska.⁵ Compared to its neighbors in the flyway, Arizona has relatively few studies characterizing the flow of Avian flu through our communities and its potential impact.



Depiction of the migratory flyways of North and Central America. A large breeding ground exists in Alaska/ Northern Canada where multiple flyways intermix.

migratory_bird_program_administrative_flyways_state_and_province_map.jpg USFWS/USFWS, Public Domain, <https://www.fws.gov/media/migratory-bird-program-administrative-flyways-database/print-image.jpg>

PURPOSE

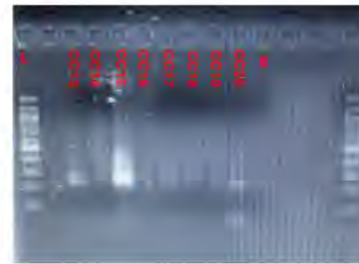
The purpose of our study is to monitor the wild avian populations within Arizona to detect and characterize the spread of Avian influenza. By phylogenetically comparing detected strains to previously identified strains on GenBank we can attempt to shed light on relationships between geographic location, time of detection, and viral reassortment. A better understanding of these factors may help us better protect vulnerable communities in the future.

METHOD

To date we have processed 206 cloacal swabs. Collected samples have come from multiple species and locations throughout Arizona, urban and rural alike. Samples were subjected to RNA extraction and cDNA synthesis. Resulting cDNA was then utilized in 2 independent assays; complete genome amplification and HA and NA segment amplifications. A nested PCR assay targeting influenza A matrix gene was used to identify positive samples. The Amplicons of the complete genome and HA/NA segment assays were sequenced using Oxford Nanopore technology (ONT) on a MinION. Reads were trimmed and assembled via template guided approach. Contigs were identified with a BLASTn search of the GenBank database and the influenza virus sequence annotation tool. Phylogenetic trees were generated via MEGA11.

FINDINGS

Two strains have been identified thus far. A lovebird (*Agapornis roseicollis*) in Maricopa county in February 2022 tested positive for a low virulence strain H12N5. The H12 was most similar to A/mallard/Wisconsin/17OS3929/2017(H12N5) and the N5 segment was most similar to A/Mallard/Ohio/18OS1435/2018(H12N5). In December 2022 a Mallard from Maricopa county tested positive for the high virulence strain H5N1. The H5 segment was most similar to A/snow goose/Kansas/W22-199B/2022(H5N1) and the N1 segment was most similar to eagle/FL/W22-114/2022(H5N1). Mutations associated with drug resistance were not detected.



Sample result of the M segment PCR assay. Samples are labeled with CC, ladder with L, and blank with B. Sample CC15 is positive and resulted in the H12N5 strain.



Phylogenetic Tree illustrating relationship between the H5 segment of the H5N1 strain and similar strains. The H5N1 strain identified in this study is highlighted in green and its closest match is highlighted in blue.

DISCUSSION

Through our efforts we have identified 2 strains of avian influenza circulating in the state of Arizona. The geographical locations of the most similar strains support the theory that a significant portion of reassortment events take place in the breeding grounds in Northern Canada/ Alaska, which shares territory with multiple flyways.⁵ Our data also supports previous observations that migratory species likely spread new strains to non-migratory populations who then act as local reservoirs.⁷ The strength of these observations is limited by the low number of strains identified in our study. Some of the most similar strains are also from prior years, suggesting that we are missing valuable data between our strain and the last recorded detection. As surveillance becomes more robust, we can better understand the spread of avian influenza within the Pacific Flyway.

CONCLUSIONS

Avian influenza has a unique potential to impact rural communities. Low vaccination rates across the state of Arizona leave our patients prone to infection and related adverse sequela.⁸ The economic burden may be felt especially hard by communities dependent on the poultry industry. Expanded surveillance efforts will help us better understand the spread of HPAI and give us more tools to protect our communities.

ACKNOWLEDGEMENTS

Special thanks to The Varsani Virology Lab, ASU college of health solutions, Matthew Scotch PhD, Temiptoe Faley, PhD, Jillian Wright, Jonathan Carsonis, MD.

CITATIONS

1. Luleino A, et al. (2018) Respiratory failure with associated influenza A/B infection. *Journal of Clinical Medicine*.
2. (2024) Metanalysis found that the elderly and unvaccinated are more likely to be negatively affected in terms of personal cost, quality of life, and life years lost.
3. (2022) Since January 2022 over 80 domestic/ commercial birds have been infected with HPAI, leading to an estimated \$1 billion loss for the poultry industry as well as a \$660 million cost for the US government.
4. (2022) Since January 2022 over 80 domestic/ commercial birds have been infected with HPAI, leading to an estimated \$1 billion loss for the poultry industry as well as a \$660 million cost for the US government.
5. (2018) Arizona is a part of the Pacific flyway, a migratory route that extends from the western edge of Mexico to Northern Canada and Alaska.
6. (2022) A lovebird (*Agapornis roseicollis*) in Maricopa county in February 2022 tested positive for a low virulence strain H12N5.
7. (2022) Our data also supports previous observations that migratory species likely spread new strains to non-migratory populations who then act as local reservoirs.
8. (2022) Low vaccination rates across the state of Arizona leave our patients prone to infection and related adverse sequela.

PURPOSE

- Prostatitis is an inflammation and infection of the prostate gland. The National Institutes of Health (NIH) has classified prostatitis into acute prostatitis (ABP) and chronic bacterial prostatitis (CBP), chronic prostatitis (CP), chronic pelvic pain syndrome (CPPS), and asymptomatic inflammatory prostatitis. Some providers have knowledge deficits for best practice concerning prostatitis. New primary care providers (PCP) can be educated with evidenced based recommendations for diagnosing, treating, and managing bacterial prostatitis.

PROBLEM

- Prevalence of prostatitis is 8.2% in males, but is probably higher.
- Prostatitis is the most common urologic condition in men younger than 50 years old and third most in men older than 50 years.
- There is no one streamlined recommended guideline for the treatment and management of prostatitis.
- Treatment can be complex with limited high-quality evidence with interpreting the history and physical.
- There is limited ability of antimicrobials to penetrate the prostate tissue, increasing resistance, and a high risk of recurrence.
- ABP will develop into CP at least 8% of the time.
- Recurrence rates of CBP range from 25% to 50%.
- Experienced physicians have shown some deficits in knowledge of treatment. A high number of PCPs (88%) thought they were unsuccessful in distinguishing the patients' issue into the NIH classification.

SETTING

- Primary care setting
- The PCP will encounter ABP 5% of the time in the ambulatory setting.

PATIENT POPULATION

- Men in primary care
- Acute bacterial prostatitis peaks in ages 20 to 40 yrs. and in those older than 70 yrs.

CLINICAL QUESTION

- Does educating new primary care providers about the guidelines and procedures for diagnosing and treating prostatitis enhance the confidence of providers when treating patients in primary care settings?



REVIEW OF THE LITERATURE

- Exams that need to be completed include an abdominal examination, genital, and sources vary on completing a digital rectal examination (DRE). The prostate will be most commonly tender, enlarged, or boggy.
- Treatment for ABP is based on the severity of symptoms, risk factors, and history of antibiotic therapy (ABT) resistance. For ABP, most sources recommend Fluoroquinolones or Bactrim as first line treatment for 2-4 weeks. Other sources include a broad-spectrum penicillin derivative, or third-generation cephalosporin for first line treatment.
- CBP is defined as symptomatic recurrent infections.
- For CBP, the antibiotic is tailored and adjusted to urine culture and the two-glass test and is completed for at least 8 weeks which includes a FQ, macrolides, or cephalosporin or combination of them.
- Quinolones reach 3-4 times higher intraprostatic concentrations than beta-lactam antibiotics.
- Untreated bacterial prostatitis can develop into complications like bacteremia, epididymitis, prostatic abscesses, and metastatic infection.

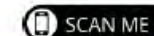


PROPOSED BEST PRACTICE

- Most BP cases can be diagnosed based on a H&P.
- Urinary symptoms include dysuria, frequency, urgency, hesitancy, incomplete voiding, straining, and weak stream. Pain in the suprapubic, rectal, or perineal area.
- Labs: Urinalysis (midstream), urine culture, CBC, and BMP. PSA is not recommended. Complete Urethral swabs/gram stain or a DNA amplification test for younger males.
- Imaging MRI, CT and U/S is only recommended on rare occasions.
- The Meares-Stamey two-glass is the gold standard for CBP.
- Antibiotic therapy is dependent on bacterial sensitivity.
- The first line antibiotic for ABP is a fluoroquinolone (FQ) or Bactrim for at least 2 weeks. (Ciprofloxacin or levofloxacin 500 mg twice daily) vs (trimethoprim 160 mg and sulfamethoxazole 800 mg twice daily)
- A urine culture must be retaken at least 1 week later.
- Vancocmycin is used for patients with a history of MRSA.
- Nitrofurantoin is contraindicated in men.
- Therapy should cover for STDs in those with high-risk sexual activity.
- CBP treatment must be individualized and dependent on the urine culture with a combination of drugs.
- For CBP therapy first line is a FQ alone (and Bactrim only if resistant to the FQ) for 8-12 weeks and the two-glass test and is completed for at least 8 weeks which includes a FQ, macrolides, or cephalosporin or combination of them.
- Use Fosfomycin with Doxycycline with treatment failure.
- CBP requires monitoring with a repeat urine culture, CBC, prostate volumes, and a NIH monitoring score is completed intervals after therapy.

CONCLUSION

- Diagnosis for ABP involves a H&P, urinalysis, urine culture and possible CBC and CMP. The first line antibiotic for ABP is a FQ for at least 2 weeks with a follow up urine culture.
- For CBP, the antibiotic is tailored and adjusted to urine culture, the two-glass test, and symptoms for at least 8 weeks with either a FQ, macrolides, or cephalosporin or combination of them.



Patient Population

Veterans aged 65 and older

Setting

A VA outpatient primary care clinic in Prescott, AZ

Problem

- Use of proton-pump inhibitors (PPIs) ↑ in recent years (Ngwenya et al., 2023).
- PPIs have stronger acid-suppressing effects than histamine-2 receptor antagonists (H2RAs) (Sigterman et al., 2013),
 - More effective for heartburn
 - ↑ risk for adverse effects:
 - Cognitive impairment
 - Bacterial colonization
 - Med interactions
 - Impaired absorption
 - Disruption of GI flora
- Some PPIs such as omeprazole are available over-the-counter, but should be prescribed judiciously given their potential for harm.
- PPIs are often prescribed inappropriately, and are a concerning contributor to polypharmacy, especially among older adults (Clyne et al., 2017).



Clinical Question

Among adults 65 and older, is long-term use of a PPI, compared to use of a H2RA, associated with increased morbidity?

Review of the Literature

- PPIs associated with greater morbidity than H2RAs (Ngwenya et al., 2023; Norgaard et al., 2022):
 - Hip fractures (Wei et al., 2020)
 - *C. diff* infection (Seo et al., 2020)
- H2RAs associated with slightly ↑ risk for dementia compared to PPIs (Chen et al., 2020).
- Long-term use of PPIs and H2RAs both associated with ↑ mortality compared to no long-term gastric acid suppression- no significant difference in mortality between the two.

Purpose of the Project

- Increase awareness of the risks of long-term PPI use among primary care providers.
- Educate on best practices for management and diagnostic workup for heartburn to decrease inappropriate prescribing of PPIs.

Conclusion

- Look for opportunities to deprescribe for older adults at each visit- considering PPIs
- Ask about use of OTC PPIs such as omeprazole (Prilosec)
- Review appropriateness of any chronic NSAIDs/aspirin use to avoid prescribing cascade.

Proposed Best Practice

- Follow stepwise approach for empiric treatment of heartburn:
 1. Non-pharm management:
 - Avoid triggers: caffeine, alcohol, tobacco, chocolate, peppermint, spicy foods
 - Avoid large meals before bed and elevate HOB
 2. PRN H2RA
 3. 2-month PPI trial, then reevaluate for effectiveness. Limit PPI use to the lowest dose & shortest duration necessary.
- Review patients already on long-term PPI for appropriate indication: GERD with severe erosive esophagitis, Barrett's esophagus, *H. pylori*, GI prophylaxis with chronic NSAID (including aspirin) use, or peptic ulcer disease.
 - If no appropriate indication, deprescribe with taper (abrupt d/c can cause rebound gastric acid production): ↓ dose 50% weekly.
- Considerations for long-term PPIs to ↓ risks:
 - Monitor B12, magnesium annually, replace if deficient
 - Review meds for interactions (a common interaction is clopidogrel & omeprazole)- pantoprazole & lansoprazole have less risk for interactions.
 - Avoid concurrent PPIs & H2RAs



Early Identification of Polycystic Ovary Syndrome by PCPs

College of Health & Human Services

School of Nursing

Kayla Berry

Faculty Sponsor: Terry Smith, MSN-FNP

Purpose of the Project

To provide PCPs with education of the gold standard diagnostic criteria for polycystic ovary syndrome (PCOS) to guide early identification and treatment of patients to improve patient outcomes.

Problem

PCOS is a hormonal condition that affects women during their child-bearing years. PCOS can start in adolescence and manifest as irregular periods, problems with acne and excessive body hair (hirsutism), anxiety, depression, and weight gain. Women with PCOS can have infertility and can develop type 2 diabetes, hypertension, high cholesterol, heart disease, and endometrial cancer.

Setting

This project took place at a rural federally qualified health center primary care clinic located in East Mesa, Maricopa County, AZ.

Patient Population

All female patients of child-bearing age

Clinical Question

In primary care settings, does the implementation of targeted educational interventions enhance the ability of healthcare providers to recognize and accurately diagnose Polycystic Ovary Syndrome (PCOS) among reproductive-age women as compared to no education?"

Review of the Literature

- According to the World Health Organization (2023), approximately 8-13% of reproductive aged women have PCOS, and 70% of those are undiagnosed. Due to the high prevalence of undiagnosed PCOS and the serious comorbidities that can develop from the condition, it is of paramount importance that PCPs be able to recognize and diagnose PCOS.
- Many women feel like their PCOS symptoms are not taken seriously by their PCPs (Ismayilova & Yaya, 2022). According to Ismayilova & Yaya (2022), 52% of the women interviewed were not given adequate information when diagnosed with PCOS. Hillman et al. (2020), had similar findings with 83.1% of women who took the survey reporting that they felt like their PCP did not do enough for their PCOS.
- Additionally, clinical practice guidelines are varied and can be difficult to translate to practice, especially with regards to treatments (Wattar et al., 2021).
- Copp et al. (2020), interviewed thirty-six practitioners and many reported using the Rotterdam Criteria, but diagnosis is not always clear, and they stress the importance of taking an accurate and thorough history. Emphasis on just one criterion can lead to misdiagnosis with PCOS. On the other side of that, underdiagnosis delays timely treatment. Further confusion for medical providers can arise due to the presence of alternative criteria.
- The gold standard recommendation for diagnostic criteria for PCOS is the Rotterdam Criteria, developed in 2003 by the European Society of Reproductive Medicine and the American Society of Reproductive Medicine (Tremblay-Davis et al., 2021). According to the Rotterdam Criteria, two of the following symptoms must be present to diagnose PCOS:
 - Oligo-ovulation or anovulation
 - Clinical or biochemical signs of hyperandrogenism
 - Polycystic ovaries on ultrasound

Proposed Best Practice

- Ensure to collect accurate HPI, ROS, and physical examination
- Utilize diagnostic testing
 - Labs: hormone levels, testing for insulin resistance, lipid profile, and thyroid function tests
 - Transvaginal ultrasound
- PCOS is a diagnosis of exclusion, other conditions with similar symptoms must be ruled out.
- Utilize Rotterdam Criteria to diagnose patients

Conclusion

Primary Care Providers (PCPs) are in a unique position to newly diagnose a woman with PCOS. PCPs see their patients at least yearly, often more frequently. As the first provider many of these women see, it is important to be able to understand what this constellation of symptoms means and help treat or refer out if necessary. Provide education to PCPs on PCOS symptoms, appropriate diagnostic testing, and the use of the Rotterdam Criteria. Stress the importance of PCOS as a diagnosis of exclusion and the comorbidities that can result from PCOS.

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Education for Home Blood Pressure Monitoring (HBPM)

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School of Nursing

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Purpose of the Project

The purpose of this project is to determine the importance of patient education related to HBPM for the diagnosis and treatment of hypertension within the primary care setting.

Educate family care providers, medical assistants, and nurses on the importance of implementing a blood pressure support program to ensure appropriate diagnosis, the use of validated equipment and material, proper treatment plans, and routine follow up.

Problem

1 in 5 Americans have undiagnosed hypertension while only 25% of those who are diagnosed are controlled.¹

The lack of patient education related to home blood pressure monitoring is correlated to a high prevalence of undiagnosed and poorly controlled hypertension.²

Failure to control elevated blood pressure has led to an increased risk of chronic cardiovascular disease and subsequent cardiovascular events.²

Setting

The proposed setting is a rural outpatient primary care clinic.

Patient Population

Adult patients age 18 and older with a previous diagnosis of hypertension as defined as systolic greater than 130 or diastolic greater than 80.

Focus on elderly patients as the prevalence of hypertension increases to 60% by the age of 60.

Clinical Question

In adult patients diagnosed with hypertension as defined as systolic greater than 130 or diastolic greater than 80 (P), how does increased patient education related to HBPM (I) compared to no patient education (C) affect the diagnosis and treatment of hypertension (O) in the primary care setting?

Review of the Literature

Common education topics: medication adherence, low-salt diet, physical activity, hypertension side effects, lifestyle behaviors that increase blood pressure.^{3, 4, 5, 6, 7, 8, 9, 10}

Group education sessions were associated with correct technique due to hands-on training and improved knowledge retention.³

Interactive group activities resulted in 9% mean SBP decrease, 5% mean DBP decrease, and decreased weight and cholesterol levels.⁴

Combined group education with individual telephone visits resulted in improved blood pressure control and medication adherence.⁵

Smartphone coaching application for HBPM increased participant self-confidence related to HBPM and hypertension.⁶

The use of *MyBP* mobile application with online educational videos and automated text-messaging reminders for HBPM improved overall knowledge of hypertension, medication adherence, and lifestyle behaviors that impact blood pressure.⁷

Increased family involvement resulted in improved hypertension management and encouraged healthy lifestyle behaviors among patients.⁸

Providing validated home blood pressure cuffs and associated logs to patients resulted in an increase in HBPM and an overall decrease in blood pressure.^{9, 10}

Proposed Best Practice

The American Heart Association (AHA) notes self-monitoring blood pressure as a validated means to manage hypertension both at-home and in the primary care setting.¹¹

Format: Group education sessions to discuss HBPM, medication adherence, hypertension control and side effects. Involve family support to encourage collaboration. Education will be based on guidelines from the American Heart Association and handouts will be provided.

Monitoring: Validated arm blood pressure monitor with auto documentation to mobile blood pressure tracking application.

Outcomes: Improve HBPM techniques, appropriate knowledge of lifestyle behaviors that directly impact hypertension, overall decrease in blood pressure, and increase the rate of controlled hypertension and medication adherence.

Conclusion

Recommend all primary care providers encourage patients with hypertension to perform home blood pressure monitoring using a validated arm cuff.

Recommend outpatient primary care clinics implement a blood pressure support program to ensure adequate education.

Recommend educating the clinic staff on the diagnosis, monitoring, treatment, and follow up required for hypertension management.



References

Heart Failure & the Transitional Care Model

College of Health & Human Services

School of Nursing

Tamala Turpin

Faculty Sponsor: Bridget Wicks, MSN, CNP

Purpose of the Project

Reduce readmission rates for heart failure (HF) patients
Educated out-patient clinics and patients on the importance with utilizing transitional care model/services in the community

Problem

Heart failure is one of the leading causes of hospitalizations resulting in >1 million admissions nationwide

Recent readmission risk for heart failure patient range from 20-30% within 30 days of discharge

Setting

Primary Care Clinics, Yuma, Arizona

Data was gathered on; the success rate of the transitional care model utilization with regards to decreasing hospital readmission rates in patients with heart failure.

Patient Population

Lifetime risk of heart failure remains high in the US, ranging from 20-45% ages 45+ and 10% live with advanced heart failure.

Yuma County Demographics: 21% population are 65 years or older, 47% of population are ages 18-64.

Clinical Question

Are patients with heart failure less likely to be readmitted within 30 days with the utilization of transitional care model vs. non-utilization?

Review of the Literature

A review of literature reveals heart failure patients have a decrease in the 30-day readmission rate, when referred to a transitional care program.

Heart failure readmissions can result from fragmented care after discharge, lack of adherence to guidelines, patient unawareness of HF symptom exacerbations, non adherence to medical therapy, and lack of education surrounding diagnosis.

Transitional care is a service designed to ensure continuity of care from hospital to home, by facilitating smooth transfer of vulnerable individuals affected by changes in the care settings.

Proposed Best Practice

Primary care providers will be notified of the transitional care services in the community.

Upon discharge, heart failure patients will receive a referral to the local transitional care program.

Primary care offices in the community will make use of transitional care services for all of their patients diagnosed with heart failure.

Transitional care model (TCM) is a bundle of services intended to prevent gaps in care for patients being discharged from hospital to home, with the intention of avoiding readmissions.

Conclusion

Referral for transitional care program provided to all heart failure patients upon discharge from hospital.

- Contact made by TCM within 2 days of discharge, with face-to-face established within two weeks

Encourage primary clinics to utilize TCM to decrease patient complications and improve compliance.

Recommend that all primary care clinics in the area be provided with information on what TCM entails and how it can improve readmission rates in heart failure patients.



Scan me!

Purpose of the Project

This project aims to enhance medical assistants' awareness, prompting them to inquire specifically about over-the-counter (OTC) medications, herbs, and supplements during the medication reconciliation process, thereby increasing overall awareness.

The purpose of this project is to increase providers' awareness of the most common drug-supplement interactions to avoid adverse reactions.

Problem

The US Center for Disease Control's National Health and Nutrition Examination Survey found that nearly one in four patients over age 60 were taking four or more supplements per day (Souza-Peres et al., 2023).

Many healthcare workers are unacquainted with relevant facts about herb-drug interactions due to the scarcity of information on the topic (Souza-Peres et al., 2023).

One study estimated that one in three patients were at risk of potential drug-herb interactions (Agbabiaka et al., 2018).

Setting

Rural primary care in Green Valley, AZ.

Patient Population

Older adults who take supplements to manage their chronic conditions.

Clinical Question

(P) Does education on the most common drug-supplement interactions with a post-educational survey (I) compared with no education and a pre-educational survey (C) lead to increased provider awareness and higher survey scores (O) after the education for this project has been administered (T).

Review of the Literature

An observational cross-sectional study found that only 28% of medical professionals routinely ask about supplements (Stanojevic-Ristic et al., 2022).

Most providers knew about major drug-herb interactions but lacked knowledge of moderate drug-herb interactions (Stanojevic-Ristic et al., 2022).

Apixaban should not be used with St John's wort, mifepristone, vorapaxar, or strong CYP3A4-Pgp inducers (Tarn et al., 2019). Apixaban can increase bleeding risk with ginger, ginkgo biloba, herbal teas, turmeric, SSRIs, or SNRIs (Tarn et al., 2019).

Hormonal therapy such as progestins and higher doses of estrogens can decrease the effectiveness of apixaban (Tarn et al., 2019).

When patients on apixaban were surveyed, two-thirds of respondents lacked knowledge of the increased bleeding risk when combining apixaban with NSAIDs (Tarn et al., 2019).

Pharmacists reported drug interactions when patients combined warfarin with alfalfa, cranberry, ginkgo, or leeks (Souza-Peres et al., 2023).

83% of medical professionals were aware of a reaction between doxycycline and magnesium, but only 14% were aware of a reaction between warfarin and glucosamine (Stanojevic-Ristic et al., 2022).

Healthcare providers cited using Lexicomp, Epocrates, Drugs.com, or Natural Medicines Database (Souza-Peres et al., 2023).



References

Proposed Best Practice

Implications for practice include active prompts to assist the patient in disclosing all OTC medications, herbs, and supplements they are taking as recommended by the Agency for Healthcare Research and Quality (2022) at every patient encounter.

Increase healthcare professionals' knowledge of potential interactions.

Evidenced-based practice aims to create reproducibility of drug-supplement interactions. However, the lack of FDA regulations on supplement companies hinders the reproducibility of drug-herb interactions (Souza-Peres et al., 2023).

Clinical studies of the same supplements by different researchers can often produce conflicting results which may be due to differences in supplement formulations (Souza-Peres et al., 2023).

Lexicomp and Natural Medicines Database are reliable resources for providers needing to check on herb, supplement, and OTC medication interactions with pharmaceutical drugs (Souza-Peres et al., 2023; Tarn et al., 2019).

Conclusion

Patients should be prompted to specifically disclose the use of herbs, supplements, and OTC medications.

The lack of readily available and reliable databases further complicates the issue. More robust and accessible databases need to be created that encompass interactions to help guide the prescriber.

Increased awareness among all healthcare team members is needed to prevent adverse health outcomes.

Purpose of the Project

Review research on reasons for medication nonadherence (MNA) in Hispanic population, and review interventions tested to improve hypertension (HTN) medication and self-management adherence for Hispanic patients in outpatient primary care settings.

Problem

Cardiovascular disease is in the top 3 causes of mortality for Hispanic people in the United States. HTN MNA is the top amendable factor to prevent deadly sequelae of cardiovascular disease³. While Hispanic people have similar rates of HTN diagnosis compared to other groups, Hispanic people are more likely to have uncontrolled HTN and MNA than white and black Americans¹.

Setting

The project was inspired by a clinical rotation at Wesley Health Center. Wesley is a Federally Qualified Health Center in a working-class neighborhood of south-central Phoenix serving predominately uninsured or Medicaid-recipient Hispanic patients. Despite a program to provide blood pressure (BP) cuffs that pair with a smartphone application, patients demonstrate high levels of MNA. This research focuses on outpatient primary care settings serving large clusters of Hispanic patients with HTN diagnosis.

Patient Population

Self-identified Hispanic patients, aged 18 and up, diagnosed with HTN, and prescribed HTN medication.

Clinical Question

For Hispanic (P)atients diagnosed with HTN, what (I)nterventions have been shown successful, (C)ompared to no intervention, with (O)utcome to improve adherence to HTN medications, in the year's (T)ime after beginning medications?

Review of the Literature

Explanations for Hispanic patient HTN MNA include:

- Social determinants of health (SDOH) like education, economic instability, built neighborhood environment, limited access to healthcare, and social stressors¹.
- Hispanic people that self-report HTN MNA report greater social stress and lived experiences of discrimination¹.
- Lower health literacy, lower educational attainment, depression, and being foreign-born increase HTN MNA⁵.
- In patients receiving the Medicare Low-Income Subsidy for chronic conditions like HTN, male sex, racial minority status, younger age, living in a health professional shortage area, and higher SDOH risk scores⁸.

Interventions that impact Hispanic HTN MNA:

- Hispanic patients preferred to receive health literacy education from culturally/ linguistically matched health care providers, which improved their intention to adhere to medication regimens⁶.
- Financial incentives like gift cards, and social incentives like positive feedback improve HTN MNA for Hispanic patients⁴.
- In a 9-month trial of a smartphone-based, culturally customized HTN self-management program, medication adherence improved, along with clinically significant BP improvements².
- Another smartphone-based program had technical glitches, but increased monitoring of patients and education from culturally matched healthcare staff led to increased adherence and BP control over 6 months⁷.
- 12 "safety-net clinics" instituted an evidence-based HTN management program of a patient registry, standardized prescription of combination ACE/ARB with diuretic, standardized BP evaluation protocol, and nurse or pharmacist BP checks. After 15-24 months, Hispanic patients' HTN control rates increased from 67 to 72%³.
- A 2-hour evidence-based, culturally-sensitive health literacy class improved health literacy scores and adherence to HTN self-management behaviors⁹.

Proposed Best Practice

Based on the literature review of best practices to ameliorate HTN MNA with Hispanic patients, the following best practices are suggested for Wesley Health Center and similar clinics:

- Educate staff about risk factors for HTN MNA in Hispanic patients like SDOH, health literacy, discrimination^{1,5,8}.
- Reinforce standardized HTN diagnosis parameters, prescriptions (ACE/ARB with diuretic combination), BP measurement protocol, registry of patients with HTN³.
- Create evidence-based HTN health literacy class that is culturally appropriate and taught in the patients' preferred language (Spanish or English)^{6,9}.
- Provide financial incentive to participate in the HTN education and self-management program⁴.
- Continue to provide BP cuffs and teach patients to use the paired smartphone app or a paper log. Consider adopting a culturally-tailored smartphone app that encourages HTN self-management behaviors^{2,7}.
- Schedule check-ins to review BP with medical assistant in preferred language between provider visits^{3,6}, providing praise for adherence⁴ and ongoing education⁷.

Conclusion

Although research on interventions to improve Hispanic HTN MNA is limited, a variety of interventions are fruitful in improving adherence, self-management and BP scores. Outpatient clinics should institute interventions that are culturally and linguistically tailored for Hispanic patients to overcome risk factors for HTN MNA.

References



Purpose of the Project

Purpose: Reducing antibiotic misuse to decrease adverse patient events as well as decreasing antibiotic resistance by the use of a checklist in primary care.

Clinical Question

Does implementing a shared checklist for upper respiratory tract infections reduce antibiotic use or improve patient satisfaction or both in outpatient primary care provider office visits after 3 months?

Proposed Best Practice

- Antibiotics will be prescribed for bacterial infections. When there are questions regarding the etiology of the infection patients should be watched with the expectation the patient should return to the provider for further evaluation or a delayed prescription should be given to the patient (Lee et al., 2020).
- Group A Streptococcus: Antibiotics given after a positive Group A Streptococcus test (Harris et al., 2016).
- Acute rhinosinusitis: symptoms must be present for more than ten days along with signs of bacterial infection such as a temperature greater than 39° C (Harris et al., 2016).
- Bronchitis: Testing should not be performed unless pneumonia is present in the setting of suspected bronchitis, and finally antibiotics should never be given in healthy adults for the viral etiology of upper respiratory infections (Harris et al., 2016)..

Problem

Upper respiratory tract infections are one the most common reasons for visits in primary care. During these visits, patients often receive unnecessary or inappropriate antibiotic prescriptions, with rates as high as 50% or higher in some cases (Findley et al., 2018; Palms et al., 2017).

Review of the Literature

•High rates of inappropriate or unnecessary antibiotic use were identified in the primary care setting. Although the National Action Plan to Combat Antibiotic-Resistant Bacteria set a goal of reducing antibiotic misuse by 50% the national average dropped only by 8% (Borek et al., 2021). Approximately 50% of outpatient antibiotic prescriptions are inappropriate or unnecessary with rural clinics having even higher rates of antibiotic misuse (Haris et al. 2016; Chandra et al., 2022). Not only are antibiotics prescribed when unnecessary, but the wrong antibiotic are also being prescribed (Eudaly et al., 2019). The American College of Physicians points out that measures taken to provide feedback for antibiotic prescribing, delayed prescriptions for patients, financial incentives for providers, and supportive health information technology are all proven ways to decrease the rate of antibiotic misuse (Haris et al. 2016).

Conclusion

- Widespread implementation of a viral checklist, which can be modified to fit the clinic's routine.
- Follow best practice use of antibiotics by prescribing the right antibiotic to the right patient.
- Reduce patient harm while increasing patient satisfaction by educating yourself and your patient and prescribing the Right antibiotic to the Right patient at the Right time.

Setting

The highest number of antibiotics are prescribed in primary care; therefore, the proposed setting of antibiotic reduction is the adult primary care setting(Chandra et al., 2022).

Patient Population

Adults presenting with an upper respiratory tract infection.



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Purpose of the Project

Timely childhood immunization rates vary in primary care and this variation is believed more pronounced in rural areas with greater lack of access to healthcare.

Educate parents of school-age children the importance of following the recommended child immunization schedules.

Problem

Progress in infectious disease prevention has historically relied on wide adherence to timely childhood immunization schedules.

Failure to keep pace with immunization schedules on a large scale can be partly attributable to lack of clinician emphasis, patient education, and barriers to access.

Setting

Rural primary care clinic, Cochise County, AZ.

Targeted educational posters easily viewable on the walls in the waiting areas of clinics educate patients on the benefits of timely immunization of children and dispel myths.

Patient Population

Adult parents of underage children and their children.

County demographics: White 87.5%, Hispanic, 35.9 %, Native American and Alaskan Native 1.9%, Black or African American 4.4%, Asian alone 2.2%.

Clinical Question

Among pediatrics failing timely immunizations (P), does the implementation of targeted educational posters (I), compared to the current standard of no easily viewable immunization-promoting posters (C), increase immunization rates (O) over a period of time (T)?

Review of the Literature

The literature review suggests up to 58% of pediatrics are timely on recommended childhood immunization schedules. Among neonate to 18 months old, over one third are not following recommended schedules, leaving them vulnerable to diphtheria, tetanus, pertussis, and others scheduled within this timeframe.

An observational review published in the American Academy of pediatrics showed significant reductions in the incidence of measles, mumps, polio, and rubella among children aged 10 and below adherent to routine childhood immunization recommendations.

Researchers suggest cost-benefit studies of immunization programs show immediate health benefits, but also long-term economic growth spurred by the effective deployment of such programs. An economic perspective could help convince parents to timely immunize their young children to further aid their families' financial well-being.

Proposed Best Practice

Primary care clinics help their primary care providers educate parents on the benefits, safety, and efficacy of timely childhood immunization via prominent hanging of informative posters in patient waiting areas and accessible take-home literature.

Local communities pool and coordinate resources to minimize logistical challenges such as lack of transportation, clinic hours that do not align with parents' work schedules, or a lack of nearby healthcare facilities, which, in combination, can obstruct timely vaccination of school-aged children.

State-level efforts to minimize current lack of uniformity. Variability in state regulations and immunization protocols hinder public health officials from implementing nationwide immunization strategies to address systemic inefficiencies during times of public health emergencies when coordinated, timely response times are crucial in combating skepticism and disinformation.

Conclusion

Recommend all providers adopt a declarative approach in conversations with parents of school-age children when discussing vaccination.

Recommend better emphasis on educating clinical staff on recognizing instances of non-adherence to recommended immunization schedules when reviewing patient chart data and efficient communication of deficiencies to providers prior to patient encounters.

Recommend dissemination of targeted print materials easily accessible by all patients at every office visit.