

70-year-old female with left-sided breast mass

Nora Lerner PAS-II

Northern Arizona University, College of Human and Health Services
 Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Breast cancer is one of the most common cancers diagnosed in women in the United States. The prognosis and response to treatment vary due to the different subclasses and characteristics of the disease. Triple-negative breast cancer (TNBC) is a subclass that lacks estrogen receptors, progesterone receptors and human epidermal growth factor receptor 2. TNBC is a rare form of aggressive breast cancer with no approved treatment. Most likely detected by clinical breast exam (CBE).

Case Description

- A 70-year-old female presents for wellness exam
- Reported left-sided breast pain for 2 months.
- Mass on left breast for 4 months, pain with compression
- Reports regular mammogram screenings with most recent screening on July 31, 2019,: No evidence of malignancy
- Currently on hormone replacement therapy x10 years
- 1st degree relative treated for Breast Cancer- still living

Physical Examination

- Vital signs: Temp 96.5 °F, BP 129/85, P 74, R 20, and pulse oximetry 96% on room air.
- Breasts were symmetrical with no nipple retraction or discharge. No supraclavicular, cervical or axillary lymphadenopathy was appreciated. No masses or skin changes were seen in the right breast.
- A palpable 3 cm fixed mass at the 6 o'clock position from the nipple was noted with no overlying skin changes on the left breast.
- Pain with palpation was noted.
- The rest of the physical exam was within normal limits.

Results

- Breast specialist discontinued HRT
- Breast specialist performed US, showed s solid hypoechoic mass at the 6 o'clock position 3cm from the nipple, measuring 1.8 cm with increased vascularity and posterior acoustic shadowing.
- Breast Imaging Reporting and Data System (BI-RADS) 4

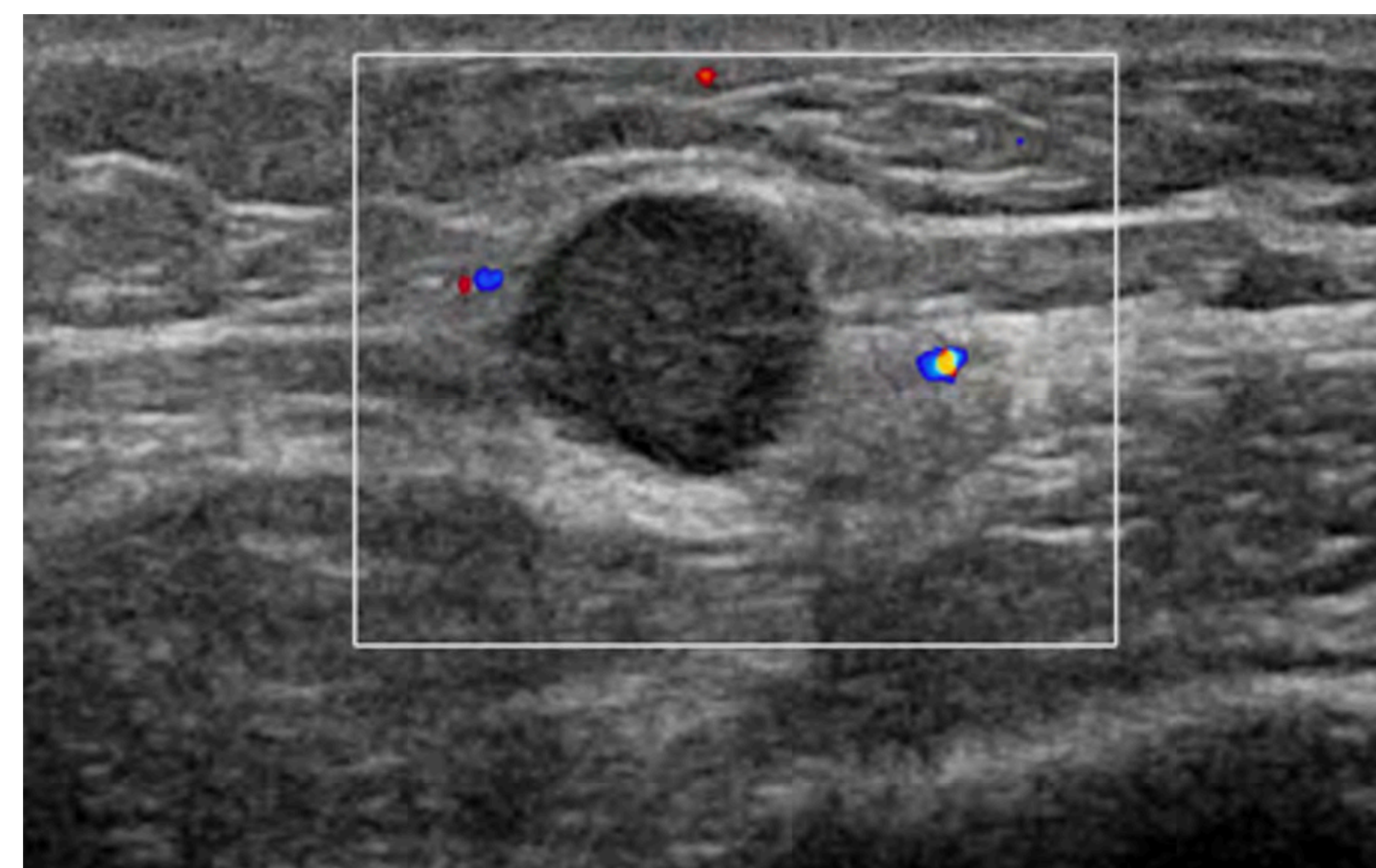


Image courtesy of Dr. Ahmed Abdelraham, Radiopedia.org
<https://radiopaedia.org/cases/triple-negative-breast-cancer?lang=us>
 (image used for educational purposes)

- US guided biopsy-proven malignant BI-RADS 6
- Pathology report indicated lack of estrogen, progesterone and epidermal growth factor 2 receptors.
- Triple Negative Breast Cancer, Stage 3
- Additional findings: 2 Left axillary lymph nodes with eccentric cortical thickening prompted further biopsy-pending pathology addendum

Plan

- No approved targeted treatment due to lack of receptors.
 - Selective Estrogen Receptor Modulators, Tamoxifen or Raloxifene, ineffective.
- Recommended mastectomy with follow up chemotherapy, similar treatment approach as to other breast cancer phenotypes.
- Patient requested second opinion.
- Pending BRACA Genetic Testing

Discussion

- American Cancer Society no longer recommends breast self-exam or CBE for screening.
- CBE remains an important part of evaluating breast complaints.
- As demonstrated in this case, the CBE was key to initiating immediate referral rather than waiting for further diagnostic testing and prolonging initiation of management.

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A Community Assessment of Casa Grande, Arizona

Lisa Adams, Avis Davis, Carlie Felion, Esther Fleming, Elinor Johnson, Enrique Flores Juarez, Fathima Haseefa, John Heydorn, Jose Lopez, Catie Sikora

Arizona Central Region
AHEC Scholars
2020-2022

PURPOSE

Disseminate results of an interdisciplinary community assessment of Casa Grande, AZ by our group of CAAHEC scholars.

BACKGROUND

- A growing city located between Phoenix and Tucson, Arizona
- Founded in 1879 and incorporated in 1915
- Named after the nearby Hohokam Indian Ruins
- Largest city in Pinal county
- Popular with winter visitors

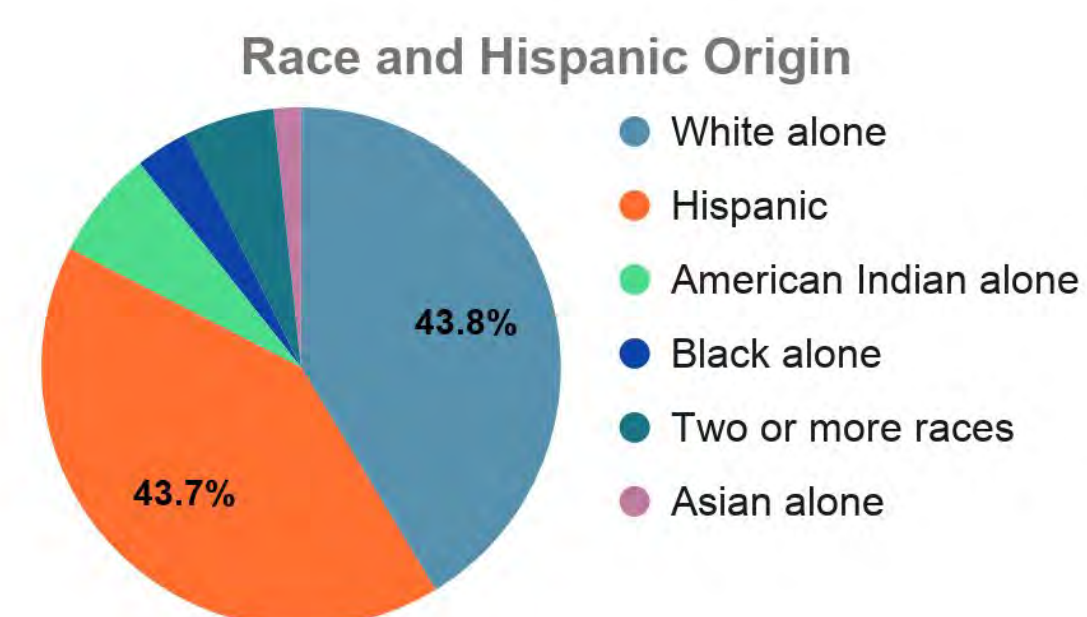


Casa Grande Monument



Demographics:

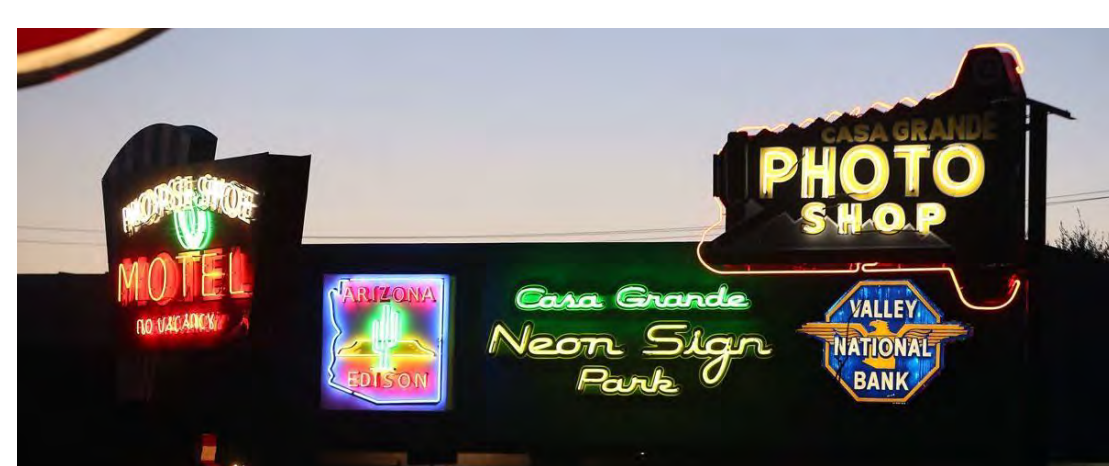
- Population: 58,632 with 20.7% growth since 2010
- Age: mostly < 65 years old
- Socioeconomic status: median household income = \$52,841 & 15.5% below federal poverty level
- No health insurance: 11.2%
- Languages: primarily English and Spanish



(United States Census Bureau, 2019)

METHODS

- Pre-recorded video windshield tour with Samantha Reinhard, Sun Life Family Health Center Manager of Patient Engagement & Community Relations
- Interviews with community stakeholders
- Data collection from cited internet sources



Casa Grande Neon Sign Park

COMMUNITY FINDINGS

Physical Environment:

- Located in northeastern part of the Sonoran Desert, consisting of low mountain ranges, scarce vegetation, hot temperatures, minimal precipitation.

Health Status:

- Infant mortality rate ~2% higher than the state average. Majority leading causes of death are MVAs and chronic ischemic heart disease.

Health & Social Services:

- Shortage of healthcare providers.
- Banner CG Medical Center consists of multiple specialties except no endocrinologist.

Economy:

- Primarily relies on agriculture, however, it is the perfect area to build factories, like Lucid Motors, that will bring a boom to the economy.

Transportation:

- Unique regional bus system known as the Central Arizona Regional Transit, which helps connect Florence, Coolidge, and Central AZ College.

Safety:

- Generally safe, has 3 police stations and a Facebook page that helps inform and minimize violent crimes and property damage.

Education:

- About 80% of the adult population has a high school education, but of that, only 16% completed a bachelor's or graduate program.

Recreation:

- Several Boys & Girls Clubs and several parks

Communication:

- About 8/10 households have internet access, cable television, and wireless cell phone coverage.

Politics & Government:

- Mayor, six city council members, city manager, 20 different boards and commissions. Reportedly liberal-leaning while in a conservative county.

Community Perceptions:

- Vast Native American history, family friendly environment, abundance of resources for residents.

SUMMARY

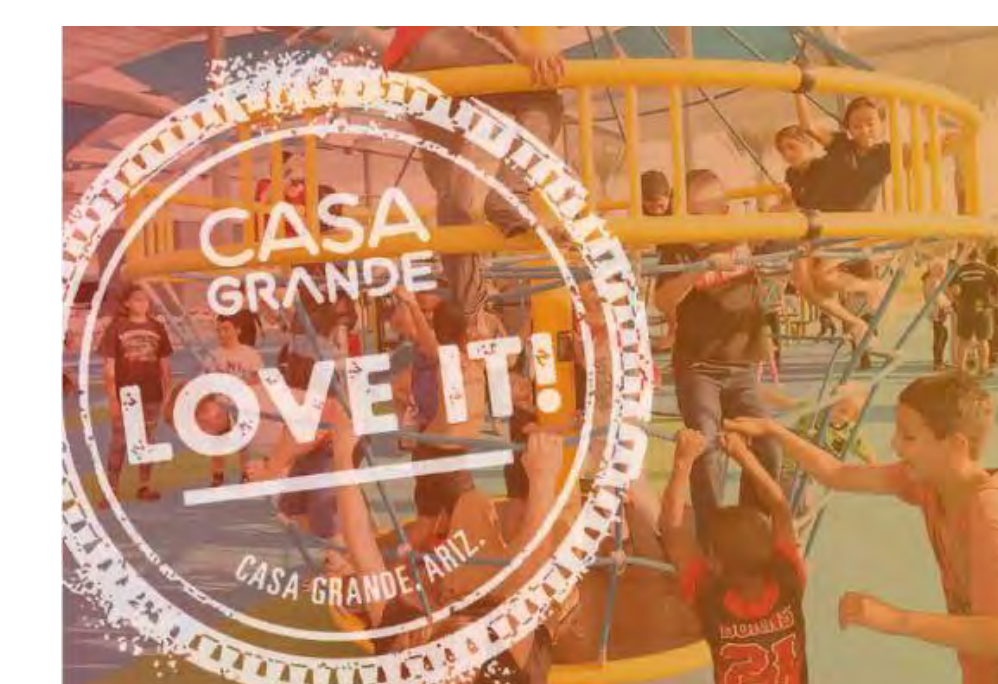
Strengths:

- Engaged stakeholders
- Expanding economy and industry
- Growing population
- Volunteer networks
- Community collaboration and engagement
- Recreation and outdoor activity opportunities
- Pinal County support
- Accessibility of multi-specialty medical services
- Tourism and winter visitors
- "Small-town charm, big city amenities"
- Community pride



Limitations:

- Kids programs, especially for younger children
- Mental health, substance use, and rehabilitation services
- Shelter space for those experiencing domestic violence
- Connecting homeless, rural, and aging populations to resources
- COVID-19 vaccine rollout efficacy/accessibility
- Lack of access to certain specialty services, pain management, and first trimester care
- Limited public transportation options
- Limited "workforce" housing
- Ineligibility of "middle class" folks to attain public resources
- Disconnect between rising housing costs and stagnant wages
- Limited access to higher education institutions



RECOMMENDATIONS

Expand Public Transportation Options

- With limited health specialties, residents travel to major cities like Phoenix for care.
- Commuter Vanpooling
 - Economical: Shared expenses between vanpool riders.
 - Eco-friendly: Improved air quality by reducing vehicle emissions
 - Convenient: rideshare with others traveling to same health facilities

Expand Specialty Practice

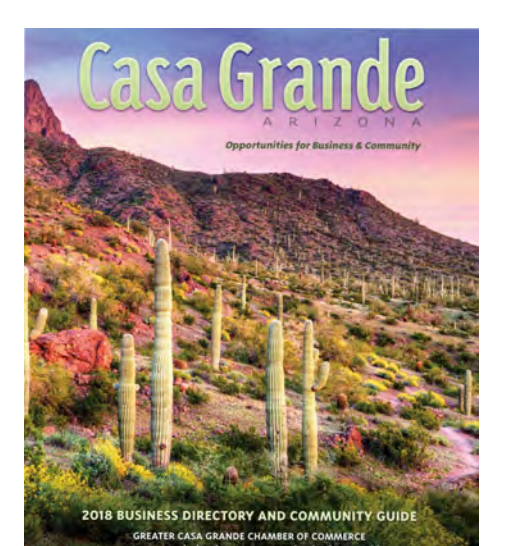
- Area of Need: Endocrinology
 - Potential internships in the specialty
 - Expand job marketing/advertising in the healthcare field

Expand Affordable Housing

- "Workforce housing" programs
 - Housing that is affordable to workers and close to their jobs
 - Variety of options (apartments, condos, single and multi family homes)

REFERENCES

- For references, email Debra.Ilchak@asu.edu



2018 Community Guide published by the Casa Grande Chamber of Commerce

ACKNOWLEDGEMENTS

- Our thanks to Samantha Reinhard, Lourdes Montez, Dr. Debra Ilchak, and guest speakers Mayor Craig McFarland, Berta Carbajal, Suzanne Payan, Reyna Villegas, Renée Louzon-Benn, Bob Shogren, Davis L. Plunkett, and Dr. Matthew Bertsch.



Acute encephalitis suspected Lymphocytic Choriomeningitis Virus (LCMV)

Sara Cooper, PAS-II and Jacob Gubler, MMS, PA-C

Northern Arizona University, College of Human and Health Sciences

Physician Assistant Studies Program, Phoenix, Arizona

Introduction

LCMV is a cause of neurologic disease in humans contracted by encountering secretions of infected wild mice. Acquired LCMV infection typically is biphasic beginning with flu-like symptoms which improve followed by symptoms like aseptic meningitis or encephalitis¹. Initial identification of LCMV seen in pleocytosis of CSF with predominance of lymphocytes. Although most LCMV infections are mild and self-limiting, severe and fatal disease has been reported.

Case Description

- 43yo male presenting for evaluation of possible stroke.
- Presents with new onset left-sided facial droop and slurred speech within 2 hours.
- Pertinent history includes increased fatigue, fevers, and global headache that developed over the past week .
- He recently worked in an abandoned home.
- Hospital protocol for stroke was followed on arrival and quickly ruled out need for tPA.
- A focal seizure to left leg was witnessed by nursing staff during head CT.

Physical Examination

- **Vital signs:** Temp 37.2 °C, BP 134/78, P 76, R 16
- **General:** somnolent, staring, acutely delirious male who is responsive to external stimuli
- **Neck:** Full ROM. No apparent nuchal rigidity or meningismus
- **Extremity:** Performed grips, pushes, pulls with B/L weakness to arms and legs. Slow to follow commands. Right arm and right leg tremor with no rigidity
- **Neuro:** A/O x 0. GCS = 13 ; VAN assessment neg. ; NIH = 3

Results

- CT without contrast of head was unremarkable.
- CBC revealed leukocytosis
- CMP within normal limits
- Fast Glucose was normal at 93mg/dL
- D-dimer was normal
- Peripheral blood gram stain showed WBC

CSF	Results of this patient	Normal ^{2*}
Gross appearance	Clear, colorless	Clear, colorless
Opening pressure (mmHg)	160	70-180
WBC (cell/ul)	262	0-5
Cell predominance	lymphocytes	
RBC	Elevated	none
Protein (mg/dL)	316	15-60
Glucose (mg/dL)	46	50-80

*Values slightly vary depending on laboratory.

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Typical cerebrospinal fluid findings in central nervous system infections*

	Glucose (mg/dL)		Protein (mg/dL)		Total white blood cell count (cells/microL)		
	<10 [†]	10 to 40 ^Δ	100 to 500 [∇]	50 to 300 [§]	>1000	100 to 1000	5 to 100
More common	Bacterial meningitis	Bacterial meningitis	Bacterial meningitis	Viral meningitis Nervous system Lyme disease (neuroborreliosis) Encephalitis Neurosyphilis TB meningitis [‡]	Bacterial meningitis	Bacterial or viral meningitis TB meningitis	Early bacterial meningitis Viral meningitis Neurosyphilis TB meningitis
Less common	TB meningitis Fungal meningitis	Neurosyphilis Some viral infections (such as mumps and LCMV)		Early bacterial meningitis	Some cases of mumps and LCMV	Encephalitis	Encephalitis

Table shows likelihood of each etiology based on CSF findings.³

Pending results:

- Blood and CSF cultures for causative organism
- Resistance testing of causative organism
- PCR for virus in CSF

Hospital Course

- Diagnosis - acute encephalitis with suspicion for LCMV
- Serum and CSF cultures were pending
- Admitted to ICU and neurology consulted
- Empiric treatment was initiated to cover bacteria, fungal, and viral meningitis:
 - Acyclovir, doxycycline, vancomycin, ampicillin, morphine, ceftriaxone, and lorazepam
 - Amphotericin B was considered once admitted to ICU floor

Discussion

- Meningoencephalitis may be due to bacterial, fungal or viral etiologies thus diagnosis must consider aspects from history, symptoms, regional epidemiology, and basic CSF testing.⁴
- A culture is the mainstay of diagnosing but rapid treatment is important to improve morbidity and mortality of patients.
- This case illustrates the importance empiric treatment as soon as possible and immediate cultures for definitive identification of causative organism.

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Acute Intermittent Porphyria

Pawanvir S Tung PAS-II and Amber N Brooks-Gumbert, MMS, PA-C
Northern Arizona University, College of Health and Human Services
Department of Physician Assistant Studies, Phoenix, Arizona

Introduction

Acute intermittent porphyria (AIP) is a heterozygotic autosomal dominant disorder with a mutation in the porphobilinogen deaminase (PBGD), an enzyme involved in the biosynthesis of heme. The mutation causes an accumulation of heme precursors known as porphyrins and leads to nonspecific symptoms.¹ AIP is a rare disease; and the following case presents the difficulties in diagnosis and treatment of AIP and the potential for unnecessary diagnostic procedures involved in the workup.

Case Description

A 35-year-old woman with a past medical history of appendectomy presented with right upper quadrant and epigastric pain. The pain was intermittent throughout the day, went up to 10/10 on the pain scale at its worst, and did not radiate. The pain felt like “a hot serrated knife” that kept stabbing her in the abdomen. She also complained of diarrhea and had an episode of bloody diarrhea with mucous. She admitted to nausea and vomiting and anorexia. The pain, nausea, and vomiting worsened after eating.

She denied fevers, chills, jaundice, melena, or further episodes of hematochezia. She denied recent illness, the use of antibiotics, or travel. The patient did not have family history of gastrointestinal malignancies or inflammatory bowel disease.

Physical Examination

- Vital signs: Temp 97.5 °F, BP 118/72, P 78, R 18
- On physical examination, the patient appeared distressed and in acute pain. The abdomen was nondistended with no erythema or lesions. Auscultation revealed normoactive bowel sounds. There was diffuse, moderate tenderness in right upper quadrant and epigastrium area with positive Murphy's sign. There was no evidence of hepatosplenomegaly or jaundice.

Results

- Abdominal ultrasound showed gallbladder sludge and CT scan of the abdomen revealed slightly thickened colon of unknown etiology.
- Colonoscopy shows a diminutive hyperplastic rectal polyp with no evidence of colitis.
- HIDA scan shows normal ejection fraction, but the symptoms reproduced with CCK injection.
- Endoscopy showed a small hiatal hernia with no esophagitis.
- Esophageal brushings were negative for monilial esophagitis. Gastric biopsy had no significant histopathological changes and was negative for *H. pylori*. Duodenal biopsy had normal villous architecture, no significant histopathological changes, and no signs of sprue. Rectal biopsy also showed no histopathological changes.
- Due to symptom reproduction with CCK injection, the most likely etiology was suspected to be biliary, so cholecystectomy was pursued. The patient consented to surgery. Pathologic evaluation of the gallbladder showed mild cholecystitis with no calculi. However, the symptoms persisted.
- Most of the patient's blood work was within normal limits, except mildly elevated porphyrins in the urine.

	Value	Normal limits
CBC	wnl* (except WBC)	
WBC	11.7	4.0 – 11.0 10 ³ µl
CMP	wnl	
Urinalysis	wnl	
Celiac serology	wnl	
IBD serology	wnl	
Uroporphyrin	29.9 H	≤ 22.0 mcg/g
Heptacarboxyporphyrin	7.2 H	≤ 4.6 mcg/g
Hexacarboxyporphyrin	Not detected	Not detected
Pentacarboxyporphyrin	Below reportable range	≤ 1.7 mcg/g
Coproporphyrin	96.6	23.0 – 130.0 mcg/g
Total porphyrin	133.7	31.0 – 139.0 mcg/g

Hospital Course

The patient was hospitalized several times during acute attacks. In earlier visits, she received hyoscyamine, oxycodone/acetaminophen, and ondansetron for symptom control. In later visits, she received hemin, high carbohydrate infusion, and morphine. Review of hospital records unfortunately implied drug seeking behavior prior to and after AIP diagnosis, which was ill-placed in this patient.

Discussion

- 1 out of 20,000 Caucasian individuals of Western European ancestry experience symptomatic AIP.¹
- In an observational study, it took approximately 15 years from the onset of symptoms to actual diagnosis of AIP.²
- The nonspecific symptoms of AIP often leads to unnecessary procedures, like appendectomy and cholecystectomy, before the diagnosis of porphyria is made.²
- Managing symptoms of acute attacks often involves narcotic analgesics¹, which carries a negative stigmatism and can delay symptomatic relief for the patient.
- This case demonstrates the difficulties in obtaining a timely diagnosis and treatment for AIP, and the unnecessary procedures that may be performed before definitive diagnosis is made.

References

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Addressing Depression Self-Stigma in Primary Care: An Educational Intervention

Jasmine Aflatooni, BSN, RN, DNP-PMHNP Student

Purpose

Provide education to primary care providers on the phenomena of self-stigma, the tools available to identify it, and evidence-based strategies to address depression self-stigma at the time of diagnosis.

Background

- First episode depression is frequently diagnosed in primary care. However, only a fraction of patients will adhere to the recommended treatment.
- One of several barriers to adherence is self-stigma.
- Depression self-stigma (DSS) is the internalization of public or culturally held stereotypes and misconceptions such as persons with depression are mentally weak, flawed, unstable, or unable deal with life.
- The consequences of DSS include increased shame, low self-esteem, secretiveness, and a 'why try' effect with treatment.



Corrigan's Regressive Model of Self-Stigma

Theoretical Framework

Knowledge to Action Framework

Knowledge creation cycle: Literature synthesis, adapt self-stigma scale, tailor knowledge to community health center needs.

Action cycle: Assess current understanding of self stigma, identify barriers, implement educational intervention, evaluate knowledge gained.

Methods

Offer a brief presentation to primary care providers and staff at a community health center in Tucson, Arizona, during a monthly staff meeting. Collect data by an online survey regarding participants' intention to change practice.

Implications

- ❖ This presentation can support primary care providers and staff knowledge and confidence to effectively manage depression.
- ❖ Addressing depression self-stigma in primary care can increase treatment adherence, improve patient outcomes, and begin to change the narrative of mental illness stigma for patients and families.

References



An Unsuspecting Cause of Small Bowel Obstruction

Andrew Tkacik PAS-II and Mary L. Brubaker, Pharm.D., PA-C
Northern Arizona University, College of Health and Human Services
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

- Small bowel obstruction (SBO) occurs when the luminal contents of the small bowel is no longer able to progress freely into the large bowel. The most common cause of obstruction in the United States is adhesions from prior abdominal surgery or hernia². Initial workup of a small bowel obstruction typically involves eliciting a history that includes prior abdominal surgery, as well as X-ray imaging and computed tomography imaging. Treatment often requires surgical intervention and cases can be complicated by tissue necrosis and perforation. The following case highlights a typical presentation of small bowel obstruction, but an atypical cause.

Case Description

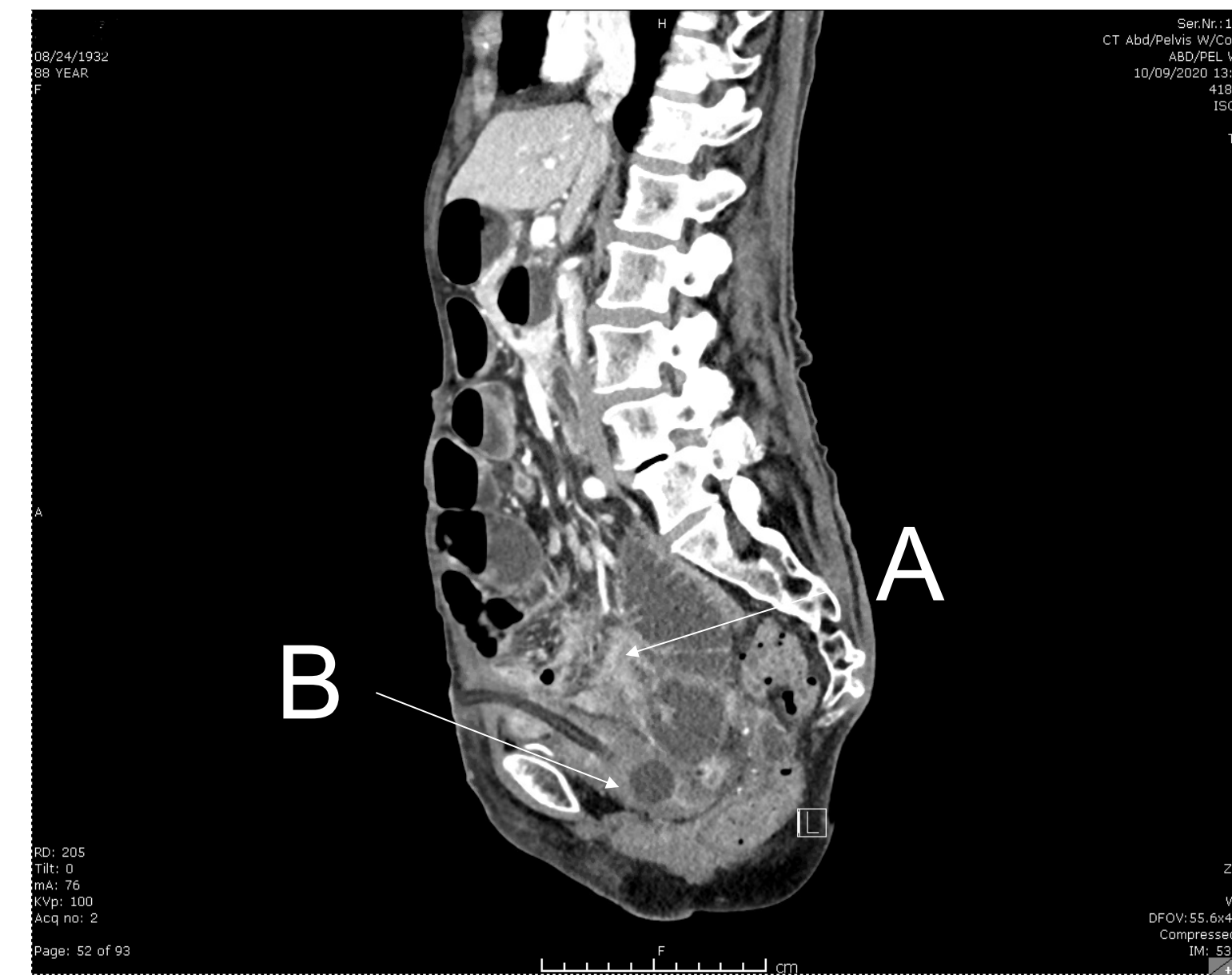
- An 88 year-old female with hypertension, dementia and atherosclerotic disease presented to the emergency department with complaints of abdominal pain for 1 day, as well as constipation for several days.
- The patient's dementia impeded the history of the present illness at the time.
- Of note, the patient had a small bowel obstruction in the past due to an internal herniation, which was laparoscopically corrected by the consulted general surgeon.
- The patient also had recently contracted a *Clostridioides difficile* infection.

Physical Examination

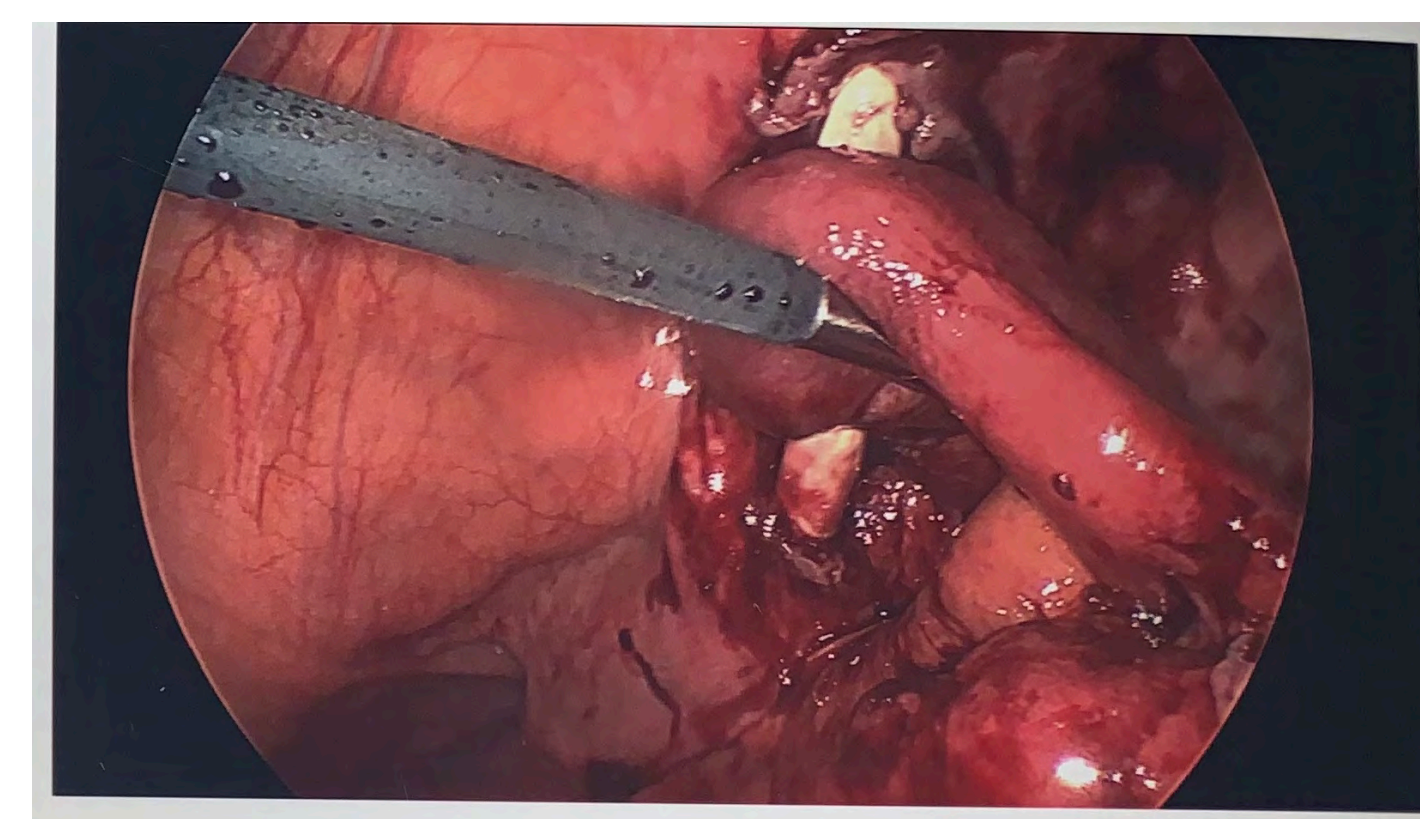
- Vitals: Ht: 60" Wt: 82.2lb BP: 158/95. HR: 84. SpO2: 98. T: 98.7F
- On exam, the patient was in acute distress, secondary to pain, moaning and holding her abdomen.
- The abdomen was nontender and soft, but distended with hypoactive bowel sounds.
- The patient's suprapubic catheter ostomy was clean and healing. The catheter was draining urine appropriately, which was clear and yellow upon gross inspection.
- The patient appeared very frail with a thin body habitus supported by a BMI of 16.1

Results

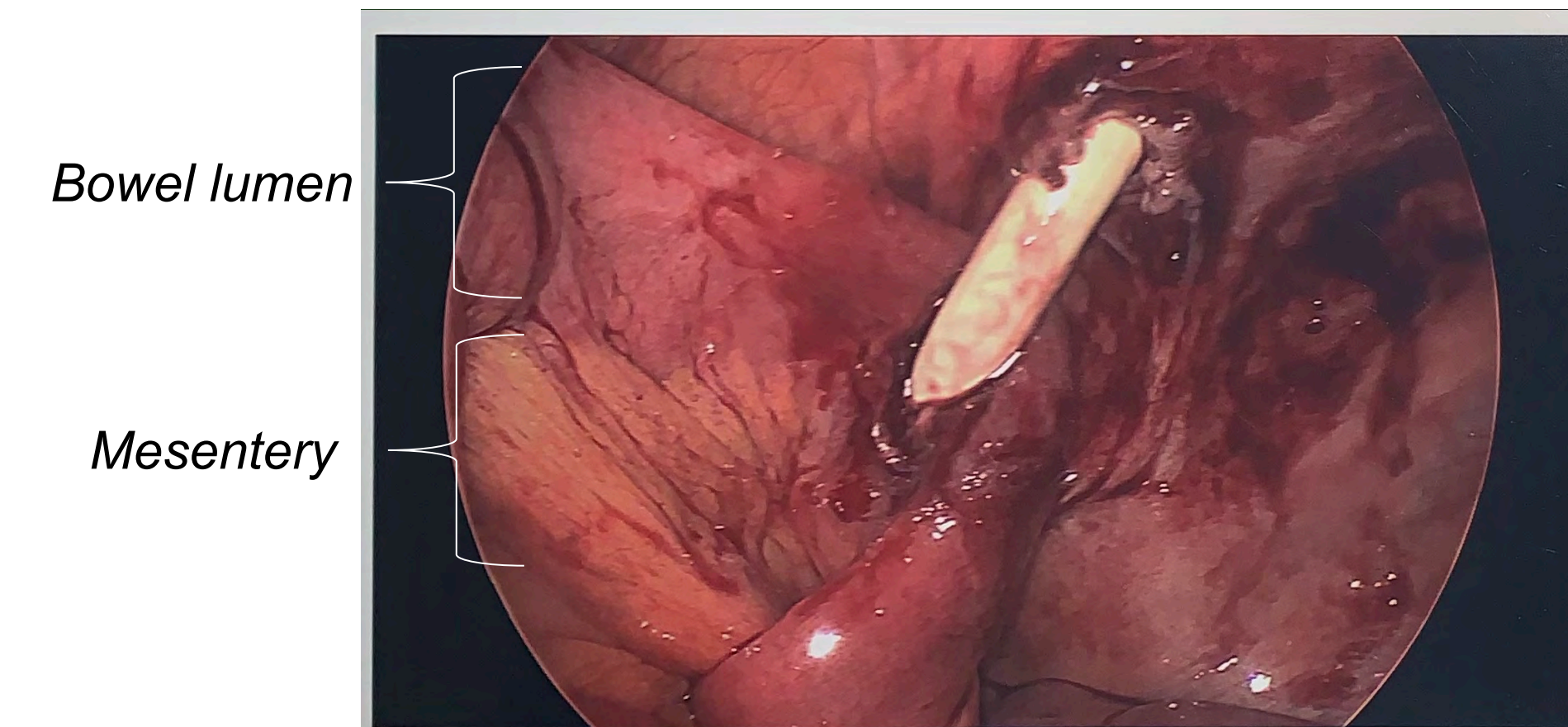
- CT of the abdomen and pelvis revealed multiple dilated segments of small bowel with transition point right lower quadrant (A) consistent with small bowel obstruction. It also showed the suprapubic catheter in place (B).



- Based on the PMH, physical exam, and CT results, the decision was made to perform an exploratory laparoscopy.



- Laparoscopy revealed the suprapubic catheter traversing the peritoneum and seemingly puncturing a loop of small bowel before entering the bladder. Essentially suturing the loop of small bowel the abdominal wall.



- Fortunately, the catheter did not actually perforate the lumen of the bowel. Instead, it had perforated the mesentery, and there was no true enterotomy. The catheter was removed, and all peritoneal injuries were sutured closed.

Hospital Course

- The patient was followed for 2 days inpatient without further complication. Day 18 post-op, she was seen in the clinic and was doing well with a foley catheter in place. Insertion of a new suprapubic catheter placement was planned for the future after full recovery.

Discussion

- Surgical adhesions account for 75-80% of all cases of small bowel obstructions². Eliciting a surgical history from the patient, as well as assessing the abdomen for prior surgical scarring, are paramount.
- CT is the first line diagnostic tool for suspected small bowel obstruction², but plain film x-ray and/or US could be used first if clinical suspicion is not great enough to warrant an expensive and highly radiating modality as CT.
- A study of over 500 suprapubic catheter placement procedures, there was a <1% occurrence of a major complication¹.
- If CT imaging is still vague on diagnosis, an exploratory laparoscopy could be warranted. This case highlights this patient's need for laparoscopy, which diagnosed a rare cause for small bowel obstruction.

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APPLICATION OF THE TRANSCULTURAL INTERPROFESSIONAL PRACTICE MODEL DURING COVID-19

Jamie Besel, PhD Candidate, MN, RN¹, Christine Hodgson, MSN, RN, CPNP-PC¹, Emily Snyder, BSN, RN, PCCN, DNP student², Violet Perez, MD³, David O. Garcia PhD, FACSM⁴

¹University of Arizona College of Nursing; ²Arizona State University Edson College of Nursing; ³University of Arizona College of Medicine; ⁴University of Arizona Mel and Enid Zuckerman College of Public Health

Purpose


- To develop a one-year plan to improve community and healthcare worker resilience during the COVID-19 pandemic with the Arizona Area Health Education Centers (AzaHEC) Scholars program.



Figure 1. Mexican Consulate Partnership: Focus on Communication


Approach

- AzaHEC scholars & mentors conducted needs assessment of local healthcare network, identified community stakeholders
- Established partners who work with Mexican-origin communities in Tucson, AZ
- The Andrews/Boyle Transcultural Interdisciplinary Practice (TIP) Model¹ was utilized to develop a two-arm approach to support the needs of an interdisciplinary practice community (Figure 2)
- The TIP model encourages effective cross-cultural communication (Figure 1)



PROJECT 1: Mexican Consulate Facebook Live Speaker Series

- Topics included social determinants of health, resilience, COVID-19, social distancing, vaccine information, health promotion



PROJECT 2: Homeless Shelter Worker Resilience Zoom Live Series

- Participants received small gift bags, masks, self-care items
- Topics included mindfulness, resilience, self-care, organizational skills, self-compassion

Figure 2. Two-arm approach using the TIP Model

Results

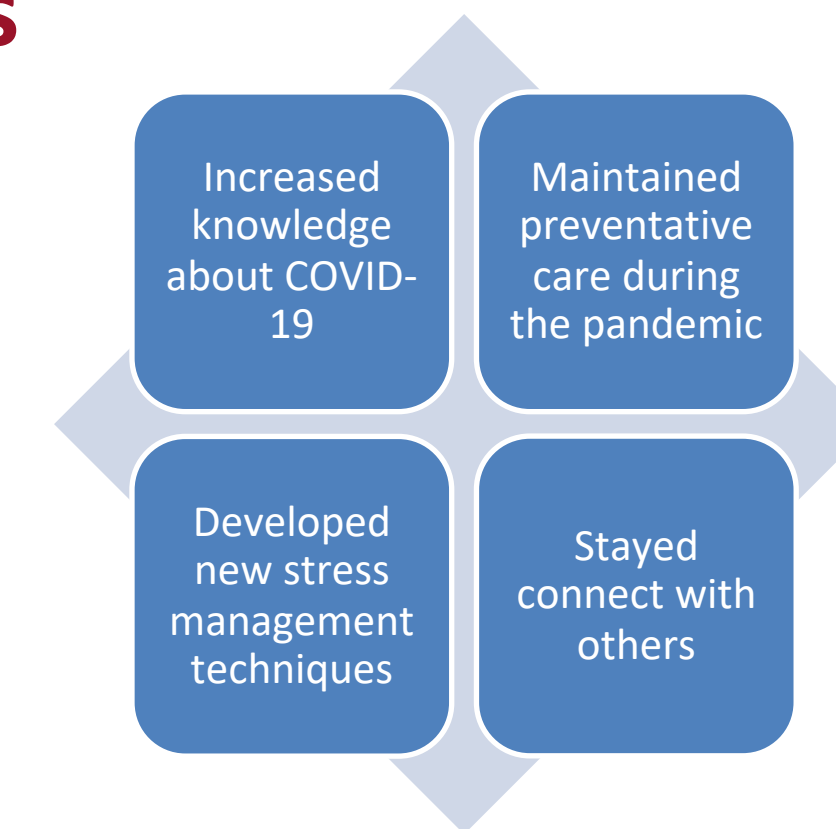


Figure 3. Goals attained by underserved communities

Conclusion

- These projects utilized a theoretically driven, culturally sensitive program in an Arizona interdisciplinary practice community. Findings indicate the AzaHEC Scholars program, coupled with a theoretically driven approach, helped underserved communities reach their goals (Figure 3). Future research may benefit from these findings through the creation of customized, culturally relevant educational materials.

Acknowledgements

Thank you to our community partners: Doug Spegman, MD, Chief Clinical Officer, El Rio Community Health Center; Lorena Verdugo, Community Health Coordinator, El Rio Community Health Center and the Primavera Foundation staff

Background

- Health inequities place underserved populations (i.e., Mexican-origin adults) at increased risk of COVID-19 and complications^{2,3}
- Frontline healthcare workers at risk for negative physical and mental impacts^{4,5}
- Gap: culturally sensitive, theoretically driven approaches to improve resilience⁶

References





Purpose: This project was to educate nurse practitioners from a closed Facebook group "Indian FNP & PMHNP" on the existing evidence of physical activity as an adjunctive treatment for adults with depression and assess change in knowledge, confidence, readiness, and willingness to recommend physical activity as a treatment option.

Background: Depression affects people regardless of their socio-economic status. The need for accessible, affordable, and least invasive treatment methods are important to address the treatment gap seen among adult patients experiencing depression. Data suggests that physical activity is easily accessible, minimally invasive and an affordable integrative therapy for depression.

Methods: This project used PSDA as a model of implementation. The design was a pre-/post-test with an educational intervention using a pre-recorded PowerPoint on physical activity in the treatment of depression. 10 Nurse practitioners from the closed Facebook group "Indian FNP & PMHNP Group" invited in an online education intervention. Seven members of the group attended the in-service. All members completed the pre and post-test (100%).

Results: The difference between pre- and post-intervention survey response shows 57.2% of increase of knowledge, confidence, readiness, and willingness to educate their patients on physical activity.

Conclusions: The educational intervention was successful to increase knowledge of the nurse practitioners on the topic of physical activity as an integrated treatment in depression. However, without a sustainability strategy, there are barriers for implementation in the clinics.

To educate nurse practitioners on the benefits of physical activity for symptoms of depression.

To assess nurse practitioner readiness to recommend physical activity as an integrative treatment for depression.

Project Question

Will educating nurse practitioners from the closed Facebook group on the benefits of physical activity as a treatment modality for depression improve their knowledge, confidence, readiness and willingness to educate their patients on the benefits of physical activity as an effective treatment option for depression?



(Altmann, 2020)

- Depression has become the leading cause of disability in the U.S regardless of age, sex, and socio-economic status.
- Annually, as estimated by Anxiety and Depression Association of America [ADAA] (2018), about 16.1 million or 6.7% of the U.S. population age 18 and older experience major depressive disorder (MDD).
- Depression causes significant socioeconomic toll and ranks second for disability-adjusted life years (DALY) in 2020 (Doose et al., 2015).
- Depression leashed one million lives to suicide worldwide each year (Svenningsson et al., 2018).



(Altmann, 2011)

Design

- Quantitative descriptive study

Intervention

- PowerPoint presentation.

Sample

- 7 Nurse Practitioners from the closed Indian FNP & PMHNP Facebook group.

Instruments

- Pre and Post Intervention surveys

Data Collected

- Binary and Likert Questions

Participants' Inclusion Criteria

Participants	Yes	No
Facebook Group Member	7 (100%)	0 (0%)
Full Time / Part-Time	7 (100%)	0 (0%)
Knowledge of EIM	5 (71.4%)	2 (28.6%)

Sum of Likert Votes

	1	2	3	4	5
Pre-Test	7 (20%)	11 (31.4%)	9 (25.7%)	5 (14.3%)	3 (8.6%)
Post-Test	0	0	0	12 (34.3%)	23 (65.7%)

Participants' Attitude Change

	Pre-Test	Post-Test	Change
4	14.3%	34.3%	+20%
5	8.6%	65.7%	+57.1%

The study was to understand how education of APRNs on the topic of PA in the treatment of depression in adult patients will change APRNs knowledge, confidence, readiness, and willingness to educate patients with depression on the benefit if PA. After the education intervention, the participants showed increase in their knowledge on PA as a treatment for depression and demonstrated an increase in level of confidence, readiness, and willingness to educate their patients on PA. Current evidence supports the education of APRNs on the benefits of PA.

Depression is a common public health problem in the United States. The use of an integrated treatment approach such as PA can assist to prevent and treat depression. The lack of accessible and unaffordable treatment programs can interrupt people from getting adequate treatment for depression. Therefore, a treatment modality that is easily accessible and affordable for patients with depression is essential. Finally, the requirement of policies on integrating PA in the treatment of depression and educating PA to primary care providers through in-service education as a complimentary therapy for depression needs to further examined and incorporated in patient care.

Interpretation: /The study shows increase in the NP knowledge, confidence, readiness, and willingness to educate PA for their patients.

Conclusion

Sustainability

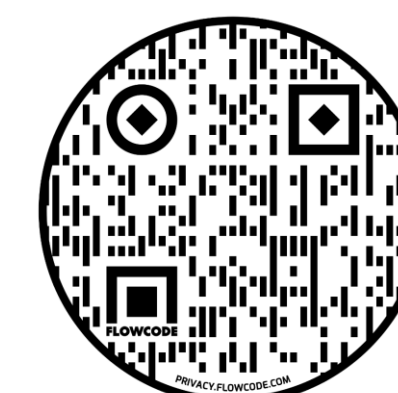
The online project limits the study sustainability from the generalizability and inconvenience of follow-up.

Dissemination

Findings were disseminated among the East Indian FNP & PMHNP Facebook group.

Phone: (602) 653-3075

Email: sdivakaran@email.arizona.edu



Atypical Clinical Presentation of Erythema Multiforme

Chance Judd PA-S2 and Ian McLeod, MEd, MS, PA-C, ATC

Northern Arizona University, College of Health and Human Services

Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Erythema Multiforme (EM) is a dermatological condition in which an immune hypersensitivity reaction most commonly follows an infection such as herpes simplex virus (HSV) or mycoplasma. Infections account for approximately 90% of cases. Less commonly, it can be triggered by certain medications such as non-steroidal anti-inflammatory drugs (NSAIDs), sulfonamides, antiepileptics, and antibiotics¹. Interestingly, in the pediatric patient population, a majority of EM is linked to medications, especially penicillin². Key characteristics of EM include targetoid macules and thin plaques on arms, hands, legs, and feet.

Case Description

A 3-year-old male presented with his mother for concerns of worsening rash that started the previous day. The rash was concentrated around his elbows, wrists, knees, and ankles. His mother described the rash as being itchy, bothersome, and warm to touch. She also noted swelling and “bruising appearance” around the rash. Patient was previously seen 8 days prior for acute otitis media (AOM) and prescribed Amoxicillin x10 days. Symptoms of AOM resolved after 5 days. His parents reached out to a dermatologist online who diagnosed the patient with hives and started him on prednisone the previous evening and Benadryl at bedtime. Denies fever, new foods, new environmental exposures, dyspnea, swelling of face/tongue. Additionally, no known food allergies, environmental allergies or medication allergies. Patient had previously been prescribed amoxicillin for AOM without any complications.

Physical Examination

- Vital signs: Temp 97.5 °F, P 82, R 20, and pulse oximetry 97% on room air.
- Physical exam revealed a combination of scattered erythematous papules and plaques, and target lesions (Figures 1 & 2). The target lesions consisted of a central dusky red zone encircled by a pale ring and an erythematous halo. Lesions were located on knees, feet, wrist, buttocks and ear. No evidence of vesicles, bullae, or mucosal lesions. Negative Nikolsky’s sign.

Course & Management

- 1 mL of Dexamethasone (4mg/mL) was administered intramuscularly (IM) during the office visit and patient was started on oral Zyrtec.
- Skin lesions began to show evidence of regression 90 minutes after administration of Dexamethasone and Zyrtec (Figure 3).
- Rash completely resolved 10 days after initial onset.
- Advised to monitor for concerning skin changes such as sloughing and peeling of the skin or the development of oral lesions. Additionally advised to monitor for cardiac or respiratory symptoms that would raise concern for severe allergic reaction.
- Recommended confirmatory testing to determine if patient is allergic to Amoxicillin.



Figure 1. Initial presentation on day 1.

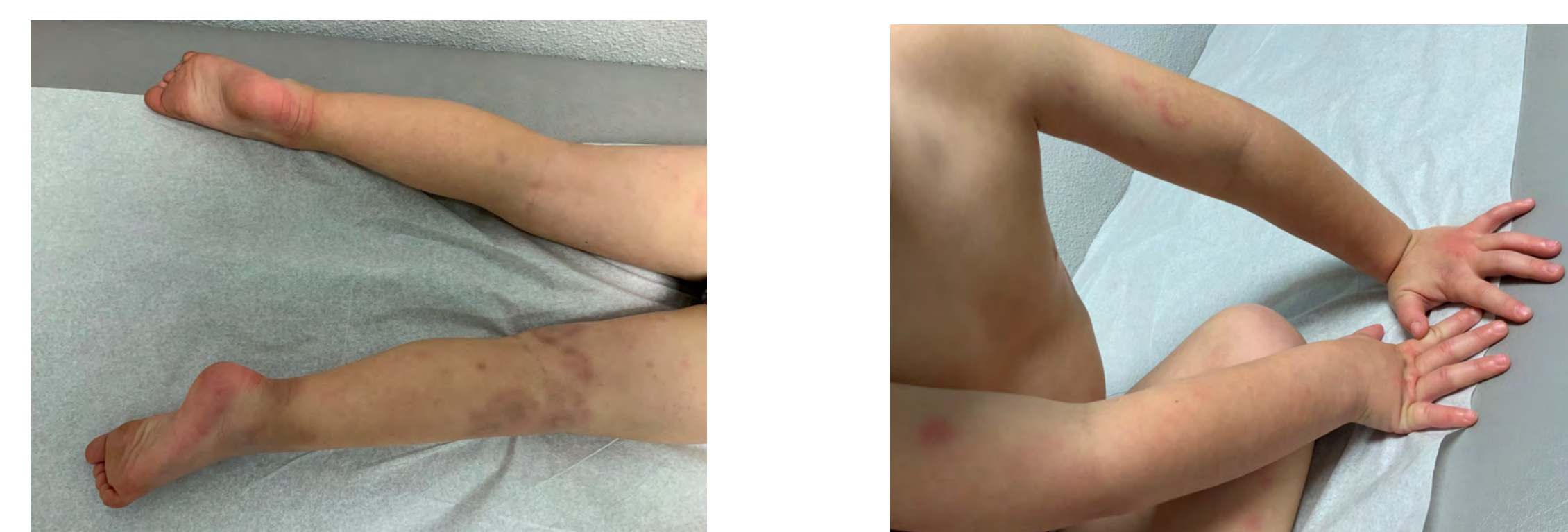


Figure 2. Presentation on day 2 prior to Dexamethasone and Zyrtec administration.



Figure 3. Presentation 90 minutes following Dexamethasone and Zyrtec administration.

Discussion

- Initial presentation of rash with recent antibiotic use raises a quick suspicion for a differential diagnosis including an allergic drug reaction such as urticarial rash or hypersensitivity vasculitis vs Stevens-Johnson Syndrome³. It is essential for the provider to rule out harmful diseases and possible allergies for acute and long-term care of the patient both during the history and physical portion of the examination.
- Drug induced EM is driven by tumor necrosis factor (TNF) – alpha which is an inflammatory cytokine that promotes cell apoptosis and necrosis⁴.
- Systemic corticosteroids are recommended for severe EM, which includes mucous membrane involvement⁵. The clinical decision to give IM Dexamethasone was based off of symptoms, progression, and convenience for the patient. Dexamethasone is 6x more potent than prednisone with a longer half-life of 36-54 hours⁶.
- Typically, EM spontaneously resolves within 2-3 weeks¹.
- Center for Disease Control (CDC) reveals that 10% of patients that have been diagnosed with a penicillin allergy in the past, only less than 1% actually tested positive for the allergy. This can have significant impact on treatment plans, medical cost, and recovery⁷.
- Recurrent pediatric EM is about 14% with more than half caused by HSV⁵.

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Introduction

Background: Approximately 750,000 people have died from drug overdoses in the United States since 1999. On October 26, 2017, President Trump declared the opioid crisis a nationwide public health emergency. Chronic lower back pain is a leading cause of disability among adults and is a common reason opiates are prescribed. Auricular acupuncture is a viable alternative adjunctive treatment strategy for chronic lower back pain.

Purpose: The purpose of this quality improvement project is to increase knowledge and self-efficacy of auricular acupuncture, as an alternative adjunctive therapy for chronic lower back pain, for healthcare team members in the integrative health clinic.

Methodology

Location: Qualtrics Survey- ZOOM presentation

Design: Pretest Post-test Survey Design

Outcomes measured: Knowledge, Self-Efficacy

Theoretical Framework: Rogers Diffusion of Innovation Theory

Implementation Model: IHI Model for Improvement PDSA Cycle

Intervention: 7-minute educational in-service with pre-post test survey. Total of 10 minutes.

Results: All eight team members completed the in-service, pre and post-test survey.

Pre- and Post-test Assessment Mean/Median Self-Efficacy Scores

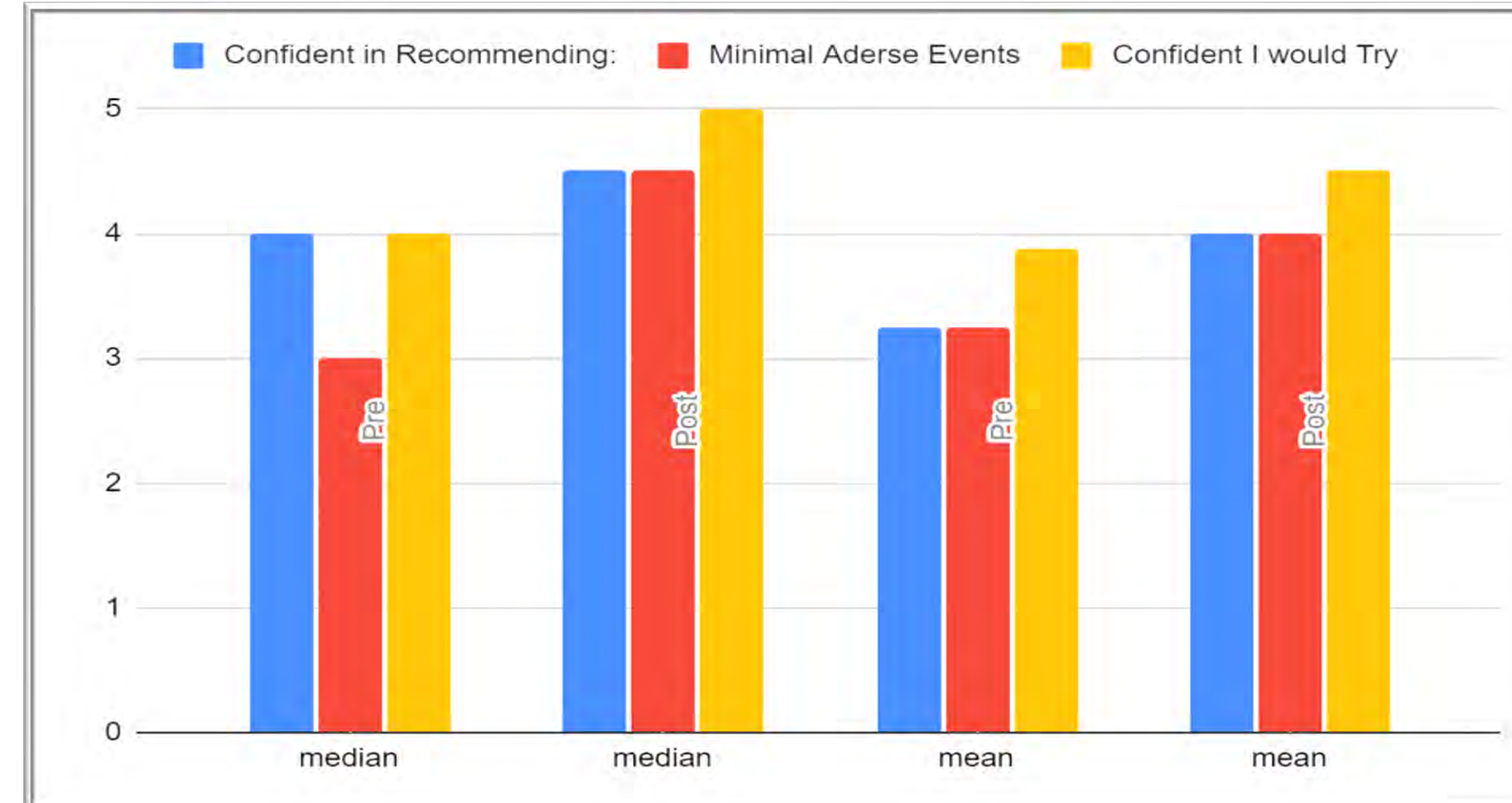
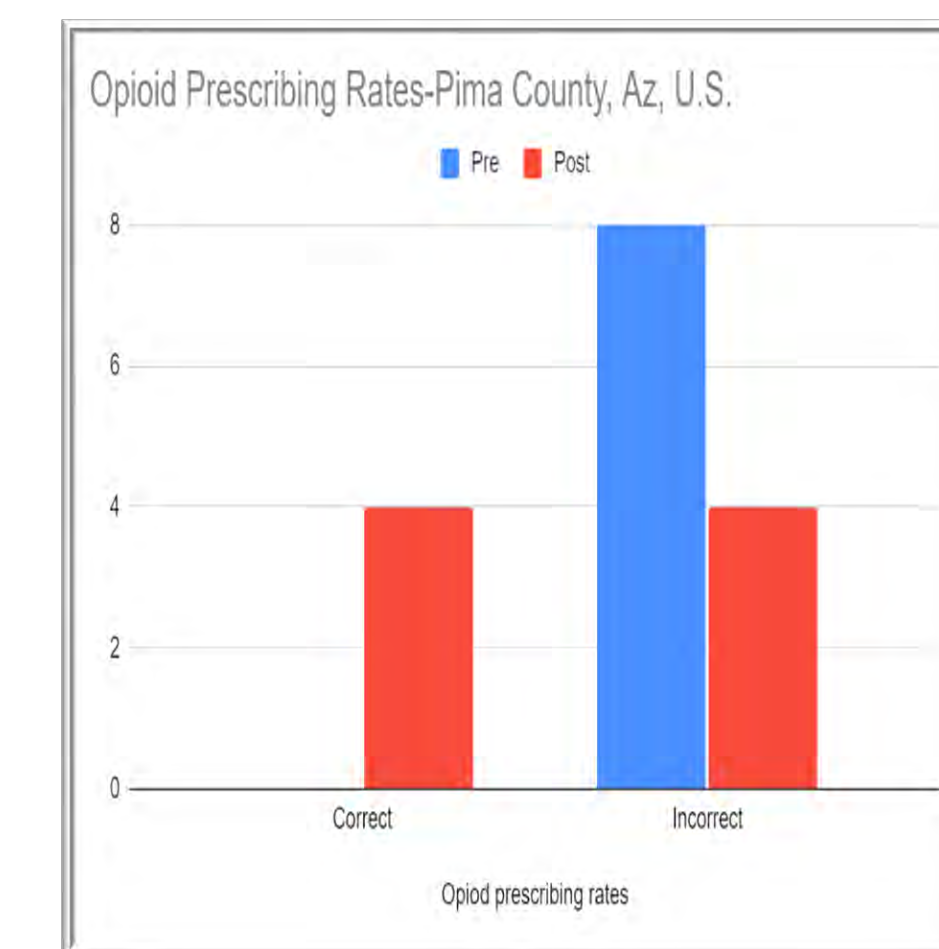
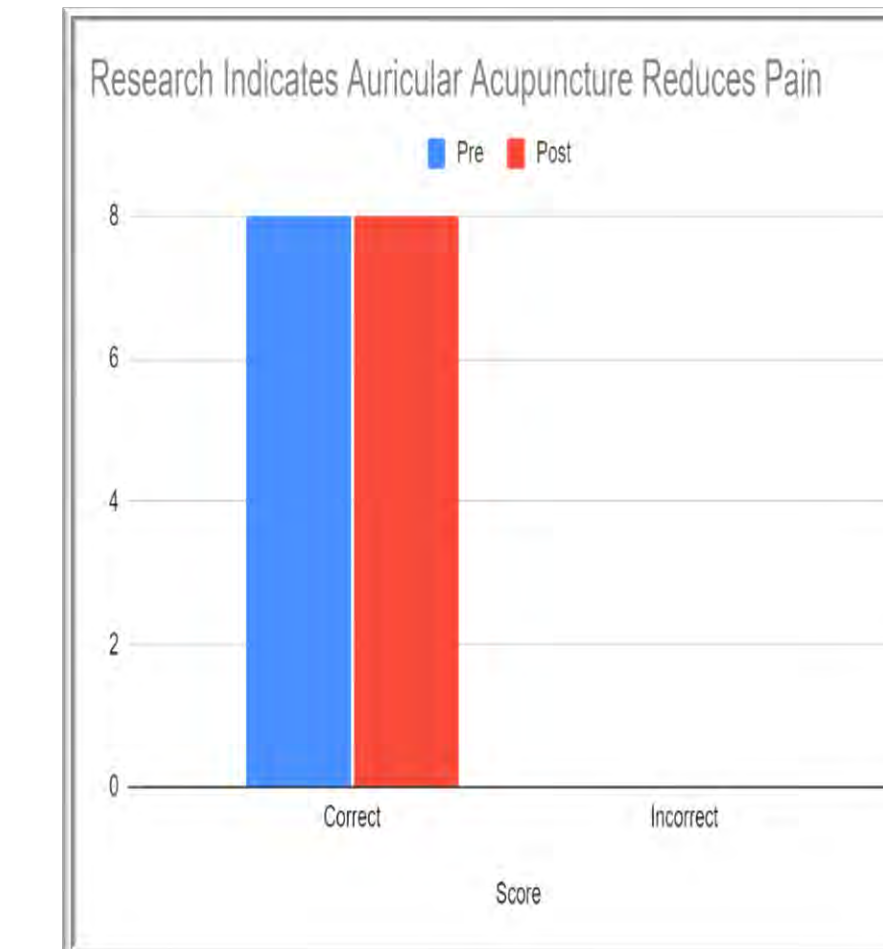
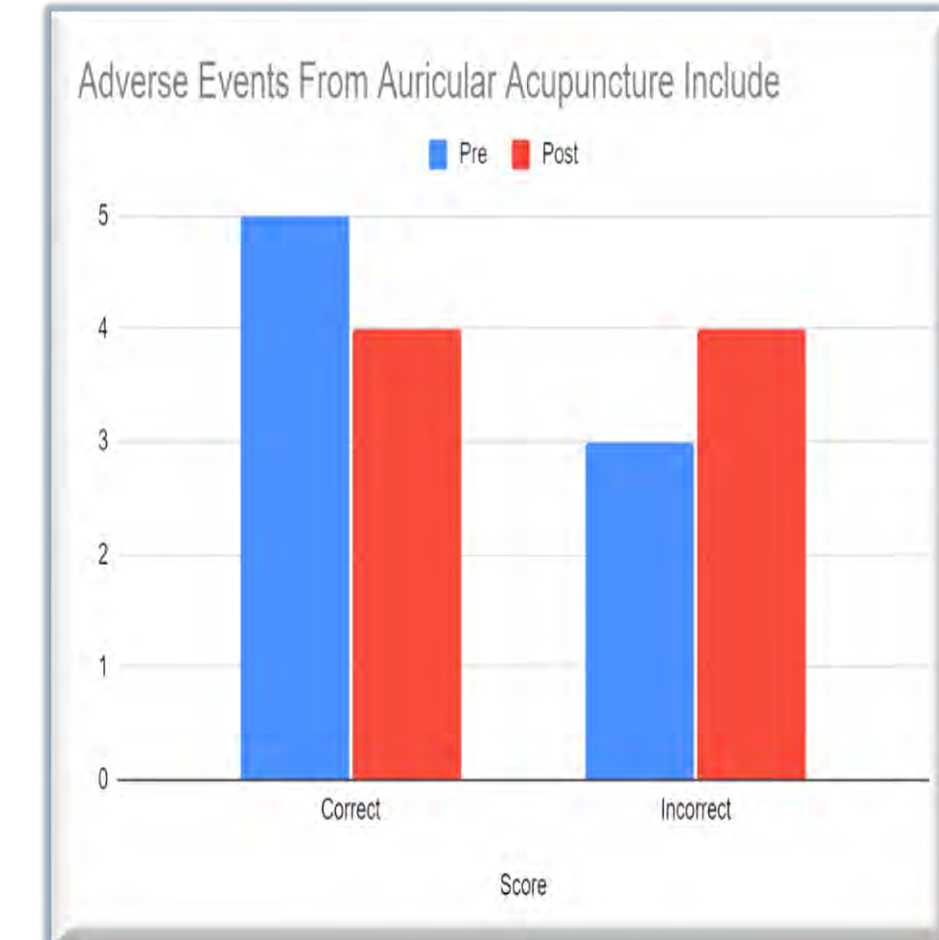
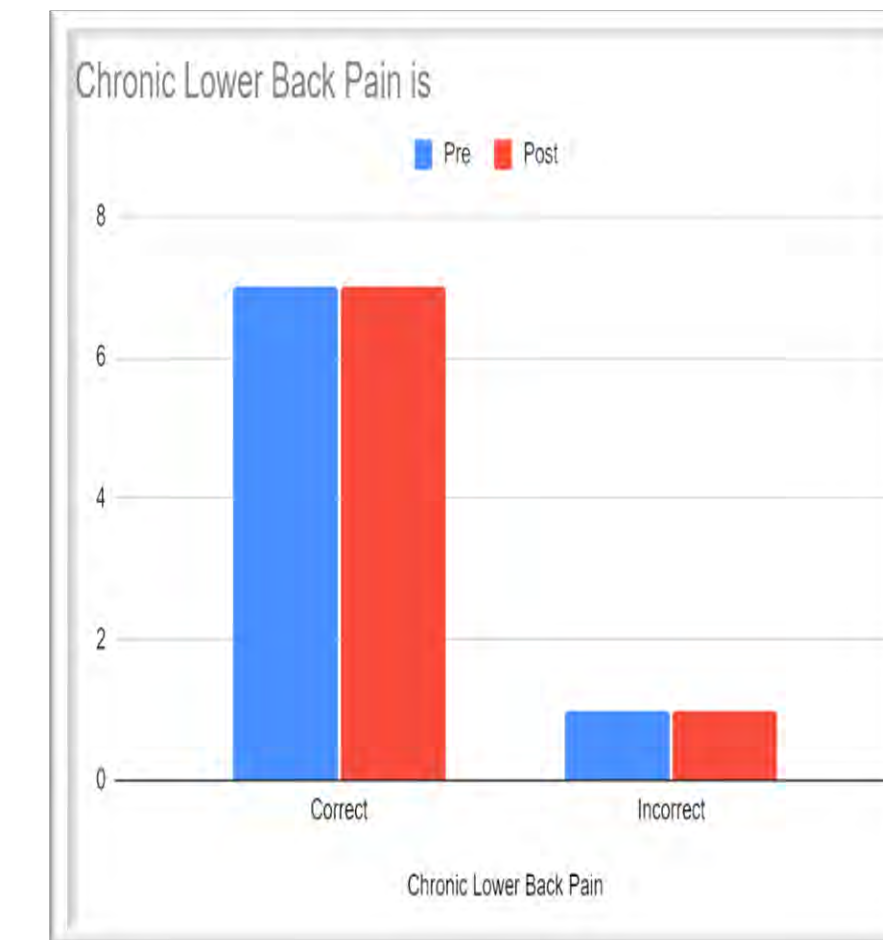


Table 1
Mean and Median for Self-efficacy Questions

Statistics	Time	Confident in Recommending:	Minimal Adverse Events	Confident I would Try
median	Pre	4	3	4
median	Post	4.5	4.5	5
mean	Pre	3.25	3.25	3.875
mean	Post	4	4	4.5

Overall, in looking at the bar graph and table 1 above-data indicates that self-efficacy improved from pretest to post-test. Table 1 represents numerical values mean and median for 3 self-efficacy questions.

Knowledge Results



Conclusions:

Strengths: The DNP project as Well received. All 8 participants completed pre and post-test survey.

Weaknesses: Small sample size. Ineffective knowledge questions. Possible inherent bias in participant response.

Recommendations: Conduct with a larger sample size in additional clinic locations.

BEHAVIORAL HEALTH WORKFORCE EDUCATION AND TRAINING (BHWET) GRANT: Impacts of Enhanced Training Opportunities for Workforce Quality and Distribution

Kelly McLain, BA; Lindsay Bouchard, DNP, PMHNP-BC; Janet Rothers, PhD, MS, MA

BHWET Funding Period

September 2017 – August 2021: 4 cohorts of student stipends

Project Objectives

- Improving access to care in rural, border, and medically underserved communities in Arizona through partnerships that integrate primary and behavioral healthcare services to educate Psychiatric Mental Health Nurse Practitioners (PMHNPs) during their clinical training.
- Improve behavioral health treatment modalities through education and clinical training with partnerships in integrated primary and behavioral healthcare through a team-based approach.
- Increasing the number of PMHNP graduates who will practice in rural, border, and medically underserved communities.

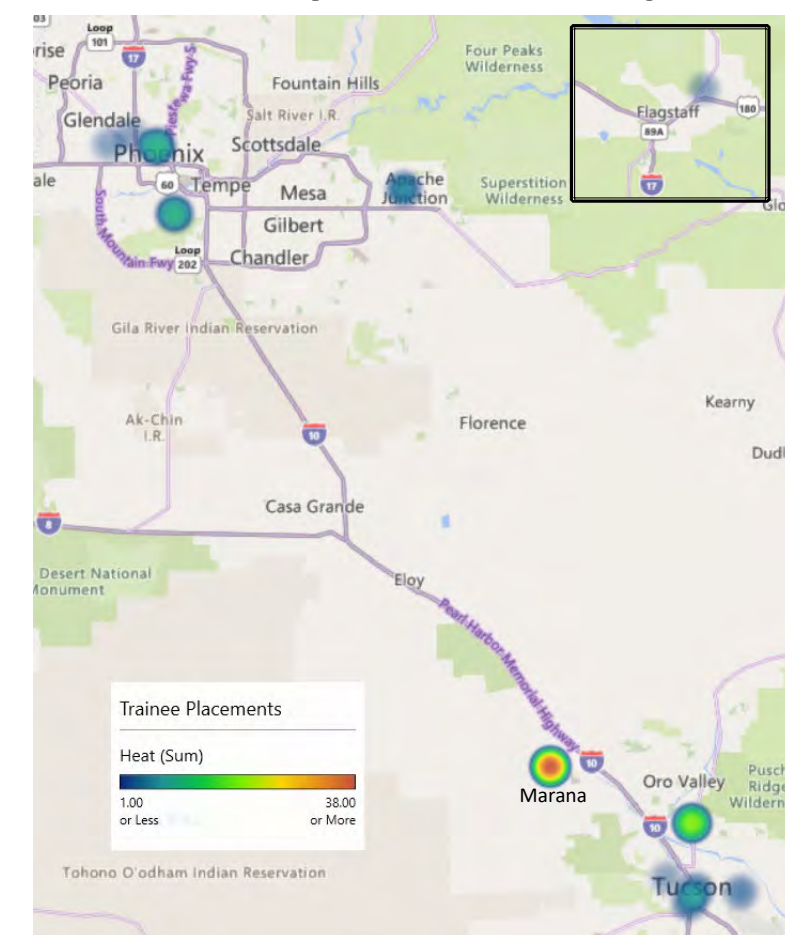
Students

Cornerstone requirement to qualify for funding – the student must be committed to providing psychiatric mental health care to rural and medically underserved areas that integrate primary and behavioral healthcare services. Preference was given to students who are Under Represented in Medicine. Additional requirements include:

- Clinical training requires a minimum of a six-month placement in a BHWET approved clinical site, which provides integrated Primary and Behavioral Healthcare.
- Requirement to enroll in NURS 638, Conceptual Foundations for Rural Health Nursing, in the Spring semester. As part of this course, they develop a poster to present at the AzaHEC rural health conference.
- Requirement to complete continuing education modules:
Advanced Communication to Support Behavior Change - Introduction to Motivational Interviewing (8 CEs) and Coaching Skills and Process (4 CEs).
- Requirement to enroll in the NURS 695c, Interprofessional Collaboration in Healthcare Teams, and participate in the telehealth simulation experience during Summer semester.

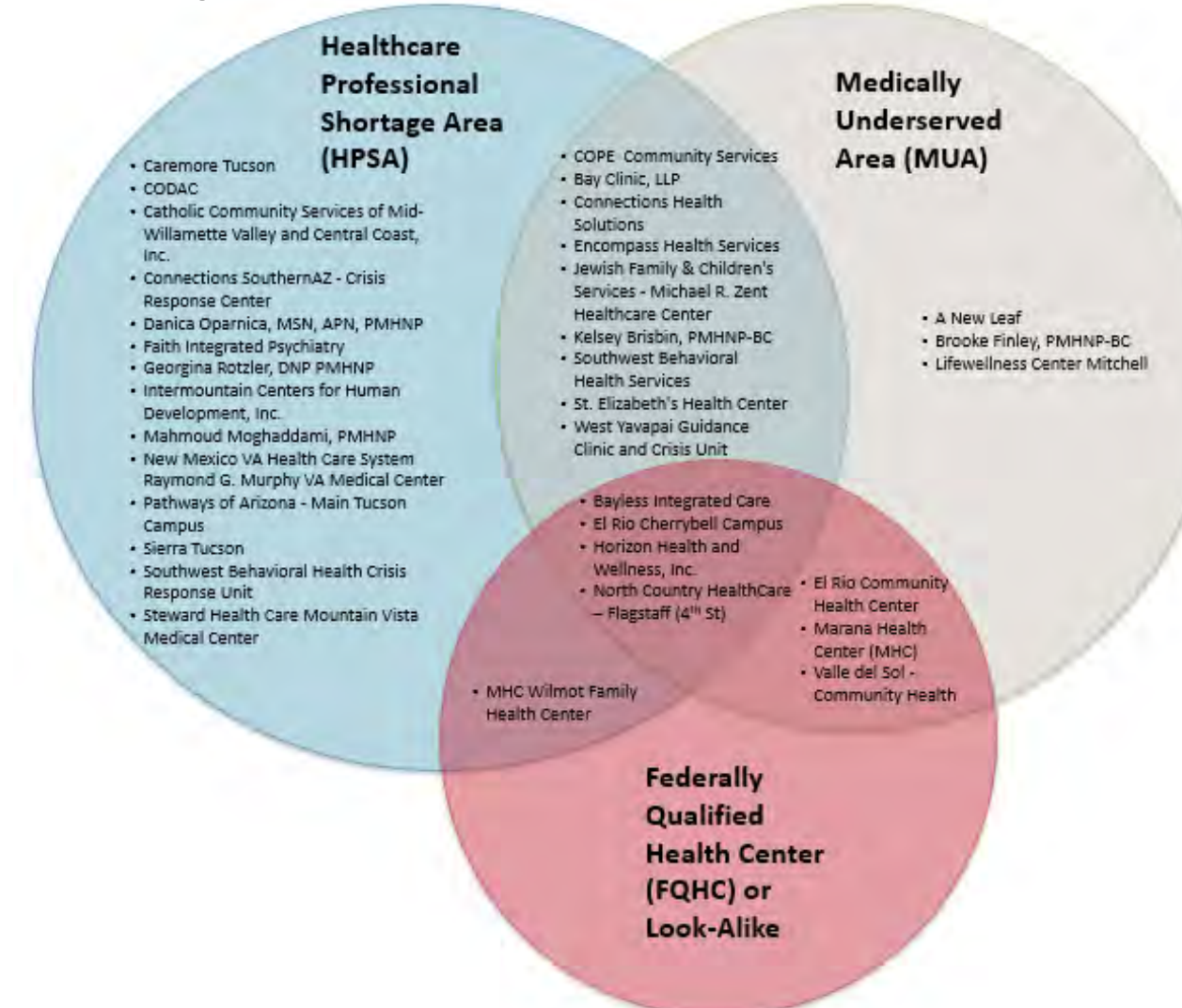
Placement Sites

Integrated Primary and Behavioral Healthcare Sites;
by number of placements per site 2018 - 2021



Site Name	City	#
Marana Health Center (MHC)	Marana	38
Caremore Tucson	Tucson	20
Bayless-Central	Phoenix	10
Bayless Integrated Healthcare South Mountain	Phoenix	8
Horizon Health and Wellness, Inc.	Apache Junction	6
COPE Community Services	Tucson	5
El Rio Cherrybell Campus	Tucson	5
North Country HealthCare - Flagstaff (4th St)	Flagstaff	3
Jewish Family & Children's Services - Michael R. Zent Healthcare Center	Phoenix	3
Valle del Sol - Community Health	Phoenix	3
El Rio Community Health Center	Tucson	3
MHC Wilmot Family Health Center	Tucson	3
Bayless-Midtown	Phoenix	2
CODAC at Alvernon	Tucson	2
A New Leaf	Glendale	1
Bayless Integrated Healthcare - Dobson Ranch	Mesa	1
Bayless Integrated Healthcare - Bella Vista	Phoenix	1
CODAC at 380	Tucson	1

79% of placement sites in HPSAs, MUAs, FQHCs



Border Sites

- Tucson, AZ
- El Paso, TX

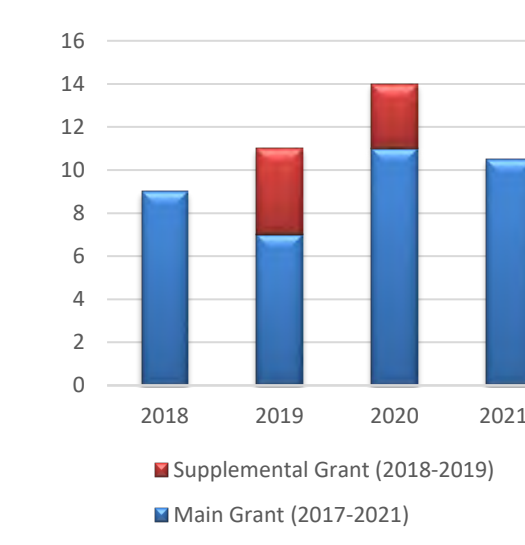
Rural Sites

- Maricopa, AZ
- Page, AZ
- Catalina, AZ
- Coos Bay, OR
- Salem, OR
- Los Alamos, NM

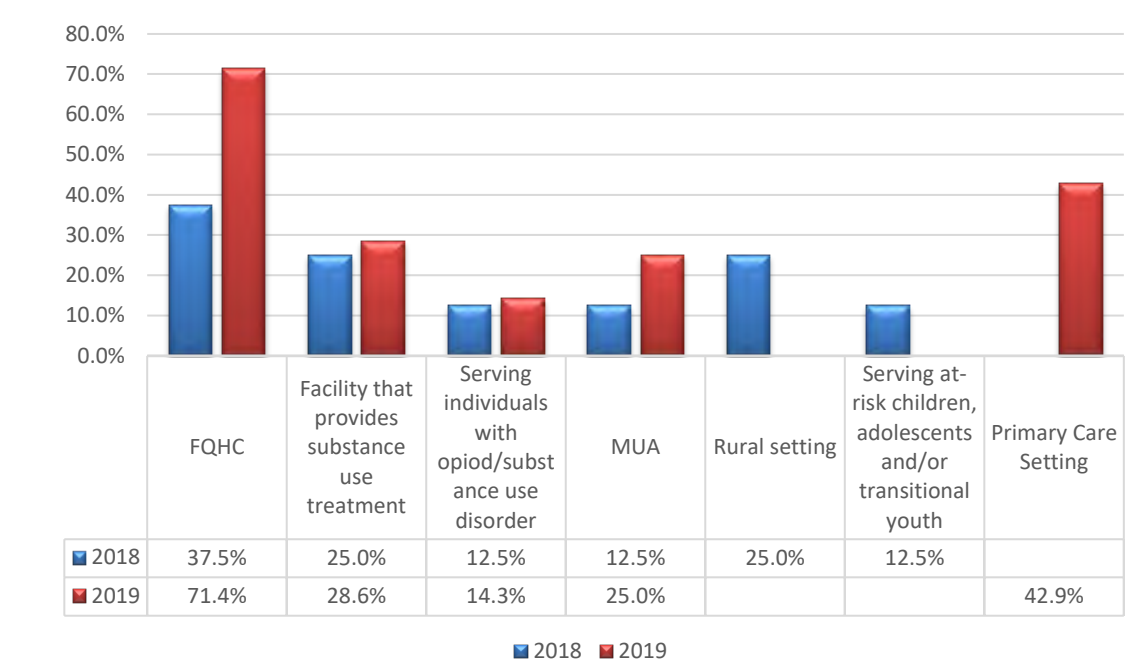
Graduate Outcomes

- “Given that we have to find our own clinical sites and preceptors, the program actually helped me with that. I think that being in this type of specialty it’s hard trying to find a preceptor, and having this as an option with the program it made it less stressful, and valuable to me.”
- “[The BHWET program] gives you a really good idea and a broad population base of the patients that we’re caring for. I had the opportunity to also do some time in private practice, and the patients in private practice were very different clinically. The ones that I saw at the collaborative clinic, in some ways more severe, had more needs. You had to keep on your toes with them about how you were going to handle it. It was eye-opening.”
- “More than just me looking at it as some free money...it actually allowed me to do the clinical rotation and experience that I wanted more than any others.”

Number of BHWET
Traineeship Awardees
Graduated



BHWET Graduates' Self-Reported
Work Settings



Acknowledgement: This program is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling \$2,097,011 with 0% financed with non-governmental sources. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government. For more information, please visit HRSA.gov.

Bilateral Renal Failure from Neglected Diabetes

Geoffrey Swanson PAS-II and Ian McLeod, MS, MEd, PA-C, ATC
Northern Arizona University, College of Health and Human Services
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Diabetes is one of the most prevalent chronic medical conditions in the United States. As of 2018, it is estimated that one in 10 Americans has diabetes and one in five of those are undiagnosed. An additional 88 million Americans are thought to have prediabetes. Type 2 diabetes mellitus is a coronary artery disease (CAD) equivalent, and the number one cause end stage renal disease. Primary risk factors include obesity, family history, Native American or Hispanic race, and long-standing hypertension. Diabetes can cause both microvascular and macrovascular complications. Microvascular complications include retinopathy, neuropathy and nephropathy. Macrovascular complications stemming from atherosclerosis include peripheral arterial disease, coronary artery disease, and cerebrovascular disease. Once diagnosed, diabetes must be followed closely and properly managed in order to reduce the risk of future complications and maintain healthy quality of life.

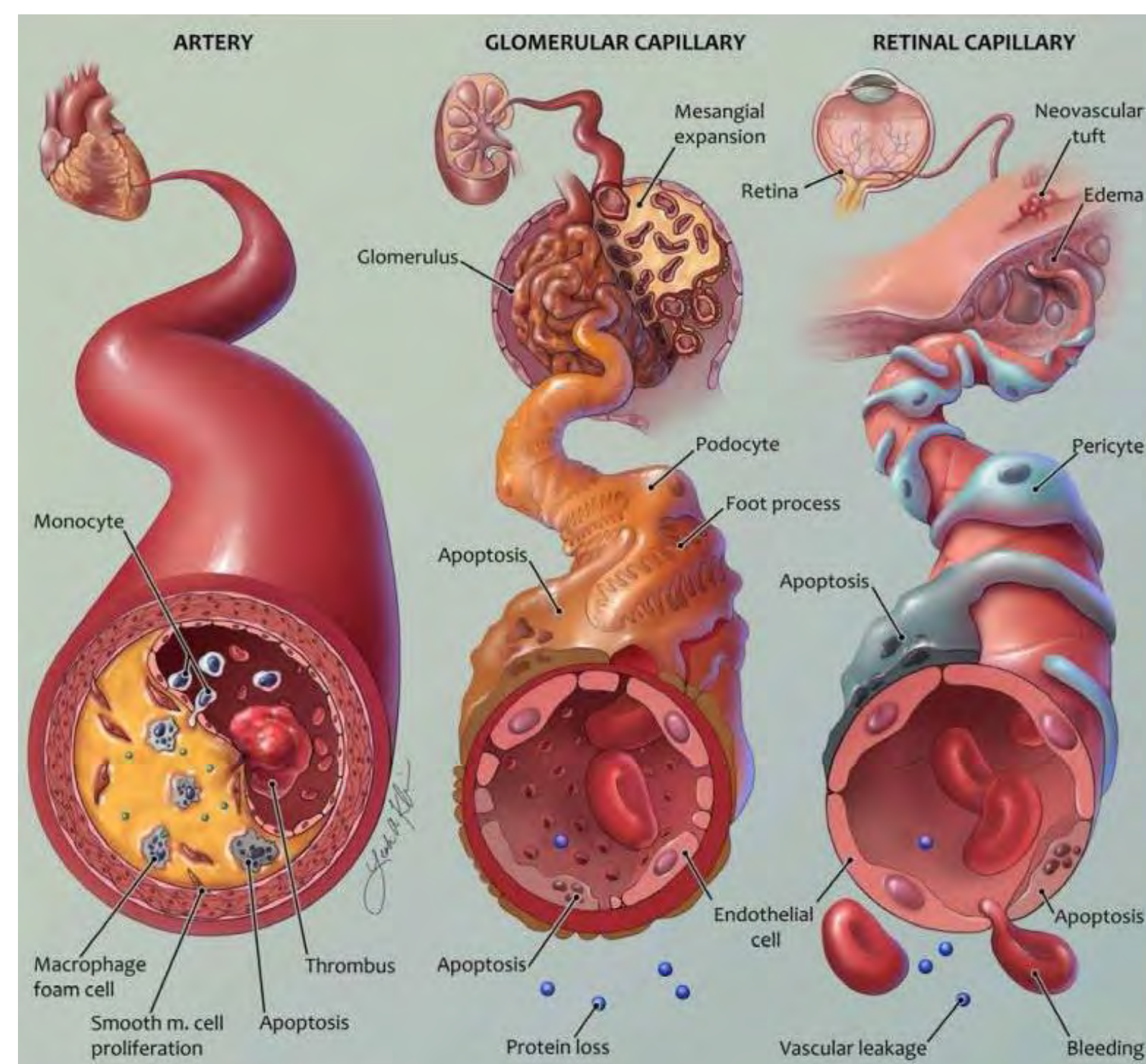


Image courtesy of Rask-Madsen et. al. Published in *Cell Metab*, accessed via NIH Public Access¹

Case Description

A 58-year-old Hispanic female with a past medical history significant for hypertension, hyperlipidemia and obstructive sleep apnea was diagnosed with type 2 diabetes in 1998. Family history included a father with diabetes, hypertension and heart disease, a sister with heart disease, and a grandmother with diabetes. She was prescribed medication to manage her diabetes but discontinued after a 2-week period because the medication was making her sick. She did not seek any further management of her condition at that time and continued without medical intervention for nearly 20 years.

Course

- In October 2018, the patient suffered a hemorrhagic stroke involving the left basal ganglia. She had residual hemiplegia and hemiparesis affecting the right dominant side.
- A1c level at that time was 10.4 and her blood glucose level was 264mg/dl.
- While in the hospital, it was discovered that she had bilateral kidney failure with a glomerular filtration rate (GFR) of 3%. She was stabilized and eventually discharged after 5 weeks in the hospital.
- Lantus and Humalog were prescribed to control her blood glucose levels. Over the course of the next 22 months, the patient was on hemodialysis treatment three times a week while awaiting a kidney transplant.
- In September 2020, she underwent a right kidney transplant placed in the right lower quadrant. Both native kidneys were left in place.

Post-Transplant

- Following transplant surgery, a catheter was in place for two weeks to allow continuous urine drainage.
- Postoperatively the patient developed anemia and multiple electrolyte abnormalities, which necessitated frequent clinic visits for monitoring of lab work and hydration status.
- Once the patient was stabilized, clinic visits were transitioned to every six weeks with weekly lab work to monitor her kidney function and hydration status.
- Her diabetes is currently well-controlled on 20 units of Lantus once a day and 4 units of Humalog three times per day, A1c is 5.7.
- She is also taking several medications for prophylaxis including CellCept and Prograf for organ rejection, Valcyte for cytomegalovirus, and Bactrim for *Pneumocystis jirovecii* pneumonia/*Nocardia*.
- Ongoing management is being performed by Endocrinology and Nephrology. Eventually, the patient may move to visits every six months, but lifelong care must be followed with specialists including Ophthalmology for retinopathy.

Discussion

- Diabetes is a multi-system, multi-faceted condition that must be monitored closely. It can cause vision changes, vascular and skin changes, and can be detrimental to cardiovascular and renal health.
- It must be closely monitored and highly involved between provider and patient. Uncontrolled diabetics are estimated to be 1.5 to 4 times more likely to suffer a stroke.³
- 37% of diabetics have chronic kidney disease (CKD) and over half of those have progressed to CKD stage 3 or 4.¹
- This case exemplifies the life altering outcomes that can occur when diabetes is not properly controlled. It highlights the importance of early intervention and management, including medications, lifestyle changes, routine bloodwork, vision exams, foot exams, etc.
- Interdisciplinary care and a team-based approach is essential for optimizing the care of patients with diabetes.

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Chlamydia and Gonorrhea Follow up Testing

College of Health & Human Services

School of Nursing

BLAKE PORTER

Faculty Sponsor: *Dr. Shelley Vaughn FNP-BC*

Purpose of the Project

Asymptomatic STDs untreated can cause Pelvic Inflammatory Disease in women
Long term effects include infertility and pain
Goal: understand guidelines for follow up testing and implement best practice

Setting

Rural health clinic in
Graham county, Arizona
Retrospective chart analysis of women
January 1, 2019 – December 31, 2019

Patient Population

411 patients with NAAT testing
19 (0.05%) tested positive for Chlamydia
0 tested positive for Gonorrhea
18 received tx with Azithromycin 1g
74% (14 pts) received follow up testing
36% (5 pts) Positive follow up test
40% (2 pts) received 2nd follow – neg
Outlier: Chlamydia positive
no tx & no follow up test

GCHD: No follow up testing
National Average 48.9% per CDC

Clinical Question

Are the women who have tested positive for Chlamydia and/or Gonorrhea who do not receive follow up testing at a greater risk of developing Pelvic Inflammatory Disease?

Review of the Literature

¹ CDC guideline f/u testing in 3 mo
TOC (4wks) no longer recommended
Testing at 3 wks = false positive

² 30% of PID associated with
hx of Chlamydia
2/3 of those cases resulted infertility

³ 0.6% PID & chlamydia positive
AZ population 3.6m women 0.6% =
21,600 women potential permanent
damage to reproductive system

² PID presentation d/t hx Chlamydia
Upper quadrant pain with elevated
ESR, CRP and CA-125 lab work
Non-Chlamydia bilat lower abd pain
and ESR, CRP and CA-125 WNL

Problem

STDs accelerating at epidemic rates
2017: 52,153 cases of STDS in AZ
76% cases reported were Chlamydia
94% increase of Gonorrhea from
2016

Proposed Best Practice

Annual testing 18-25 years old or for
individuals identified high risk
Follow up testing in 3 months
Flag charts of positives with TOC
date

G tx : *Rocephin 500mg IM x1*
C tx: *Azithromycin 1g PO x1*

Conclusion

Education at RH clinic to 14 staff
Follow up survey:
How often is C/G screened for?
What is the tx guideline?
Who receives follow up testing?
When is follow up testing indicated?
What is the risk of untreated C/G?
100% understanding from survey

¹ (Lazenby et al., 2017) ² (Parker et al., 2017)

³ (Davies et al., 2018)

Tiffany Bradley ¹, Jazael Carrasco ², Alan Gonzalez ¹, Amanda Smith ³, Luke Wohlford ⁴, Bettie Coplan ¹

¹ Department of Physician Assistant Studies, Northern Arizona University, Phoenix, Arizona; ² College of Nursing, The University of Arizona, Tucson, Arizona; ³ College of Nursing and Health Innovation, Arizona State University, Phoenix, Arizona; ⁴ University of Arizona College of Medicine-Phoenix, Phoenix, Arizona



Background

The COVID-19 pandemic has affected virtually everyone, although not uniformly. Early in the pandemic it became clear that the Hispanic community experienced over twice the incidence of COVID-19, and over thrice the rate of hospitalization for the virus [1]. This likely resulted from multiple disparities and cultural factors that the Hispanic community experiences. For example, lower percentages of Hispanic individuals have employment that can be performed at home, and systemic racism consistently contributes to risk factors for hospitalization such as increased BMI and higher rates of hypertension [2]. Even the fact that Hispanic families have higher mean household members than their white and black counterparts contributes to higher risk. Because this pandemic is particularly dangerous for Hispanic communities, we partnered with Esperança, an organization with a branch in Phoenix dedicated to improving the health of the most vulnerable populations.

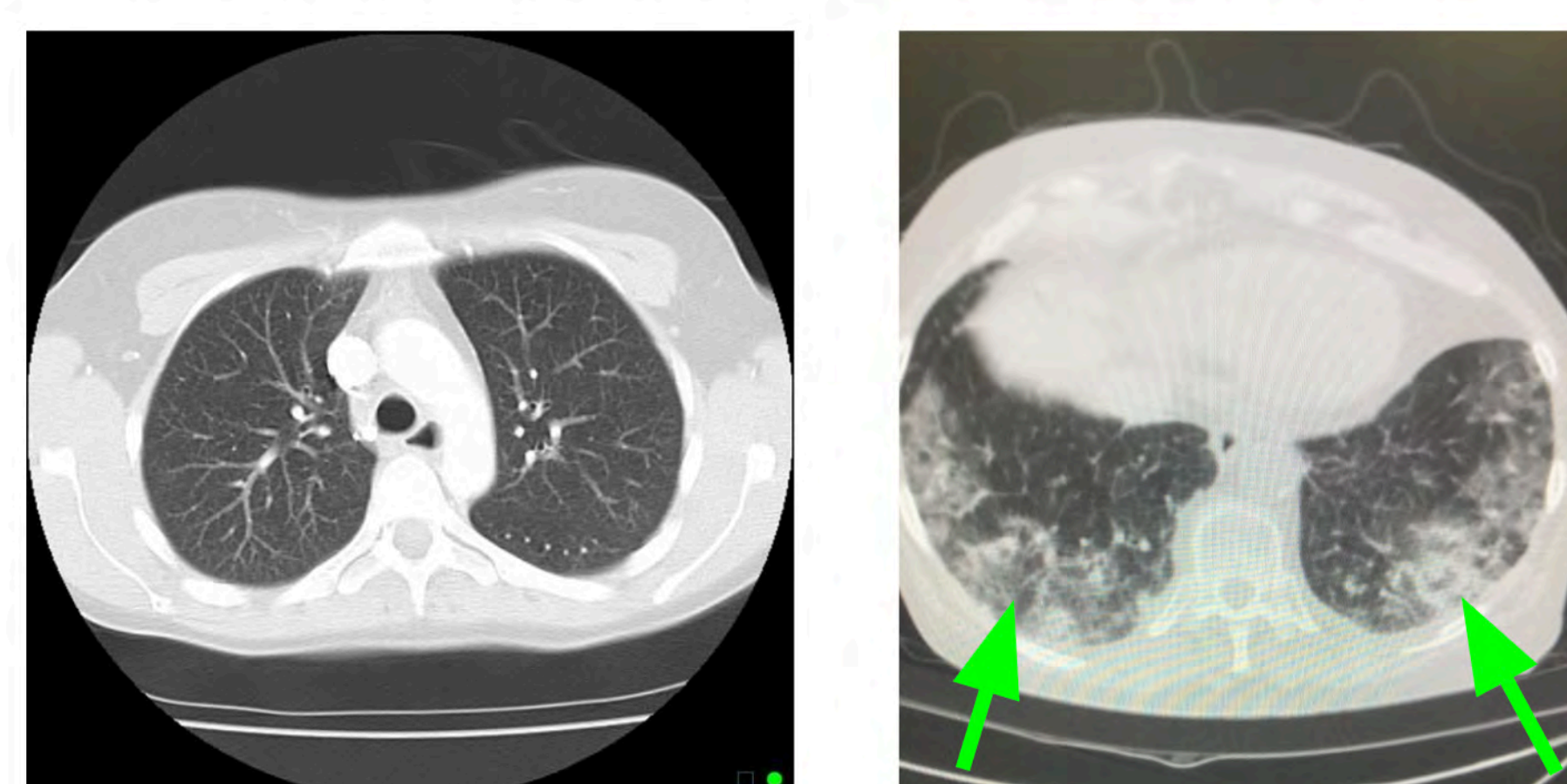
Our Team

As part of the Arizona AHEC COVID Scholars Program, we formed an interprofessional team consisting of six health-professions students for the 2020-2021 academic year. This team consists of future PAs, nurses, NPs, and physicians. Our team's leader, PA Bettie Coplan, helped us stay organized throughout a pandemic and kept us motivated towards helping Esperança with their needs.

Project Overview

The main goal of our project was to help Esperança with their COVID-19 literacy programming. Esperança already has fantastic relationships with the communities they serve, including many *promotores* who provide community education in Spanish and in relatable ways. Our role was to research social determinants of health relevant to Phoenix's Hispanic population and provide information at an appropriate comprehension level for Esperança's training programs. Information covered in these sessions was mainly on COVID-19 testing, treatment, and prevention. Throughout our partnership with Esperança, we also provided education on additional topics such as multisystem inflammatory syndrome in children, vaccines, common medications used for treatment and prevention of COVID-19, and approaches to maintaining wellness during the pandemic. We used the Centers for Disease Control's Social Vulnerability Index (SVI) to examine the social determinants of health and associated level of vulnerability (SVI index) experienced by the communities Esperança serves.

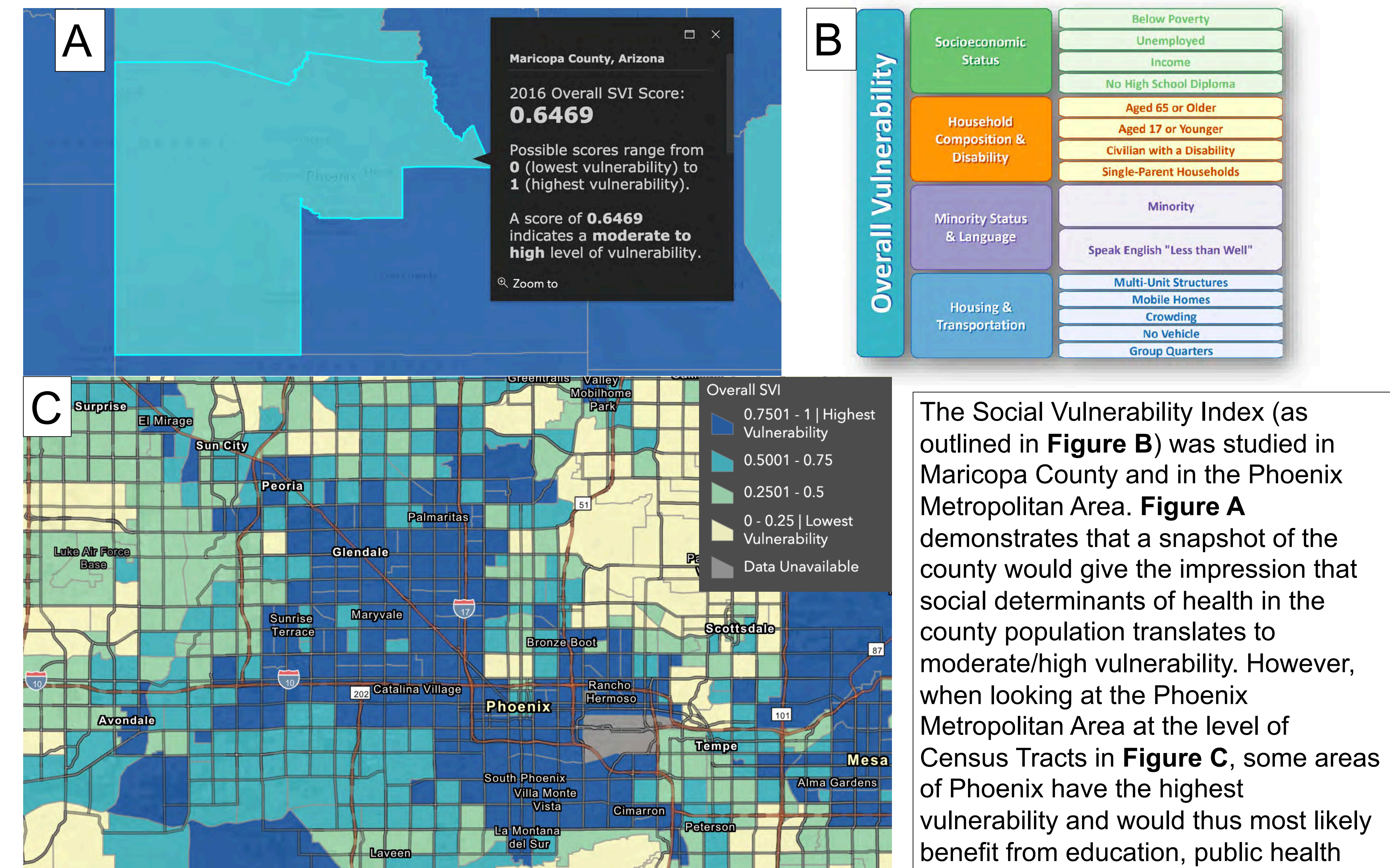
Pulmones normales frente a pulmones COVID-19



¿Qué es MIS-C?
 "Afección en la que diferentes partes del cuerpo pueden inflamarse, incluido el corazón, los pulmones, los riñones, el cerebro, la piel, los ojos u órganos gastrointestinales".

- RARO
- Causado por COVID-19

Example slides from an educational PowerPoint presentation



Further Work & Conclusions

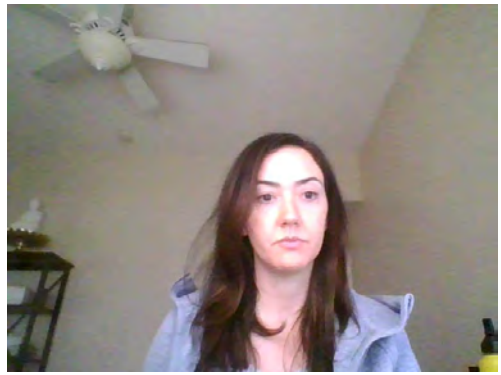
The products of our work consisted of several PowerPoint presentations that were translated into Spanish for the use of the Esperança *promotores*. Multiple handouts were also produced and translated into Spanish, such as "Myths About COVID-19" and "COVID-19: What Everyone Should Know". Emphasizing the adaptation of COVID-19 curriculum for communities in areas with high SVI proved useful for Esperança. They plan to incorporate the SVI data into an application for grant funds to help establish Esperança as a Point of Distribution (POD) center for the COVID-19 vaccine, which will enable the organization to improve vaccine uptake within the at-risk communities it serves.

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Community Health Assessment of Eloy, AZ

Hayley F. Garigan, PMHNP-DNP Candidate Class of 2021



Purpose and Background

The purpose of this assessment is to evaluate social determinants of health in Eloy, Arizona through a community health assessment with the intent of identifying opportunities to improve health within the community.

- Located in south central Arizona, Eloy is equidistant to Phoenix and Tucson¹.
- Eloy was established in the late 1800's during construction of the first railroad across southern Arizona by the Southern Pacific Railroad¹.
- Originally referred to as the East Line of Yuma, the town was abbreviated to Eloy in 1902¹.
- Eloy has operated as a regional trade center primarily for agriculture; however, the city has transitioned to include manufacturing, logistics, and transportation services over the last 30 years¹.



Methods

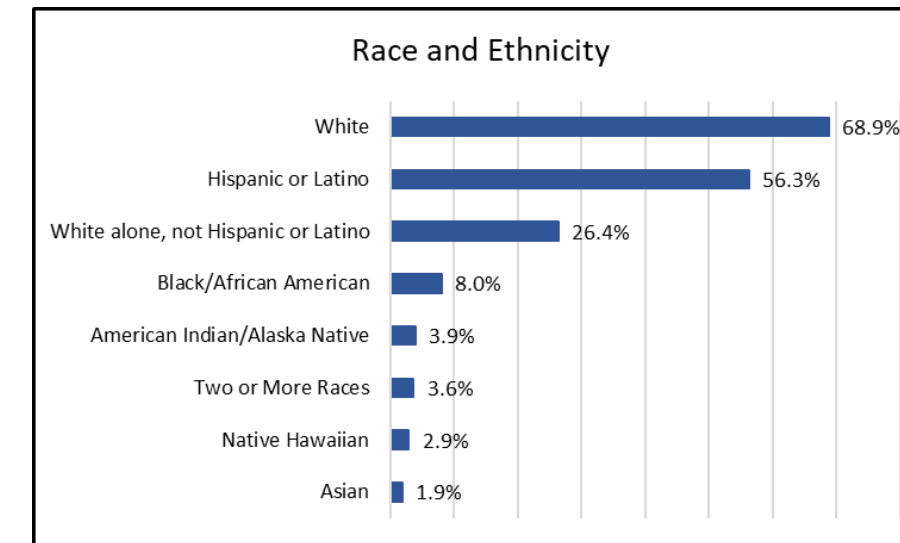
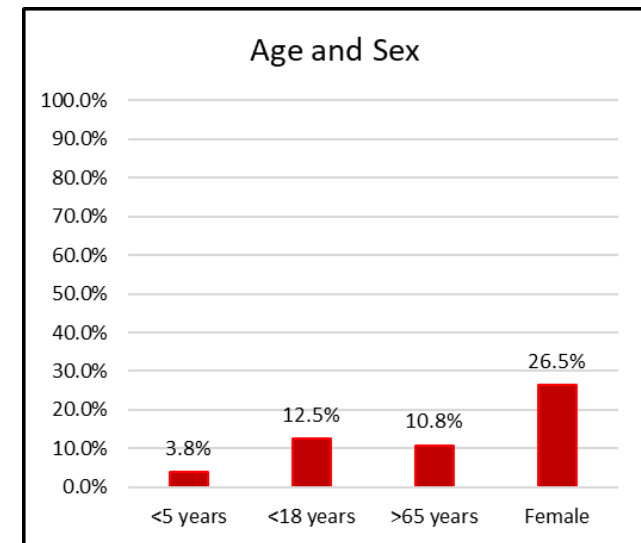
Data for this assessment was obtained through:

- Extensive exploration of resources on the internet.
- Performance of a Windshield Survey.
- Interview local residents via phone due to the COVID-19 pandemic.

Results

Demographics

- Population estimate for 2019 was 19,625 people, which is a 17.8% from 2010².
- 13.3% of the population under the age of 65 have a disability².
- 13.5% of the population is uninsured².
- Median household income is \$39,835².
- Poverty rate is 29.1%².



Values and Beliefs

- Large number and diverse variety of places of worship to include:
 - Methodist, Catholic, Jehovah's Witness, Pentecostal, Apostolic, Baptist, and Pentecostal denominations.

Physical Environment and Recreation

- Land area is 111.51 square miles² and includes 3 recreation centers, 2 tennis courts, a library, skateboard park, swimming pool, and Veteran's Center¹.
- Most of the existing land use is occupied for agriculture and is followed by use for industrial purposes¹.

Health and Social Services

- There is one medical center staffed by two FNPs that provides primary care services, a pharmacy, labs, sick visits, immunizations, and free pregnancy tests³.
- Community Action Human Resources (CAHRA) is a community resource center that provides assistance with nutrition and housing⁴.
- The closest hospital, urgent care, and specialty services (obstetrics, orthodontist, optometrist, and physicians) are in Casa Grande (approximately 30 minutes away)^{3,5}.
- COVID-19 vaccination opportunities are limited based on availability. Testing is available locally^{2,3}.

Transportation and Safety

- There is one small airport used primarily for sky diving industry. There are no forms of public transportation in Eloy².
- There is one police station and one fire station.
- Violent crime is rated 25.9 on the crime index (100 = high crime, US average is 22.7). Property crime is rated 41.3 on the crime index (100 = high crime, US average is 35.4)⁶.

Economy, Politics, and Government

- 56.2% of residents in Pinal county voted republican in the 2016 election⁷.
- The Eloy Detention Center is the largest employer in the area⁸.
- Unemployment rate is 2.9%².

Education

- 69.8% of the population have a high school education or higher².
- 8.2% of the population have a bachelor's degree or higher².
- 84.5% of households have a computer and 71.8% have internet subscriptions².
- Eloy has two elementary, two intermediate, and two high schools.
- There are no community colleges, universities, or vocational education programs locally available in Eloy.

Summary

Strengths

- Large volume of places of worship available.
- Local resources for nutrition and housing support.
- Evidence of new construction and renovations. Newly constructed library and multiple parks and playgrounds for recreation.
- Available land for additional growth and development.

Weaknesses

- Almost one-third of the population does not have internet access, which limits the utility of telehealth services as a method for increasing access to care.
- Limited medical facilities available leaving individuals with fewer choices for their health and less access to specialized services.

Opportunities

- Increased availability of information regarding COVID-19 testing and vaccinations.
- Increased community resources and education about common health concerns within Pinal County (IE: hypertension, diabetes, and obesity)

Conclusion

- Increase the availability of information regarding COVID-19 vaccination.
- Increase community awareness regarding available nutrition and housing resources.



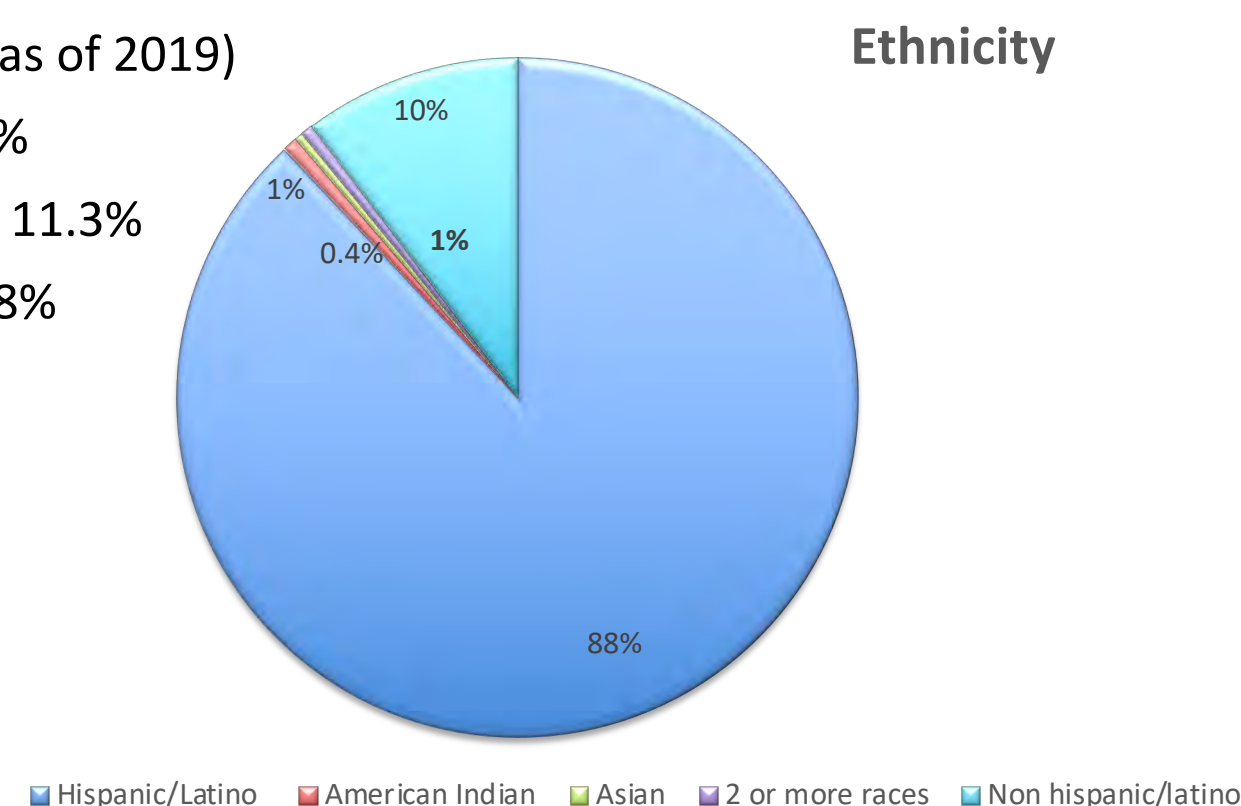
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References

Community Health Assessment of Rio Rico, Arizona

Brittney Marcano RN-BSN, CCRN, DNP AGACNP Student

Demographics and Ethnicity

- City population: 18,962 (as of 2019)
- Female population: 53.4%
- Population 65 and older: 11.3%
- Hispanic/Latino origin: 88%
- Veterans: 739



Classification

- Rio Rico is known as a Census Defined Place within Santa Cruz County
- Santa Cruz County has rural urban continuum code of 4
 - Population 20,000 or less, near a metro area

History and Environment

- Area was once known as the Calabasas and the area was named Rio Rico “rich river” by settlers that stole the land from the O’odham
- The land has since been cursed by settlers that come and later abandon it
- I-19 is marked with km in 1960s but was never changed
- Easy access to I-19 and in close proximity to Nogales and Tubac
- Land area: 62.6 sq. mile
- 304 people per sq. mile
- Air Quality Index in 2021: 39
- Santa Cruz River runs west of Rio Rico
- Large landfill on west side of city
- Houses and property are well maintained



Health and Social Services

- Maricopa Health Center offers primary care, dental, and mental health services as well as a pharmacy Monday-Friday during business hours
- Rio Rico Primary Care Center also provides family care Monday-Friday during business hours
- No emergency centers within Rio Rico
 - Nearest emergency center in Nogales
 - Nearest level one trauma facility in Tucson
- Santa Cruz County is identified as a Health Professional Shortage Area
- Holistic health center offers massage, acupuncture, yoga, skin care and various herbal treatments based on sliding scale fee

Transportation and Safety

- 1 Fire Station that serves as EMS
 - Joined coalition with Tucson as a "treat & refer" EMS agency
 - Refer to appropriate level of care rather than transporting to the nearest ED
- No Police Station in Rio Rico
 - Santa Cruz County Sheriff’s Office serves Rio Rico
- No public transportation besides taxi services
- Sidewalks noted in neighborhoods and multiple walking/bike paths
- Calabasas park open to public for hiking

Education

- Santa Cruz Valley Unified School District
 - Elementary, Middle and High School
- Preschool also noted—next to ill-maintained local bar
- Rio Rico Public Library and Historical Museum

Community Strengths and Limitations

Community Health Assessment was performed during COVID-19 pandemic

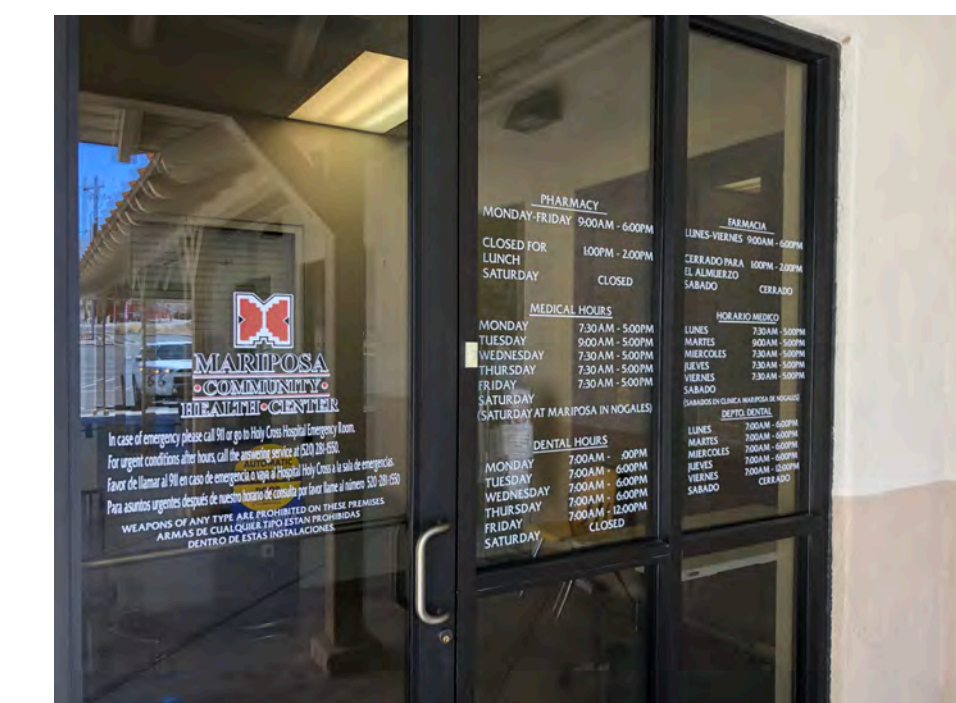
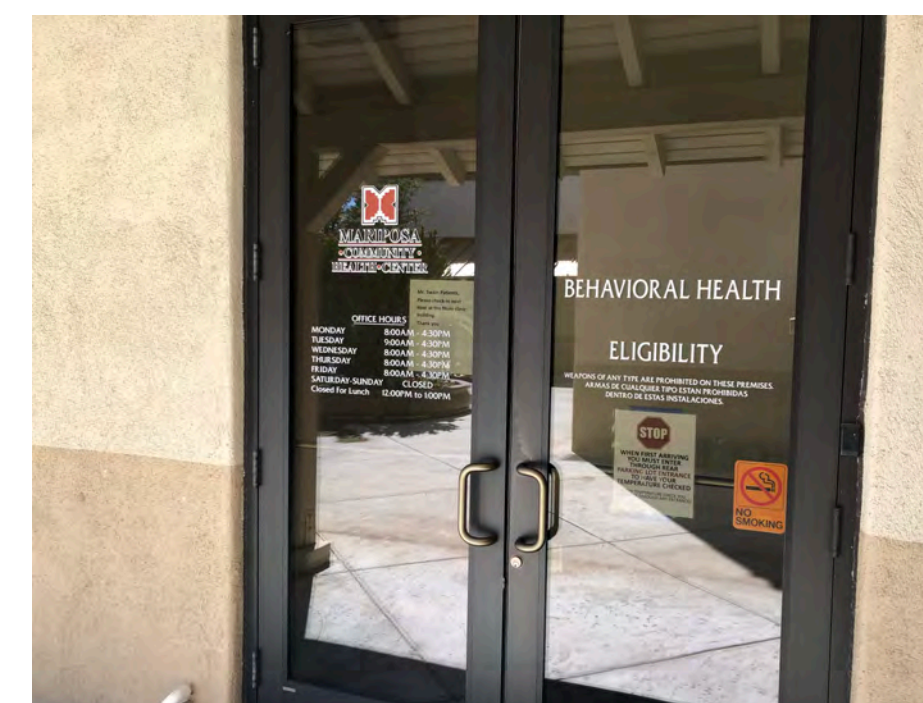
- Residents state that many informal community health/social resources have been shut down or reduced during pandemic
 - Senior Center no longer provides weekly meal
 - Fitness Center experiencing restrictions
 - Historical Society and museum permanently closed—this provided scholarships to college seeking youth

Strengths

- Clean air quality and wide-open space with multiple walking and biking trails
- Multiple churches of Christian denomination that brings community together
- Residents boast a “resort lifestyle”

Weaknesses

- Seedy economy that does not promote younger adults to stay long-term
- Major health concerns: obesity, sexually transmitted diseases
 - 11.4% uninsured ages 18-64
 - 8% uninsured under 18 years
 - 57% have low access to healthy food
 - Poverty rate—19.2% (2019)



References available upon request

Community Health Assessment – Nogales, Arizona

Heather Robertson, BSN, RN, DNP PMHNP Candidate

Classification as Rural Community



- Heavily dependent on cross-border trade with Nogales, Sonora
- Agribusiness and produce distribution is lead source of economy
- 60% of sales tax comes from ~30,000 Mexican shoppers crossing the border daily

Methods

- Primary sources: Three-day windshield survey with Key Informant (KI) Interviews
- Secondary Sources: United States Census Bureau American Community Survey (2010), internet pages for community resources

Community Core Census Data



- Population: 20, 878
- 38.8% of households with children under age of 18 years
- 22.5% non-families
- 9.9% of households had someone living along >65 years
- Average family size: 3.6
- 71.7% White, 0.37% Black, 0.57% Native American, 0.6% Asian
- 95% of population Hispanic or Latino of any race

Subsystems



Physical Environment: Nine parks, three golf courses, scenic attractions include Santa Cruz County Historical Courthouse, architecturally rich downtown area, historic homes along Crawford and Court Streets, Pimeria Alta Historical Society Museum

Education

- 90% high school graduation rate
- School board consisting of community members
- Various sports teams, JROTC, numerous clubs and organizations

Economy

- 51.2% of the population in the civilian labor force
- Unemployment rate: 8.4%; higher than national average

Politics & Government

- Mayor: Arturo Garino, Democrat
- Council-Manager form of government



Subsystems (Continued)

Health and Social Services

- Santa Cruz Health Systems: Key services-Emergency Preparedness and Response, Environmental Health Services, Public Health Services
- Specialties provided by Carondelet Medical Group
- Nogales Urgent Care: access during nights, weekends, and holidays
- EMS: 3 ambulances 24 hours per day, 365 days per year
- Home services through Dependable Home Health
- Mental Healthcare: Southeastern Arizona Behavioral Health Services
- Holy Cross Hospice
- Social Services: Crossroads Nogales Mission



Community Strengths

- Strong health promotion program
- Good access to mental health services
- Adequate EMS support

Community Challenges

- No rehabilitation unit post acute care
- Limited access to specialty medical providers such as endocrine, rheumatology, etc. without travel
- Traditional healers are hard to locate

Concerning Rash in a Sexually Active Male

Braiden Fairbanks PA-S2 and Ian McLeod, MS, MEd, PA-C, ATC
Northern Arizona University, College of Health and Human Services
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Syphilis is a sexually transmitted disease (STD) caused by a spirochetal bacterium called *Treponema Pallidum*. Syphilis is transmitted via direct contact with a syphilitic sore, known as a chancre, which is the initial clinical manifestation during the primary stage of infection. Chancres are typically painless ulcers that occur around the external genitalia, anus, and rectum or in/around the mouth and lips. If untreated primary syphilis may progress to a systemic illness categorized into secondary, latent or tertiary stages. The following case highlights a secondary stage syphilis presentation.

Case Description

A healthy 33-year-old homosexual married male taking Truvada for human immunodeficiency virus (HIV) prophylaxis presented to an outpatient family medicine clinic with complaints of a diffuse macular rash. The rash which started 48 hours prior to his visit, was on his abdomen, upper and lower back, distal anterior forearms extending to his bilateral palms and soles of bilateral feet. It was not painful and was not itchy. The patient denied visible chancres, mucous patches, recent travel, fever, contact with a known allergen, cough, shortness of breath, chest pain, sinus congestion or rhinorrhea. He admitted to his husband testing positive and receiving treatment for syphilis two months prior, but at that time, he tested negative.

Physical Examination

- Vital signs: Temp 98.1 °F, BP 122/76, P 96, R 22, and pulse oximetry 97% on room air.
- General: well-nourished patient in no acute distress.
- Ear, nose and throat: intact tympanic membranes without injection and no erythema, edema or ulcers in the mouth.
- Neck: no cervical adenopathy.
- Cardiac: regular rate and rhythm without murmur.
- Pulmonary: clear to auscultation bilaterally.
- Genital and rectal: no chancres, ulcers, swelling or deformity. The epididymis was non-tender and there was no inguinal adenopathy.

Physical Examination

- Neurologic: excellent speech and comprehension, alert, attentive and oriented. Cranial nerves 1-12 intact. Gait motor control and coordination within normal limits.
- Skin: mildly erythematous, warm macular rash on torso, arms, palms and soles bilaterally with four brownish/red spots on the palms. (see accompany picture)



Diagnostic testing

- Rapid plasma reagin (RPR) test and direct treponema pallidum antibody test were ordered due to a high clinical suspicion for secondary stage syphilis. Both tests were reactive which indicated a current syphilis infection.
- Further testing included complete blood count with differential, comprehensive metabolic panel, gonorrhea, chlamydia, rocky mountain spotted fever IgM/IgG, HIV ag/ab and helper T lymphocyte CD4 count to rule out other causes of rash and to rule out other possible STD etiologies. All these tests were either negative or within normal ranges.

Management

- Patient and his husband each began a course of doxycycline monohydrate 100 mg oral tablets 1 tab twice daily x14 days.
- Physical examination performed during a follow up appointment 10 days after initiating the antibiotic treatment revealed that the rash completely resolved.
- Patient consented to follow up testing at 6 and 12 months to confirm eradication of the bacteria.

Discussion

- In 2018, Center for Disease Control (CDC) reported 115,045 cases of syphilis (all stages included) which is a 71% increase since 2014. The last time the total syphilis count was this high was 1991.¹
- Primary syphilis presents as a painless ulcer with a raised, indurated border known as a chancre. Duration of primary syphilis lasts 3-6 weeks.²
- Secondary syphilis presents as a maculopapular palmar/sole rash, mucous patches involving the oral cavity, genitals, or anus; or condyloma lata which are wart like papules in moist, intertriginous areas. During this stage the infection becomes multisystemic potentially affecting the ears, eyes, nose, throat, gastrointestinal, dermatologic, renal and neurological systems.³ Secondary syphilis lasts 2-6 weeks.²
- Latent syphilis is usually asymptomatic and is no longer sexually transmissible. This stage may persist for years.²
- Tertiary (late) syphilis develops anytime from 1 to 30 years after the initial infection and may develop in ~25 to 40% of patients. Neurological deficits such as blindness, dementia and paralysis may occur.³
- A single dose of penicillin G benzathine intramuscular injection is generally the first line treatment option for secondary syphilis. In this case, doxycycline was prescribed because penicillin G was not readily available. Doxycycline is considered an alternative first line agent with similar efficacy.³

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CONTACT: TRACING AN OUTBREAK FROM HOME

Augmenting COVID-19 Contact Tracing on the Navajo Nation with Remote Volunteers

Daniel Sadoway
University of Arizona College of Medicine - Tucson

Background

- The Navajo Nation is a remote sovereign territory spread across 27,000 square miles of high desert in the Four Corners region
- Although public health resources do exist there is limited infrastructure and unique structural difficulties such as lack of addresses and the preponderance of multigenerational households that make public health work difficult to implement. Navajo lands were thus uniquely vulnerable to the spread of COVID-19 and by May 2020 the Navajo Nation was posting the highest COVID case rates in the US and some of the highest in the world
- In order to stop the spread of COVID the Navajo Nation asked COPE, a Native-controlled nonprofit organization already operating in the area to begin contact tracing
- Due to geographic challenges and high case rates contact tracing was implemented through a remote online model where workers called cases over VOIP and then updated a browser-based EHR

Contact Tracing in Practice

Definitions:

Case – confirmed COVID positive or likely positive (symptomatic); requires 10 day isolation period

Contact – anyone who has been within 6 feet of a case for >15 min during infectious stage; requires 14 day quarantine period

Alarm symptoms – Dyspnea, chest pain, confusion, obtundation, cyanosis (if any of these are positive, Pt MUST call 911)

Q/I – Quarantine/Isolation

Two types of calls – investigations and followups.

1. Initial Case Investigation/Contact Tracing:

- Inform patient of need to isolate/quarantine
- Ask about alarm symptoms, other symptoms, and Q/I needs (e.g. food, water, medicine)
- For cases, go through patient's schedule day by day during the infectious period to identify any contacts, then record their information and call them so they can start quarantining (this is time consuming!)
- Capture medical history, demographics, and other info as needed

2. Follow-up (daily until Q/I end date):

- Ask about alarm symptoms and other new symptoms
- If Pt has a pulse oximeter, document current reading
- Ask about additional needs and follow up on resource requests
- Confirm Q/I end date, reiterate universal precautions, Q/I procedures, and when to call 911
- Encourage patient to get tested and/or retested

Note: This is a simplification of the process but these are CRITICAL things that must be done with each call.

Augmenting CT Workforce with Remote Volunteers

- CT is extremely labor intensive. COPE avoided becoming overwhelmed by recruiting unpaid volunteers from around the country to assist. These volunteers, many of whom were students in health sciences programs, underwent an extensive training program designed to familiarize them both with contact tracing in general and with unique local challenges. Then they integrated with paid staff, interns, and public health workers.

Training

- 9 hours live lecture with interactive small group activities
- 1.5-2 hours in a one-on-one training/certification session with a supervisor
- 4-6 hour online class for Contact Tracing certification
- HIPAA training
- Information security training
- Periodic formal refresher training
- Required weekly development meeting
- Required pre-shift brief to discuss updates/policy changes and answer questions

Personal Experiences

- As a first year medical student at the University of Arizona Tucson I was recruited through an email from NAHEC which was passed through the Rural Health Professions Program (RHPP) listserv
- I was motivated to sign up because it offered the ability to materially improve rural health delivery - one of the interests that initially caused me to apply for RHPP - while still keeping up with the demands of medical school. This was only possible because I was able to do all of the training online and pick up shifts online through a flexible system that was very accommodating to a student schedule.
- As a volunteer I felt seamlessly integrated with the other workers. Additionally the program was rapidly adaptable to changing needs and used shift briefs and weekly meetings to disseminate new information. Even though I only had a handful of shifts per week I always felt like I knew the latest information and policy changes.
- I made all my calls from Tucson, hundreds of miles from Navajo lands. As a medical student I had access to Doximity Dialer (free for MD/DO/NP/PA and medical students) that lets you place calls from any number. Most contact tracers set up a local Google Voice number but I was able to call from the real Gallup Indian Medical Center number which frequently allowed me to reach cases who were screening their calls and had ignored several days worth of phone calls from other CTs.
- During the COVID surge in late 2020 additional volunteers were recruited; then when case counts dropped volunteers were asked to cut one shift a week. Volunteers were thus used as a buffer for staff, flexing as COVID numbers waxed and waned.
- Contact tracers provided vaccine clinic information and tracked vaccine status in the EHR. CTs also encouraged contacts to get tested and re-tested to capture the true prevalence of COVID in the community. I felt like this was a great way to close the public health loop and meaningfully contribute to the fight against COVID.
- This reinforced my interest in rural health and I feel better prepared for rural rotations.

Local Challenges

Challenge: Preponderance of multigenerational households makes it difficult for a new case to isolate effectively

Solution: Tents (summer), Hotel partnerships (winter)

Challenge: Many houses lack addresses

Solution: Added a free-text EHR field for directions to house and trained volunteers to ask additional questions

Challenge: Households without running water or electricity

Solution: Partnerships with local agencies to provide resources. For example, contact tracers can request a CHR referral that provides a one-time delivery of food, water, cleaning supplies, and/or medical supplies to households with a positive case.

Challenge: Poor connectivity

Solution: EHR is designed to work offline and sync when a connection is available in order to facilitate in-person visits. Families can designate a point of contact who has reliable cell service to answer questions for the entire residence

Challenge: Cultural taboos against talking about death and cultural emphasis on the importance of words

Solution: Cultural awareness training and specific scripts

Outlook

- Volunteers successfully worked hand-in-hand with paid staff to make calls with local phone numbers and update a shared EHR; As of March 21, 2021 case levels have declined to their lowest in 6 months, 77.9% of the community has received at least one dose of the COVID vaccine, and businesses are beginning to reopen.
- This program provides a model for developing an augmented workforce in future public health endeavors in remote, resource-limited areas.

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Acknowledgements

Arizona Alliance for Community Health Centers - for suggesting this poster be created and submitted to disseminate information about the contact tracing program from a student volunteer's perspective

COPE - for running the contact tracing program and providing training and support

CommCare by dimagi - for building the EHR that made this all possible

Coronavirus (COVID-19) in Primary Care Settings

College of Health & Human Services

School of Nursing

Skye Porter Berg

Faculty Sponsor: Dr. Shelley Vaughn – FNP-BC

Purpose of the Project

In primary care offices there is a wide variety of chief complaints as well as wellness check-ups with limitations on space and social distancing. It is important to screen and discuss current illnesses and separate patients experiencing symptoms related to coronavirus from those who are healthy for infection prevention and to limit spread. It is important to emphasize the importance and capability of telemedicine for those who have met more than four criteria based upon Centers for Disease Control and Prevention. The critical need for assessment and triage for the patients can mean life and death for those with worsening respiratory effort. While research and development into the novel virus has changed drastically, it is important to have a set screening tool and plan of care in rural primary care clinics where supplies and resources are limited. With early diagnosis, helping vulnerable people cope with their anxiety about the virus, and reducing the demand for hospital services can guarantee timely, effective, and safe support and management for patients with suspected or confirmed coronavirus. The purpose of this paper is to review how primary care facilities are adapting and delivering care amidst the global health crisis.

Setting

The particular population for the purpose of the study are healthcare professionals within rural primary care clinics in Arizona caring for and diagnosing patients suspected or confirmed with coronavirus.

Patient Population

Patients in rural areas within Arizona who had contracted COVID-19 or have similar symptoms impeding care and treatment

Problem

Most people with COVID-19 develop mild or uncomplicated illness that can be managed at the primary care level. As the number of COVID-19 cases increases, the demand for primary services will escalate. Health ministries will need to take action to support management, identify strategies to increase surge capacity, manage and maintain PPE and other essential medicines and supplies, and ensure timely adaptation to address the needs of vulnerable groups.

Clinical Question

How can primary care facilities in rural areas adapt to surge capacity of patient care and management for those with residual COVID effects and new COVID diagnoses, while maintaining safety and recognizing signs and symptoms of infection. Further, how does the implementation of telemedicine and remote monitoring effect the patient care dynamic.

Review of the Literature

Primary care participation in the CDC's Outpatient Influenza-like Illness Surveillance Network will help identify regional hotspots where focused testing, contact tracing, and isolation in the next COVID outbreak can support rapid containment.

Expansion of telehealth care has become one of the central components of the pandemic response, and will be determined by which system, regulatory, financial, policy, and clinical adaptations continue to stand

The main principles of primary care in the COVID19 response are to identify and manage potential cases as soon as possible, avert the risk of transmission of infection to contacts and health-care workers, maintain delivery of essential health services, and strengthen risk communication and community engagement.

Current criteria for hospital admission includes ALOC, SOB with SpO₂ <90%, respiratory rate > 30/min, or other signs of shock or complications. Diagnostic measures in primary care may include referral to COVID-19 testing sites and chest x-ray. Patients with a mild clinical presentation may not initially require hospitalization, and many patients will be able to manage their illness at home with fever-reducing medication, albuterol treatments, cough suppressants, as well as natural remedies.

Proposed Best Practice

The intervention proposed for these healthcare clinics are a formulated screening tool and guidelines of care for patients with respiratory illnesses or other ailments that correlate to symptoms or are causally related to coronavirus. The management strategy utilized with the screening tool will help identify early risk factors as well as provide enhanced safety measures for other patients within close quarters and healthcare professionals.

Through utilization of a screening diagnostic tool, it will assist in formulating early management, quicker response time for those deteriorating, and initial onset for isolation and testing to assist in infection prevention. Due to the variation in symptoms and presentation of COVID-19, emphasis on telemedicine and virtual appointments should be provided when at all possible.

Conclusion

Due to the emergence and uncertainty of the pandemic, our society has had to rapidly adapt to changes in lifestyle, healthcare, and overall interaction and daily functioning. COVID-19 has made a huge impact on how healthcare delivery is formed and implemented. Based upon the review of current evidence-based practice guidelines, primary care facilities and other related modalities are forced to prolong care or resort to telemedicine or videoconferencing means to promote social distancing and prevent transmission of infection at all means possible.

While some patients benefit from electronic health care such as those with limitations in driving and in remote areas, sometimes there can be problems whilst trying to connect and understand current symptomology. Further, there are also restrictions on visualizing and recording vitals as well as presentation, making it important to understand and recognize worsening symptoms and be able to provide accurate referrals for those patients suffering from COVID-19 or other healthcare complications.

Purpose of the Project

Decreased access to substance abuse counseling in the rural setting and the COVID-19 pandemic can jeopardize a patient's sobriety or influence their drinking habits. The goal of this project is to determine how primary care can better support their SUD patients during the COVID era.

Setting

Rural health clinic in
Gila County, Payson, Arizona
Retrospective chart analysis of
primary care patients
January 1, 2020 – December 31, 2020

Patient Population

- In 2020:
- Gila Co. population 54, 018
 - Payson population 15,454
 - Total clinic patient population of 14,467
 - 14,104 total clinic visits at examined clinic
 - Only 34 total visits to the clinic that resulted in an ICD-10 code for the uncomplicated SUD codes

Clinical Question

In primary care patients with diagnosed and documented substance use disorder (P), how will scheduled chronic care visits (I) compared with PRN care appointments (C) reduce the risk for substance use relapse (O) during the COVID-19 pandemic social distancing/self-quarantine and beyond (T)?

Review of the Literature

Financial funding does not increase patient SUD screening, but withdrawal of funding decreases it. ¹

Techniques like brief treatment is more effective at treating illicit substance use whereas as brief intervention is more successful at treating alcohol and marijuana use. ²

Motivational interviewing is a valuable tool when discussing increased substance use during the pandemic. ³

Reduction in ED visits for SUD patients was noted when the patient had been followed in primary care for SUD. ⁴

Preventing stigmatization of SUD during the post-COVID era following the articles 7-pillars will allow for successful treatment. ⁵

Problem

SUD is prevalent in this community due to risky behaviors, decreased resources and access to care, and various other social determinants of health.

Primary care is an underutilized resource for SUD treatment.

Proposed Best Practice

Depression and substance screening for all patients with each visit beginning at age 10.

Patients with SUD, each visit includes a brief evaluation of use/abstinence behaviors special emphasis given to impact of COVID restrictions on those behaviors.

Follow-up with SUD patients weekly in person or via telemed for support.

Conclusion

Education given about importance of depression and alcohol screening.

Screening questions developed to address COVID-19/SUD for EHR template creation to ensure consistency.

¹(O'Donnell et al., 2020) ²(Aldridge et al., 2017)

³(Walker et al., 2020) ⁴(Wakeman et al., 2018)

⁵(Lopez-Pelayo et al., 2020)

COVID-19: Impact, Mitigation, and Future Implications for a Central Phoenix Zip Code

CAAHEC Scholars 2019-2021

Amina Aden, ASU DNP-PMHNP Student, Farhana Afrin, ASU AGNP-FNP Student, Nichol Brahm, UA Pharm-D Student, Turab Chevelwala, ASU DNP-FNP Student, Shrey Goel, UA COM Student, Stacy James, DNP-FNP, Lacey Oscarson, UA Pharm-D Student, Skye Porter-Berg, NAU FNP Student, Nmeso Sampson, UA MPH Student, Melanie Schroeder, UA COM Student, Travis Wahl, NAU PA Student

PURPOSE:

In order to address the impact that COVID-19 has had on health and wellbeing in this community, we explored guidelines and best practices on how to implement an interdisciplinary vaccination drive in 85034. Here, we demonstrate the impact COVID-19 has had on the community and present the best approaches to future mass vaccination efforts in this underserved area.

COVID-19 IMPACT ON 85034

COVID-19 INFECTIONS & TESTING

- 9 testing sites available
- Between May 2020 and February 2021, over 5 months featured “substantial community spread”

ECONOMICS AND HOUSING

- Unemployment rates were as high as 12% in Phoenix
- A federal bill extending eviction and foreclosures, lead to a decrease of 48.4% year-over-year within Maricopa County

FOOD ACCESS

- Food insecurity in many new homes requiring additional food stamps and food bank access
- Food stamp access was expanded, and food banks were opened to more families to help throughout the pandemic

EDUCATION

- Education severely affected with many in-person classes transitioned to online classes
- Loss of clinical placements for nursing students

TRANSPORTATION

- **Medicaid Funded Transportation:** temporary provisions to allow its use to access drive-thru vaccination sites
- **Valley Metro:** limitations on number of passengers and implemented a mask mandate
- **Air Travel:** Sky Harbor established multiple methods & regulations per CDC recommendations including masks and social distancing protocols

OBSTACLES TO DESIGNING A CLINIC

- Limited and rapidly changing vaccine production
- Phased vaccination roll outs
- Storage and handling of vaccine product
- Vaccine hesitancy

PLANNING FOR A VACCINE CLINIC

IMPLEMENTED SOLUTIONS DURING THE PANDEMIC:

- Enhanced safety measures for airports, public transportation, and rideshare companies
- AHCCC providing accessibility to vaccination sites and free transport to patients
- Government stimulus check and reimbursement to businesses and their families
- Consumer access to COVID vaccine through a systematic rollout phase
- Increased volume of vaccine clinics near public transportation stops (i.e. light rail)

The ongoing need and organization for COVID-19 vaccinations requires a multidisciplinary plan to maximize access to preventative healthcare.

STATE FARM VACCINE CLINIC MODEL

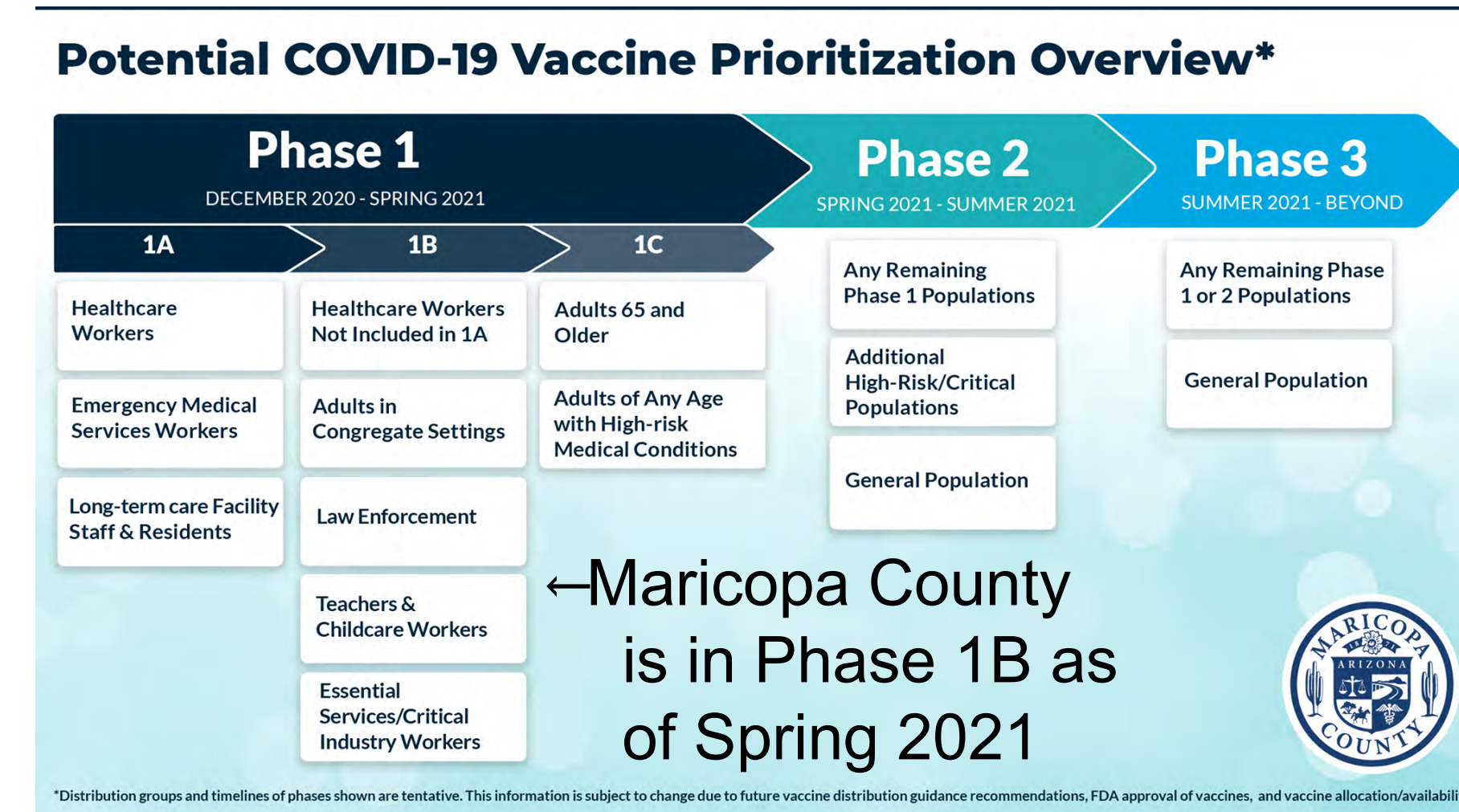
- State Farm drive-thru site records completing ~350 to 400 vaccinations/hour with an average of 8,000-9,000 vaccinations per day with goals to perform even more.
- President Biden has deemed this site the national model throughout the country.
- The state is also looking into putting community-based vaccine sites in hard-to-reach and impacted zip codes, like 85034 modeled after the State Farm site.

PHOENIX MUNICIPAL STADIUM MODEL

- Phoenix municipal site is modeled very similar to the State Farm site.
- At this site staff members consisted of clinical members with backgrounds in healthcare; half are paid and the other are volunteers.

VACCINATION EFFORTS

VACCINE ROLLOUT

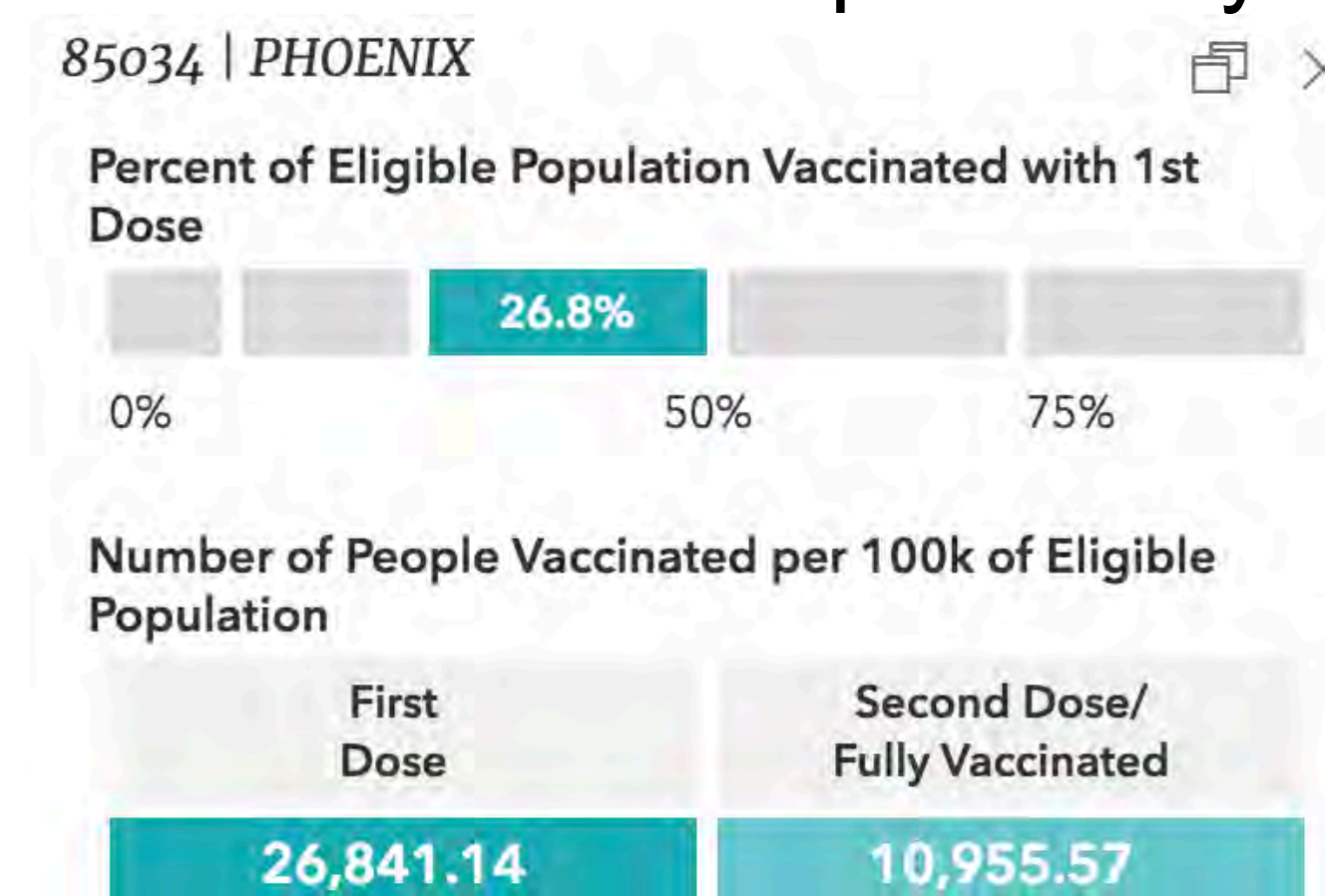


85034 DEMOGRAPHICS

- 85034 has a lower percentage of essential workers and >65 individuals than Maricopa County
- But it has a greater level of racial/ethnic diversity and a lower median income

VACCINATION IN 85034

- 11th lowest vaccination rate out of the 135 zip codes within Maricopa County



VACCINE HESITANCY

- Rapid innovation casts efficacy doubts and protection length
- Side effects and false claims about the vaccine

Overcoming Vaccine Hesitancy

- Obtain facts from CDC, FDA, and AzDHS
- Motivational Interviewing
- Shared-decision making



FUTURE IMPLICATIONS FOR 85034

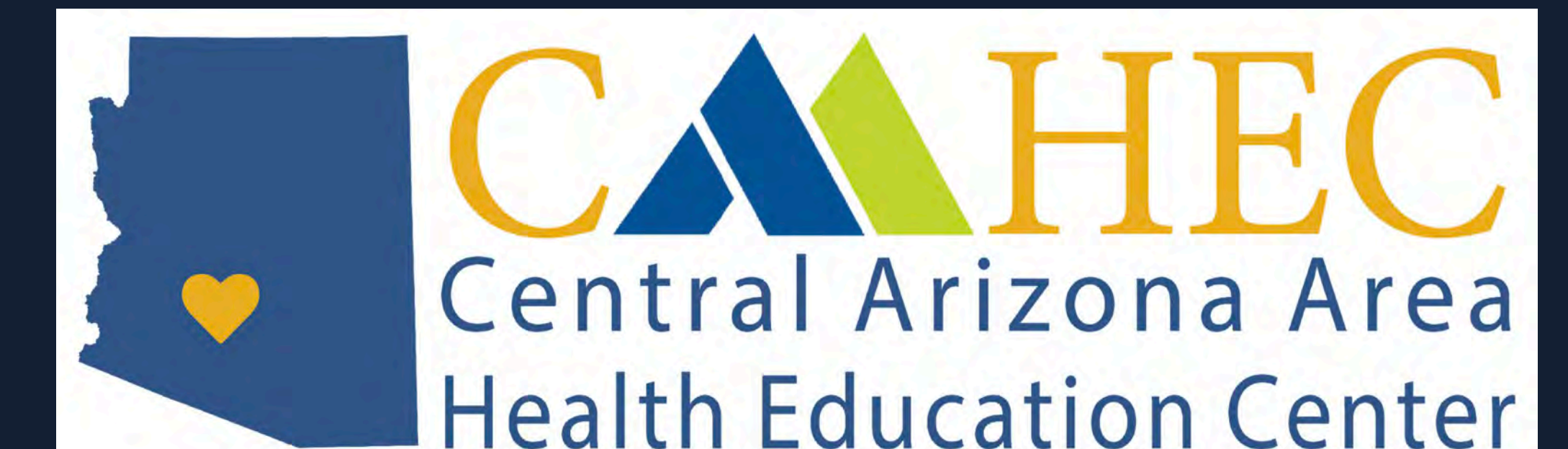
We propose a vaccine clinic at a light rail stop in 85034 to increase vaccine availability and throughput. In addition to vaccinations, education and public outreach should be made available for communities.

Brochures for the public in partnership with community programs such as Street Medicine could help communicate the vaccine clinic to vulnerable populations. Through integration of a multidisciplinary team, further knowledge and research of COVID-19, and distribution of vaccines within our zip code, health and economic disparities will be reduced.

ACKNOWLEDGMENTS

Thank you to our CAAHEC leaders, Lourdes Montez, Carol Moffett, Elias Villarreal, Jr., Sean Clendaniel, and Marni Rawiszer, and to all local community members who provided insight on these communities.

REFERENCES



Depression Management via Telehealth in Primary Care

College of Health & Human Services

School of Nursing

Rachel Heath

Faculty Sponsor: Shelley Vaughn, DNP, FNP-BC

Purpose of the Project

To explore if the management of depression can be effective through telemedicine in primary care.

Setting

A retrospective chart review of 126 patients was examined for telehealth visits conducted between August 2019-February 2021. Located in a rural health clinic in Graham County, AZ.

Exclusion criteria

- Telehealth visit was not an annual well visit (AWV) or clinical performance exam (CPX).
- Patient was cognitively unable to complete PHQ-2 or PHQ-9.
- Documentation showed that an antidepressant was prescribed for something other than depression.

Total excluded 22

Total number of eligible participants 104

Patient Population

Age		Gender		Ethnicity	
18-26	8	Female	85	White	57
26-35	24	Male	19	Hispanic	47
36-45	17				
46-55	21				
56-65	21				
66+	13				

Clinical Question

Will PHQ-9 scores be improved in follow up telehealth appointments after initial screening and interventions were performed in telehealth AWV or CPX?

Review of the Literature

5 articles published between 2014-2017 with sample sizes between 18-609 participants were reviewed.

Key elements showed:

- Surveys demonstrated lower depression scores between 3 & 6 month follow ups.
- For chronically ill patients surveys showed improved problem-solving skills and self-efficacy in managing their medical condition after 12 months.
- Tele-health has been convenient for both HIV patients and providers for depression management.
- Tele-delivery is cost effective and sustainable to reach a large number of underserved older adults.
- 60% of patients showed willingness to complete cognitive behavioral therapy via Telehealth.

Results

PHQ-9	
Score	Patients
0-4 None	59
5-9 Mild	13
10-14 Moderate	19
15-19 Moderately Severe	5
20-27 Severe	1
PHQ-2	
Positive	1
Negative	5

Problem

In rural areas and with the COVID-19 pandemic, there has been a shortage of behavioral health services and an increase in the rate of depression. In rural areas the primary care office is often the only place a patient is screened and treated for depression. It is important to find effective ways to manage depression when a patient is unable to make it into the clinic.

Proposed Best Practice

1. Identify the problem.
2. Assess for SI/SH implement safety plan.
3. Eliminate other potential risks/causes (order labs).
4. EKG should be ordered prior to initiating TCA therapy.
5. Non-pharmacologic management.
6. Pharmacologic management
7. Reassess and make adjustments as indicated.

Conclusion

In summary of the retrospective chart review: 37.5% of patient identified were already taking antidepressants. 74% of patients scored mild to no depression as reflected on PHQ-2/PHQ-9 scores. 24% of patients scored moderate to severe on the PHQ-9. Of these patients, 3 patients scored a PHQ-9 greater than 10 but was offered no intervention. 3 patients were offered interventions, but no follow up was performed within 1-6 months. **There were 7 patients offered interventions and 100% of them showed lower PHQ-9 scores in 1-4 telehealth follow up appointments.**

Literature has shown that telehealth is a convenient and effective way to treat depression. It is important to conduct screening at every AWV or CPX, make interventions and follow up to make adjustments as appropriate.

Depression screening and chronic pain

College of Health & Human Services

School of Nursing

Stacy Stephens

Faculty Sponsor: Dr. Shelley Vaughn FNP-BC

Purpose of the Project

Chronic pain has been shown to create a state of stress and often induce depression, affecting patient's prognosis and outcomes of therapy.

Educate providers, MAs, nurses to the importance of depression screening tools that can facilitate early detection of depression in patients with chronic pain to increase patient outcomes.

Problem

Patients with concurrent depression and chronic pain are more likely to report higher pain scores, demonstrate a lower pain threshold, and have an inability to cope with pain.

Failure to continuously assess for depression in patients with chronic pain can lead to higher reported pain scores if depression is not recognized and treated.

Setting

Primary care clinics in Pima County.

Patient Population

Adult patients age 18 or older with chronic pain.

Clinical Question

In adult patients with chronic pain does the early identification and management of depression using a screening tool decrease reported pain scores compared to patients with unidentified depression?

Review of the Literature

¹90% of all chronic pain patients will develop depressive symptoms at the same time or following a diagnosis of chronic pain. This demonstrates the importance of screening all chronic pain patients for depression and the necessity of offering counseling and/or support services to individuals with chronic pain.

The link between depression and chronic pain within numerous studies demonstrates the implication of administering more frequent depression screening in patients with chronic pain. Utilizing a depression screening tool in primary care settings can facilitate early detection of depression and treatment to improve patient outcomes.

²The correlation of the severity of depression and reported pain scores shows emotional distress and depression can increase physical pain. Study provided that 10.1% of patients reporting severe pain reported moderate to severe depressive symptoms.

Chronic musculoskeletal pain is commonly followed by depression and/or anxiety, when co-occurring if either is left untreated it may negatively affect the response to treatment of the other.

Proposed Best Practice

Patients with chronic pain should be assessed for depression at initial visit to establish a baseline depression score and every visit there after for early detection and treatment/interventions for depression symptoms.

US Preventive Services Task Force (USPSTF) recommends screening all patients for depression during all routine visits or with a selective approach when clinical red flags are present, which includes chronic pain.

Conclusion

Recommend all providers practice annual data review to note if meeting screening 100% of patients with chronic pain for depression.

Recommend educating clinical staff on the use of depression screening tools such as PHQ-9.

Recommend primary care sites have resource handouts for patients experiencing depression along with chronic pain.

Diagnostic Differentiation: Latent Autoimmune Diabetes in Adults

Amy Carney PAS-II and Jacob Gubler MMS, PA-C

Northern Arizona University, College of Human and Health Sciences
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Latent autoimmune diabetes in adults (LADA) typically presents like type 1 diabetes in older adults and is often misdiagnosed as type 2 diabetes. Lab work for LADA includes testing for islet cell autoantibodies, glutamic acid decarboxylase antibodies, and insulin autoantibodies. C-peptide levels are also measured to monitor β -cell dysfunction. LADA accounts for 2-12% diabetes cases in adults and should be considered in adults with new onset diabetes with low BMI or in those who are resistant to glucose lowering therapies. Earlier diagnosis of LADA leads to better outcomes of preserving β -cell function and ensuring glycemic control.

Case Description

- A 61 y/o male with a h/o thrombophilia secondary to antiphospholipid syndrome and HTN presented for an annual wellness exam
- He complained of progressive, unintentional weight loss of 10lbs and blurred vision for the last 4 months described as difficulties seeing long distance
- Denied any fevers, night sweats, neurologic symptoms, polyuria, or polydipsia
- Annual wellness lab tests were ordered as well as a 2-hour GTT

Physical Examination

- Vital signs: Temp 98.2 °F, BP 120/76, P 66, R 16, and pulse oximetry 99% on room air
- On physical examination, the patient was a tall, thin, well-appearing male in no acute distress
- Visual acuity was 20/50 bilaterally
- The rest of the physical exam was unremarkable

Results

CBC, TSH with reflex to T4, and lipid panel were all WNL

- CMP fasting glucose was 355
- Hemoglobin A1c – 13.7
- EAG – 346

2-hour GTT results:

- Fasting – 375
- 1 hour – 504
- 2 hour – 494

- After the results of the initial labs, patient was started on an SGLT-2 and a GLP-1
- Due to the progressive weight loss and h/o APS additional labs were ordered to rule out LADA
- Order for ICA, C-peptide, and GAD-65

Differences in Clinical and Genetic Features between LADA and T2DM			Differences in Clinical and Genetic Features between LADA and T1DM		
	LADA	T2DM		LADA	T1DM
Age at diagnosis	>30 Years	Adulthood (rarely before)	Age at diagnosis	>30 Years	Childhood/adolescence (rarely in adulthood)
Family history of diabetes	Negative or positive	Frequently positive	Family history of diabetes	Negative or positive	Negative or positive
HLA susceptibility	Increased	Mild increased	HLA susceptibility	Increased	Importantly increased
Onset	Subclinical (rarely acute)	Silent/subclinical	Onset	Subclinical (rarely acute)	Acute
Rate of long-term complications at diagnosis	Low	High	Rate of long-term complications at diagnosis	Low	Low
Risk of acute complications at diagnosis	Low	Mild increased	Risk of acute complications at diagnosis	Low	Increased
C-peptide levels at diagnosis	Decreased but still detectable	Normal to increased	C-peptide levels at diagnosis	Decreased but still detectable	Non detectable (rarely decreased)
Autoimmunity	Mild increased	Absent	Autoimmunity	Mild increased	Importantly increased
Ketosis	Rare	Rare	Ketosis	Rare	Rare
Insulin resistance	Increased/no change	Increased	Insulin resistance	Mild increased	Absent (rarely increased)
β -Cell function	Decreased	Increased or normal	β -Cell function	Decreased (-)	Loss of function
Insulin requirement	>6 Months after diagnosis	Absent or years after diagnosis	Insulin requirement	>6 Months after diagnosis	At diagnosis
Body mass index	Normal (rarely overweight or obese)	Overweight or obese	Body mass index	Normal (rarely overweight or obese)	Normal (or underweight)
Cardiovascular risk	Increased	Increased	Cardiovascular risk	Increased	Increased
Lipid profile	Normal to hypertriglyceridemia	Frequently hypertriglyceridemia and/or hypercholesterolemia	Lipid profile	Normal to hypertriglyceridemia	Normal (especially)

Pozzilli et al., 2018

- ICA - Positive
- C-peptide - 0.3 ng/mL (normal range 0.5-2.7)
- GAD65 - Positive

Course

- Patient advised to stop taking the SGLT-2 and GLP-1 and begin taking Lantus 10 units qhs
- Plan to follow up in 2 weeks to review blood sugar log and titrate Lantus as needed
- Repeat hemoglobin A1c in 3 months
- Those with undiagnosed LADA may initially respond to glucose lowering agents that are not insulin
- As β -cell function declines those with undiagnosed LADA not treated with insulin will quickly become uncontrolled

Discussion

- Effective glycemic control requires the proper diagnosis of LADA which can ultimately help preserve β -cell function.
- β -cell destruction in LADAs occurs more gradually than type 1, but more rapidly than type 2.
- Insulin will slow the rate of β -cell destruction, keep glucose levels controlled, and decrease risk of heart disease.

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Diagnostic Tools for Abnormal Uterine Bleeding

Kaelyn Garner, PA-SII and Richard Dehn, MPA, PA-C
Northern Arizona University, College of Human and Health Sciences
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Abnormal uterine bleeding (AUB) encompasses any changes in the duration, pattern, or quantity of uterine bleeding. One third of gynecologic complaints are AUB.¹ This is seen often not only in gynecology, but also in primary care. The classification system for causes of AUB is PALM COIN. The first four are structural causes: polyp, adenomyosis, leiomyoma, and malignancy/hyperplasia. The last four are non-structural causes: coagulopathy, ovulatory dysfunction, iatrogenic, and non yet classified.² The most common cause is anovulation, which comprises 90% of AUB cases.³ This workup is for non-pregnant reproductive age patients only, as the workup changes drastically if the patient is pregnant, premenarchal, or postmenopausal.

Case Description

A 36-year-old female, G2P2 with an unremarkable past medical history, presented to her gynecologist for menorrhagia x 6 months. She described the menorrhagia as heavy bleeding with large blood clots for the first couple days of each menses. She stated that she had been feeling weak and lightheaded but didn't complain of any other symptoms. Menstrual cycles were regular. She denied dysmenorrhea. The patient was not on any forms of birth control and did not have any previous history of AUB. LMP was the previous week. Pap smear in 2015 was normal. No known family history of cancer. She was not on any medications and had a negative surgical history.

Physical Examination

- **Vital signs:** Temp 98 F, BP 132/81, P 83, R 16, O₂ 98%, BMI 24
- **General:** Patient appeared well and in no acute distress.
- **Skin:** No pallor. Skin is warm and dry with normal turgor.
- **Heart:** Regular rate and rhythm. No murmur.
- **Lungs:** CTA bilaterally. No adventitious sounds.
- **Abdomen:** BS normoactive x 4. No tenderness to palpation. Non-distended. No organomegaly or masses.
- **Genitourinary:** Speculum exam revealed friable 1 cm cervical polyp at 9 o'clock. Stalk of polyp was not visualized. No abnormal discharge. No tenderness on bimanual exam.

Results

The urine pregnancy test was negative. CBC showed normal H&H with a hemoglobin of 12.6 and hematocrit of 37.2%. WBC was low at 2.7. Prolactin was normal at 24.6 and was 24 when repeated fasting. Estradiol was 39, FSH 6.3, and TSH 2.02, all of which were normal.

Transvaginal and transabdominal (TV/TA) pelvic US showed no polyps, fibroids, or cysts. Endometrial stripe was 2 mm.

Polyp and endometrial biopsies were normal. Pap smear was normal. Cultures for bacterial vaginosis, candida vaginitis, trichomonas, gonorrhea, and chlamydia were negative.

Cervical Polyp



Image courtesy of Aron Schuftan MD, Up To Date, Image used for educational purposes

Endometrial Biopsy

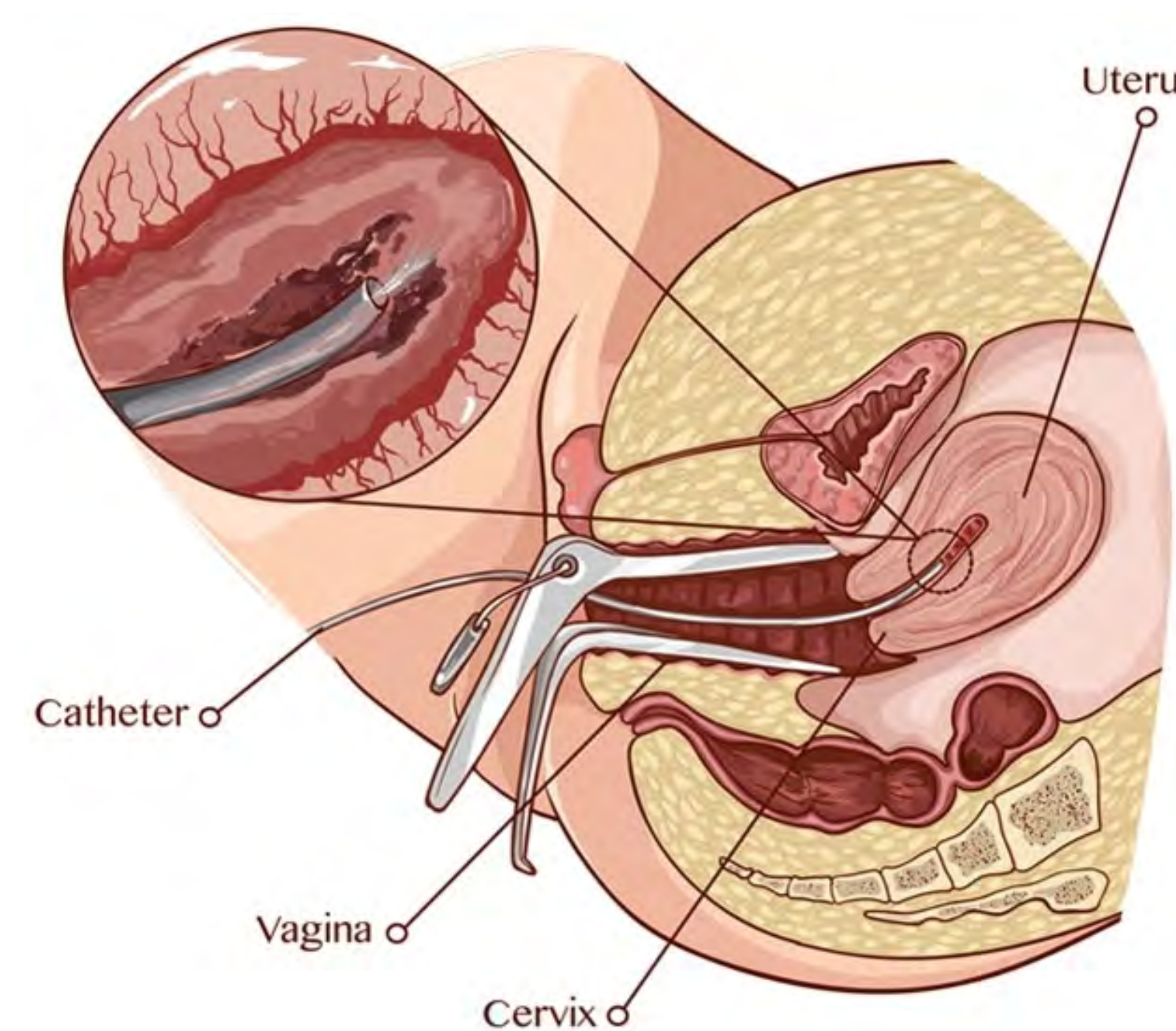


Image courtesy of Heidi Gaddey MD, American Family Physician, Image used for educational purposes

Discussion

The evaluation for AUB should begin by confirming three criteria: the patient is not pregnant, is of reproductive age, and the uterus is the source of the bleeding. A pelvic exam should be performed to identify structural abnormalities.¹

Labs: Laboratory testing includes a CBC with possible ferritin to identify infection, a platelet bleeding disorder, and to ensure the patient is not anemic. Thyroid disorder should be ruled out with TSH. PRL levels rule out prolactinoma or medication side effects. An increase in PRL can also affect estrogen or progesterone levels. Androgen levels rule out congenital adrenal hyperplasia or a secreting tumor. Likewise, estrogen labs rule out an estrogen secreting tumor. FSH and LH evaluate ovulatory function. Lastly, PT, INR, or TT check for a potential coagulation disorder.²

Pathology: Pap smear will rule out cervical cancer. Cultures for bacterial vaginosis, candida vaginitis, trichomonas, gonorrhea, and chlamydia will rule out PID.¹

Imaging: A pelvic US checks for structural abnormalities and measures any increase in endometrial thickness that would indicate hyperplasia or malignancy. A saline sonohysterography could be considered to better view the uterine interior.⁴

Biopsy: Endometrial biopsy to rule out cancer should be performed in any patient with AUB over the age of 35 with risk factors. Other indications for biopsy include US results and persistent AUB with an unidentified cause.¹

This case illustrates the work up of AUB and demonstrates how providers must balance the many diagnostic tools at their disposal.

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E-CIGARETTE AWARENESS AMONG PROVIDERS: HELPING TO DECREASE NICOTINE USE

Analuisa Welch, BSN, RN

Background

Problem

- E-cigarette use is on the rise, affecting mainly the younger population¹.
- There is a need to increase awareness among healthcare providers about vaping; hence, they can counsel their patients against its use. Internal data reports the **need for formal education** about vaping.

Significance

- In 2018, **e-cigarette use** increased by 78% among high schoolers². Currently, its use is labeled as an **epidemic**³.
- Healthy People 2030 has a goal to decrease its use⁴.

Evidence Synthesis

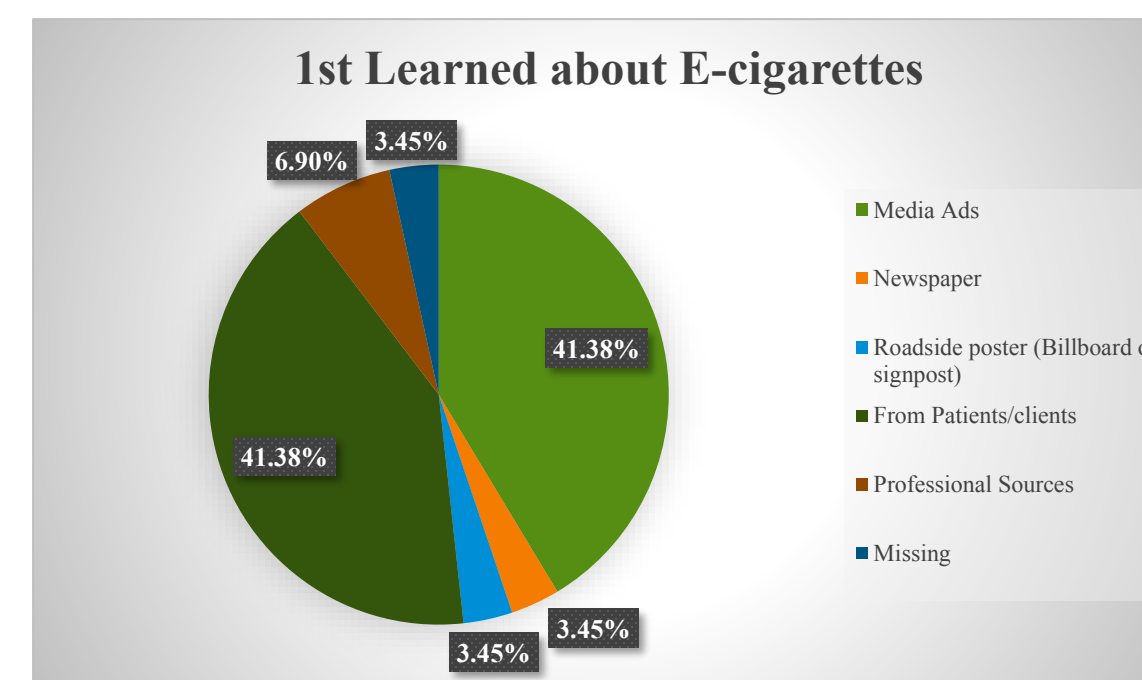
- Evidence reports that healthcare providers learned **first** about e-cigarettes through **informal** sources^{5,6}.
- Few healthcare providers are screening for e-cigarette use^{7,8}.

Project Purpose

- To assess the impact of a **virtual education class about vaping intended for healthcare providers** on the beliefs and attitudes, and intention to counsel against e-cigarettes.

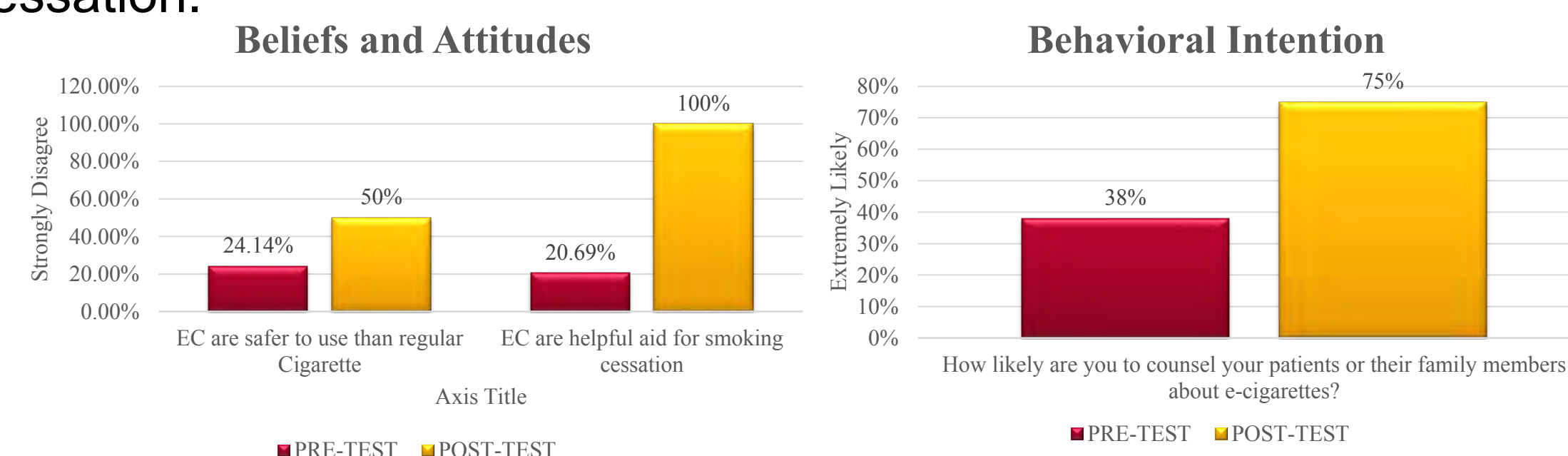
Methods

- Institutional Review Board:** ASU IRB granted on 9/19/2020 - Exempt
- Setting:** Non-profit healthcare system in Southwestern United States
- Participants:** All Advanced Healthcare Providers at the organization over 18 years of age in that state.
- Intervention:** Phase 1 (week 1 to 4): Introduction and Virtual Education period. Recruitment and explanation of project through email with link to the CE education activity. Phase 2: (week 5-6) Post-education survey.
- Data Collection:** Adapted *E-cigarette Knowledge, Beliefs and Attitudes Questionnaire* by Mbe et al. (2017)⁹.
- Data Analysis:** Descriptive Statistics, Mann-Whitney *U* test.



Results

- 89.65% of the providers reported they first learned about e-cigarettes through informal sources.
- For the statement "E-cigarettes are a helpful aid for smoking cessation", there was a statistically significant change in the way the healthcare providers thought about e-cigarette. In the **post-test**, **100%** of the providers **disagree** that e-cigarettes was a helpful aid for smoking cessation.



Discussion

Strengths/Facilitators

- The education was virtual, and the providers were able to access the education anytime.
- The providers were able to gain CME credits.
- Providers gained knowledge about the topic of e-cigarette.

Limitations/Barriers

- COVID-19 pandemic.
- Inability to provide education in person.

Conclusion

Summary

- Increasing e-cigarette awareness among healthcare providers can change their beliefs and attitudes towards e-cigarette use.

Implications

- Acknowledging that providers first learned about the topic of vaping through informal sources can help to decrease the gap by providing formal education.

Future Recommendations

- More research needs to be done about e-cigarettes.
- Policy changes needs to be in place to help with the e-cigarette epidemic.

References



SCAN ME

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Thank you to Dr. Diane Nunez for helping throughout this process, and helping to become a better version of myself. Thank you to Dr. Amanda Dean Martin for helping to make this project possible.

Contact Information: awelch11@asu.edu



Abstract

Purpose: To increase vaping knowledge and self-efficacy for Valle del Sol youth.

Background: The youth vaping epidemic continues to be a public health concern. Prevention through vaping education is an evidenced-based solution.

Methods: Youth aged 11-18 that were enrolled in IOP/TAY groups were recruited for participation in an online 15-minute educational session using the CDC's presentation *Know the Risks: A youth guide to e-cigarettes*. Pre/posttest survey data was collected to measure vaping knowledge and self-efficacy gained by the intervention.

Results: 23 out of 28 participants completed pre/post test survey data. Paired t-test analysis revealed a 7.8-point increase in vaping knowledge ($p=0.06$) and a 0.6-point increase in self-efficacy ($p=0.6$).

Conclusion: Most youth participants (52%) gained knowledge and self-efficacy from the vaping presentation. However, results were not statistically significant.



(MGH, 2020)

Purpose

To increase Valle del Sol youth vaping knowledge and self-efficacy by presenting the CDC's *Know the Risks: A youth guide to e-cigarettes*.

Background/Significance



(Valle del Sol, n.d.)

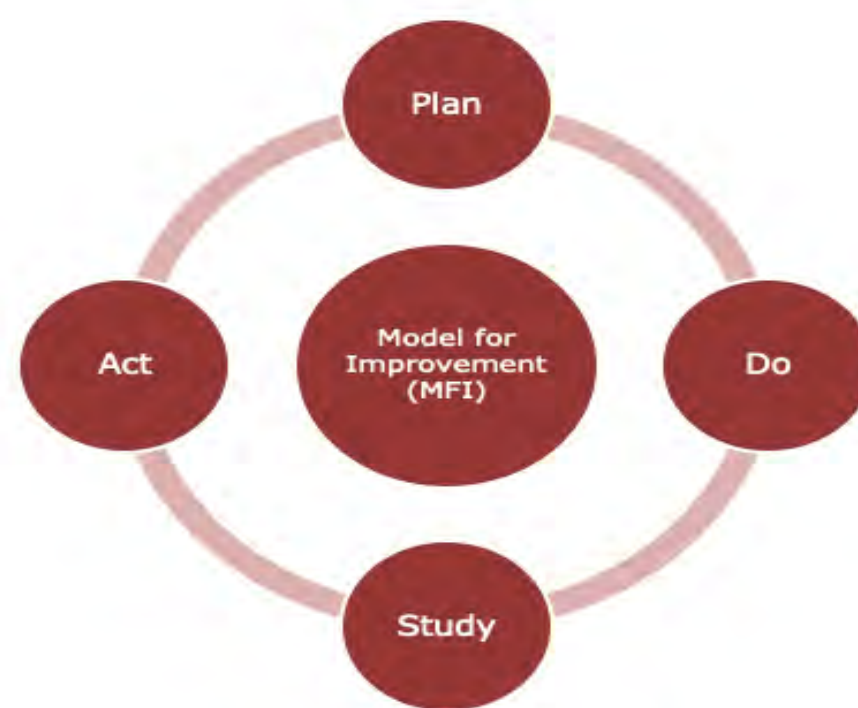


(FDA, 2020)



(CDC, 2020d)

Methods



- ✓ The Model for Improvement was utilized to develop the first Plan-Do-Study-Act for a youth vaping intervention
- ✓ Grounded in the KTA and SCT theoretical frameworks
- ✓ A needs assessment revealed vaping to be a significant clinical problem for Valle del Sol youth
- ✓ The literature was synthesized to identify evidence-based solutions for the clinical problem
- ✓ *Know the Risks: A youth guide to e-cigarettes* was adapted into a pre-recorded VoiceThread presentation to educate at risk youth
- ✓ Youth enrolled in IOP/TAY groups were recruited via word of mouth and guardian consent was obtained
- ✓ Demographic, true/false, multiple choice, and free response survey data was collected before and after the intervention
- ✓ Survey data was analyzed for participant demographics, vaping knowledge and self-efficacy before and after the intervention, and intervention satisfaction

Results

Demographics

- ❖ N= 28 (nIOP= 21, nTAY=7)
- ❖ n= 23 completed pre/posttest
- ❖ Ave age 15.8 years
- ❖ 61% males, 39% females
- ❖ Majority reported NO vaping in past month
- ❖ 25% vaped NIC 20+ days/month
- ❖ 21% vaped THC 0-10 days/month
- ❖ 14/28 participants reported polysubstance use

Vaping Knowledge and Self-Efficacy

Statistic	Knowledge			Self-Efficacy		
	Pretest	Posttest	Diff	Pretest	Posttest	Diff
Mean (SD)	76.5 (22.3)	84.3 (20.3)	7.8 (18.8)	21.7 (6.4)	22.3 (8.1)	0.6 (5.3)
Median (min, max)	90 (20, 100)	90 (20, 100)	10 (-40, 40)	23 (10, 30)	24 (0, 30)	1 (-17, 10)
Mode	90	100	0	30	30	0
t-value	-	-	1.99	-	-	0.5
p-value	-	-	0.06	-	-	0.6

Results Cont.

Intervention Satisfaction

Item	Health	Brain	Lung Damage
Reasons to Stop/Decrease	"It's not good for you mentally and physically"	Development "So that my brain will develop correctly"	"It can mess up my lungs"
Ways to Change	Don't Vape "Just don't do it"	Talk to Someone "Talk to someone who has used in the past and quit"	Say No to Pressure "Practice saying no to it"
Like	Informative "It taught me a lot I didn't know"	Well-Explained "Very well explained and put together"	Extend Knowledge "I can share information to my friends"
Dislike	Nothing "Nothing, I enjoyed everything"	Length "Too long"	Information "Too much"

Discussion/Conclusions

Interpretations

- Discrepancies in self-reported data
- Most gained knowledge and self-efficacy
- ¼ had no change or lost knowledge and self-efficacy
- Free response provided rich information on self-efficacy

Implications

- Results support implementing the next PDSA cycle, with modifications to length and information included
- Continue vaping awareness and education at academic, research, and policy levels

DNP Essentials

- II, VI, & VII

Limitations

- Sample size
- Generalizability
- Self-report bias
- Covid-19 Pandemic

Sustainability

- Intervention resources provided
- Next PDSA cycle outlined

Dissemination

- Executive summary
- Publication

Author Contact Information

Email: capperso@email.arizona.edu

References



Evaluation of Traumatic Knee Pain with Lower Extremity Edema

Patrick Lam, PAS-II and Richard Dehn, MPA, PA-C

Northern Arizona University, College of Human and Health Sciences
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Knee injuries can have various presentations depending on the mechanism of injury. The knee is made up of many ligaments, tendons, and bony structures that work in synergy to produce flexion and extension at this joint. Discovering what anatomical structures were injured requires a thorough physical examination followed up with appropriate diagnostic studies to narrow the differential diagnosis. The following case highlights a traumatic knee injury of a patient that presents with a variety of symptoms.

Case Description

A 50 year-old male patient with no significant past medical history presented to an outpatient internal medicine complaining of an injured knee that occurred 11 days ago. At the time of presentation, he complained of pain in left knee with swelling and bruising in his lower left leg, ankle, and foot. He stated he slipped near his pool and suddenly had to shift all his weight on his left knee. Pain was rated a 7/10 on the pain scale and was present in his left knee and left foot. Patient mentioned the purple discoloration distal to his left knee fades when he elevates it. No numbness, tingling, weakness, or external bleeding was reported.

Physical Examination

- Vital signs: Temp 98.9 °F, BP 135/88, P 90, R 16, and pulse oximetry 98% on room air.
- On physical examination, the patient was in discomfort and on crutches but in no acute distress. Patient's left extremity distal to the knee demonstrated diffuse ecchymosis without tenderness to palpation. Anterior drawer test of the left knee revealed minor laxity and elicited pain. Edema was present from the left knee distally to the foot. Ankle exhibited full range of motion and Homan's sign was negative. Capillary refill was 2+ and left leg elevation resulted in a return to normal skin color.

Lab and Imaging Results

- Wells Criteria was 1.0, indicating low risk for DVT. However, due to the patient's edema and discoloration of the patient's leg, a D-dimer was ordered. D-dimer results were slightly elevated.
- A venous ultrasound of the patient's left lower extremity was ordered as results from the D-dimer were not expected immediately due to the outpatient setting. Results were negative for DVT.
- MRI of the left knee, tibia/fibula, and foot were ordered due the patient's presentation and mechanism of injury.
- MRI of the left knee revealed grade 1 ACL and MCL sprains. Additionally, a nondepressed 6 mm subchondral fracture of the posterior lateral tibial plateau was noted. Small bone contusions at the posterior lateral femoral condyle and the mid-periphery of the medial tibial plateau.
- MRI of the tibia and fibula revealed a mild grade 1 soleus muscle strain with no signs visually suggesting compartment syndrome.
- MRI of the left foot revealed moderate subcutaneous soft tissue edema along the dorsal lateral aspect of the foot and the mid and forefoot. Presence of small intermetatarsal bursal effusions were noted in the first through third intermetatarsal spaces.
- CBC and CMP were unremarkable.

Diagnosis

Patient was diagnosed with a subchondral fracture of the posterior lateral tibial plateau. The ecchymosis distal to his left knee was due to injured vasculature that resulted in pooling of blood in between the fascial sheaths. Additional testing ruled out the possibility of a DVT, potential compartment syndrome, and cruciate ligament tear. As a result, the patient's situation was able to be managed appropriately in an outpatient setting.

Follow-Up

Patient was advised to keep his left leg elevated and avoid weight bearing activities. He followed up four days later with decreased edema and reduced discoloration. He was referred to orthopedics for further management.

Discussion

Having a broad differential facilitates ruling out the worst-case scenario and avoiding future complications. The differential in this case consisted of a DVT, compartment syndrome, ACL tear, and bone fracture. A DVT was considered due to the leg edema and ecchymosis that was present and the time frame since the onset of the injury¹. Compartment syndrome was considered due to the blood pooling between the fascial layers within the lower leg. The bleeding may cause increase pressure within the tissue, leading to compression of the neurovasculature in the leg². An ACL tear or bone fracture were considered due to a positive anterior drawer test and the mechanism of injury. This case illustrates the importance of obtaining a complete patient history, performing a thorough physical examination, and utilizing various diagnostic studies to identify patients at risk for life threatening conditions. Orthopedic injuries can lead to various complications, which makes it essential to have a wide differential^{1,2}.

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Going over ASCVD risk score and starting statins

By: Caryl Garcia

Norther Arizona University
College of Health & Human Services
School of Nursing

Faculty Sponsor: Dr. Shelley Vaughn FNP-BC

Purpose of the Project

Atherosclerotic cardiovascular disease (ASCVD) remains the leading cause of mortality in the world with approximately 17.7 million annual deaths (Bakhai et al., 2018). This calls for providers to discuss each individual patient's risk. If a cholesterol-lowering drug is indicated. Nonadherence to statin treatment is a common issue, and has been shown to lead to an increased risk of ASCVD and mortality (Karr, 2017). The American Heart Association has developed the ASCVD risk score to calculate whether someone's cholesterol level is unhealthy and give information on atherosclerotic cardiovascular disease which is based on age, gender, race, cholesterol and blood pressure readings. This project will go over the importance of going over the ASCVD risk score to help and encourage patients to modify lifestyle and take their statins if prescribed.

Goal: It is crucial to lay out accurate data to patients such as the ASCVD risk score to increase their visual and interest in lipid management in order to prevent possible future life-threatening events.

Clinical Question

Will patients with comorbidities and at risk for cardiovascular events start their statin medication after providers go over their ASCVD risk score with every follow up appointment?



Problem

Statin intolerance is associated with higher rates of recurrent myocardial infarction, other coronary heart disease events, and death (Karr, 2017). It has been found that the clinical use of statins is challenged by high discontinuation rates; perceived intolerance; and nonadherence, with nonadherence rates greater than 50% in some studies (Reston et al., 2020). It is important to analyze whether going over the ASCVD risk score with the patient will help and encourage the patient to modify their lifestyle and take their statins if prescribed.

Setting

Family clinic in Glendale, Arizona

Population

I identified 80 diabetic patients with hyperlipidemia, and no prior lipid-lowering therapy.



Review of the Literature

Adults who are 40-75 years of age and are being evaluated for cardiovascular disease prevention should undergo 10-year atherosclerotic cardiovascular disease (ASCVD) risk estimation and have a clinician-patient risk discussion before starting on pharmacological therapy, such as antihypertensive therapy, a statin, or aspirin (Maganti, 2019).

For adults with intermediate ($\geq 7.5\%$ to $< 20\%$) or high ($\geq 20\%$) 10-year ASCVD risk, a moderate-intensity statin is recommended after a clinician-patient risk discussion (Alfaddagh et al., 2019).

Another study based in North Carolina observed that rates of statin prescription were low, and primary care providers report that a high proportion of patients are unwilling to initiate statin therapy despite their recommendation (Clough et al., 2019).

A gap was found on evidence-based treatment for hyperlipidemia as there was only less than 1% of active, eligible patients had ASCVD risk scores documented in electronic health record using the ASCVD risk calculator (Bakhai et al., 2018).

Some electronic health record do not have an automated and integrated ASCVD risk calculator which makes it harder to promote and go over the risk score with patients as efficiently.

Proposed Best Practice

Go over ASCVD risk score with patients to start a conversation, medication adherence and prevent cardiovascular events. To facilitate decisions about preventive interventions, it is recommended to go over ASCVD Risk score with asymptomatic adults 40-75 years of age in every appointment.

Conclusions

This study sample allowed comprehensive assessment of the observed ASCVD risk scores among adults with clinically recognized diabetes and hyperlipidemia who are at risk for cardiovascular events with no statin therapy.

More questions need to be assessed later on:
-Will these patients continue to take their statins?
-How long will they take their statins for?
-Will they be prevented from having cardiovascular events?
-What barriers and hesitations do they have?

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COMMUNITY HEALTH NEEDS ASSESSMENT (CHNA)

- **Goal:** To outline **healthcare resources** and **social determinants of health** (SDOHs) in Nogales, AZ
- **Goal:** To act as a guide for public resource allocation and policy

OVERVIEW OF NOGALES, AZ

- ~20,000 residents within ~20 square miles
- Located directly on the Arizona-Mexico border
 - Has “twin city” on other side of border
- Majority of citizens → bilingual & Latinx
- Young, tight-knit community

METHODS

- Created in association with immersive RHPP rotation at Mariposa Community Health Center
- Conducted between June and November 2020
- **Primary research** → local exploration and interviews with community stakeholders
- **Secondary research** → online resources
- **Associated SDOHs reviewed** → social and physical environments, economy, and individual behaviors

FINDINGS

- Higher life expectancy but lower quality of life
- **Common morbidities** → diabetes, obesity, psychiatric conditions
- **Common mortalities** → cardiovascular disease, various forms of cancer
- **Arizona and Federal Medically Underserved Area**
 - High ambulatory care sensitive conditions
 - High population-to-provider ratios
 - Highest level of barriers to healthy living
- **Greatest health-related assets**
 - Recreational facilities
 - Mariposa Community Health Center
 - Food resources and availability
 - Individual behaviors
 - Public safety

HEALTH-RELATED PRIORITIES FOR NOGALES, ARIZONA:

- Public transportation services
- Income disparities
- Healthcare providers
- Educational resources
- Pollution and water quality



DANIEL TELLEZ

Pharmacy Intern, P2
dctellez@pharmacy.arizona.edu



Photo: Hampstead, John Paul. "A Section of the U.S.-Mexico Border Wall in Texas." *FreightWaves*, FreightWaves, Inc. 3 Apr. 2019. www.freightwaves.com/news/trade/white-house-trump-would-let-trucks-cross-border.



Scan to view entire CHNA



ABSTRACT

Purpose: Implement a Migrant Well-Child Health Toolkit at CAWC, a manual and screening process for providers when conducting comprehensive well-child examinations on migrant children.

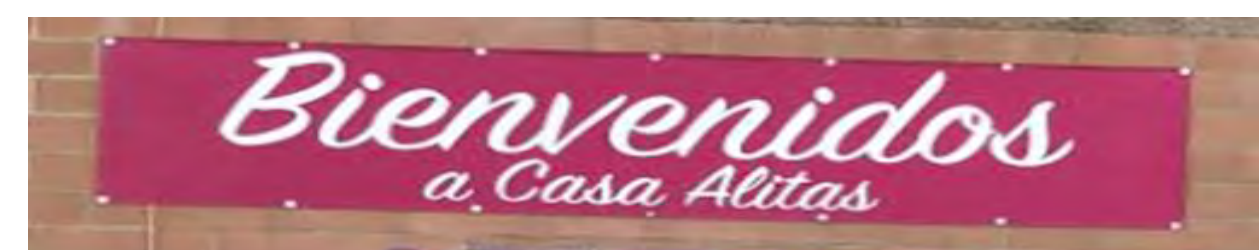
Background:

- AZ is 1 of 10 U.S. states that houses nearly 3/4 of children in immigrant families.
- The migrant population is more likely to immigrate with pre-existing conditions and exposure to traumatic events.
- Conducting well-child assessments on newly migrated children will prepare them for school entry, identify immediate health needs, assess developmental milestones, and ensure vaccinations are up to date.

Method: Uses a pre- and post-survey design with an educational intervention, the Migrant Well-Child Health Toolkit and PPT presentation.

Results: (N=10) participants completed the pre- and post-surveys with an overall 10.8% response rate. All outcomes met; increase in provider knowledge in migrant child health, confidence in performing well-child health screenings, and intent to conduct well-child health assessments at CAWC. 90% (n=9) of CAWC providers indicated that the toolkit contains the resources necessary to conduct well-child screenings on migrant children.

Conclusion: The data proves an initial step to inform future efforts that promote health equity and guides an implementation strategy to integrate the Migrant Well-Child Health Toolkit into clinical practice when caring for migrant children.



PURPOSE

To introduce the Migrant Well-Child Health Toolkit to promote provider participation in conducting well-child exams at CAWC and educate them on the use of the toolkit. The project offers an initial validation of the toolkit.

BACKGROUND/SIGNIFICANCE

- Migrant/immigrant children live in all 50 U.S. states and by 2065, 18% of the U.S. population will be foreign-born.
- Migrant children face considerable health risks- diseases, lack of access to antenatal screening, vaccination programs, healthcare, political instability, war, poverty, poor hygiene, and insufficient nutrition.
- Migrant children are twice as likely to be uninsured and less likely to have a usual source of medical and specialty care.
- The AAP advises to use available screening and diagnostic protocols for evaluating foreign-born children for medical conditions and other infectious diseases.
- CAWC- first migrant shelter in the U.S. to conduct well-child screenings on migrant children.
- A comprehensive well-child medical evaluation includes screening for and management of chronic illnesses, immediate health needs, developmental milestones, vaccinations, and trauma.

METHODOLOGY

- Pre-and post-survey design
- PI developed a Migrant Well-Child Health Toolkit comprised of current recommendations from AAP, CDC, WHO, Bright Futures Guidelines, SAMHSA, and Arizona's EPSDT program.
- Project included:**
 - Pre-survey-** assessed the providers' knowledge of conducting well-child examinations on migrant children.
 - Asynchronous PPT presentation-** 20-min. PPT
 - Post-survey-** assessed their learning and readiness to implement the educational intervention.
 - Two weeks to implement (7/20/20-8/3/20).
- Data analyzed using the Google Forms Survey system.

RESULTS

- N= 93 eligible providers; 10 participants (6 MDs, 1 DO, 3 NPs) completed all project components.

- 80% had 21+ years of family practice or pediatric (incl. sub-specialties) experience.

Knowledge in Migrant Child Health

- 30% had previous experience conducting well-child screenings on migrant children.
- 70% reported gaining new knowledge on migrant child health in the post-survey.
- 60% had not heard of TIC in the pre-survey, and 100% answered the definition of TIC correctly in the post-survey.

Confidence in Performing Well-Child Health Assessments

- 70% *very comfortable* to *comfortable* in conducting well-child screenings using an EPSDT form in the post-survey compared to 50% *very comfortable* or *neutral* in the pre-survey.

Intent to Conduct Well-Child Health Assessments at CAWC

- No change in pre-post survey in interest in conducting well-child screenings at CAWC.
- The likelihood of providers conducting well-child assessments increased by 40%.

Initial Validation of the Toolkit

- 90% of CAWC providers reported the toolkit contains the resources and information necessary to conduct well-child screenings.

MIGRANT WELL-CHILD HEALTH TOOLKIT



"Cultural differences should not separate us from each other, but rather cultural diversity brings a collective strength that can benefit all of humanity." -Robert Alan Auerth

Author: Adriana Warne, DNP-FNP Candidate, BSN, RN

Page 1

DISCUSSION

- Providers with 16-21+ years of pediatric clinical experience gained confidence and new knowledge in conducting well-child assessments on migrant children.
- Likelihood of CAWC providers conducting well-child assessments increased by 40%.
- Provider familiarity of the CDC's immunization catch-up schedule increased by 20%.
- The results of this study revealed the importance of healthcare providers understanding TIC when caring for migrant families.

Limitations

- Small sample size indicating lack of generalizability.
- Post-survey did not identify barriers to conducting well-child assessments at CAWC.
- Possibility of providers needing additional training in conducting well-child screenings.

Sustainability

- Currently, reduced number of migrants seen at CAWC due to COVID-19.
- Plan to continue well-child clinic pilot program and utilizing the toolkit to conduct well-child screenings once the number of migrant children arrivals to CAWC increases.

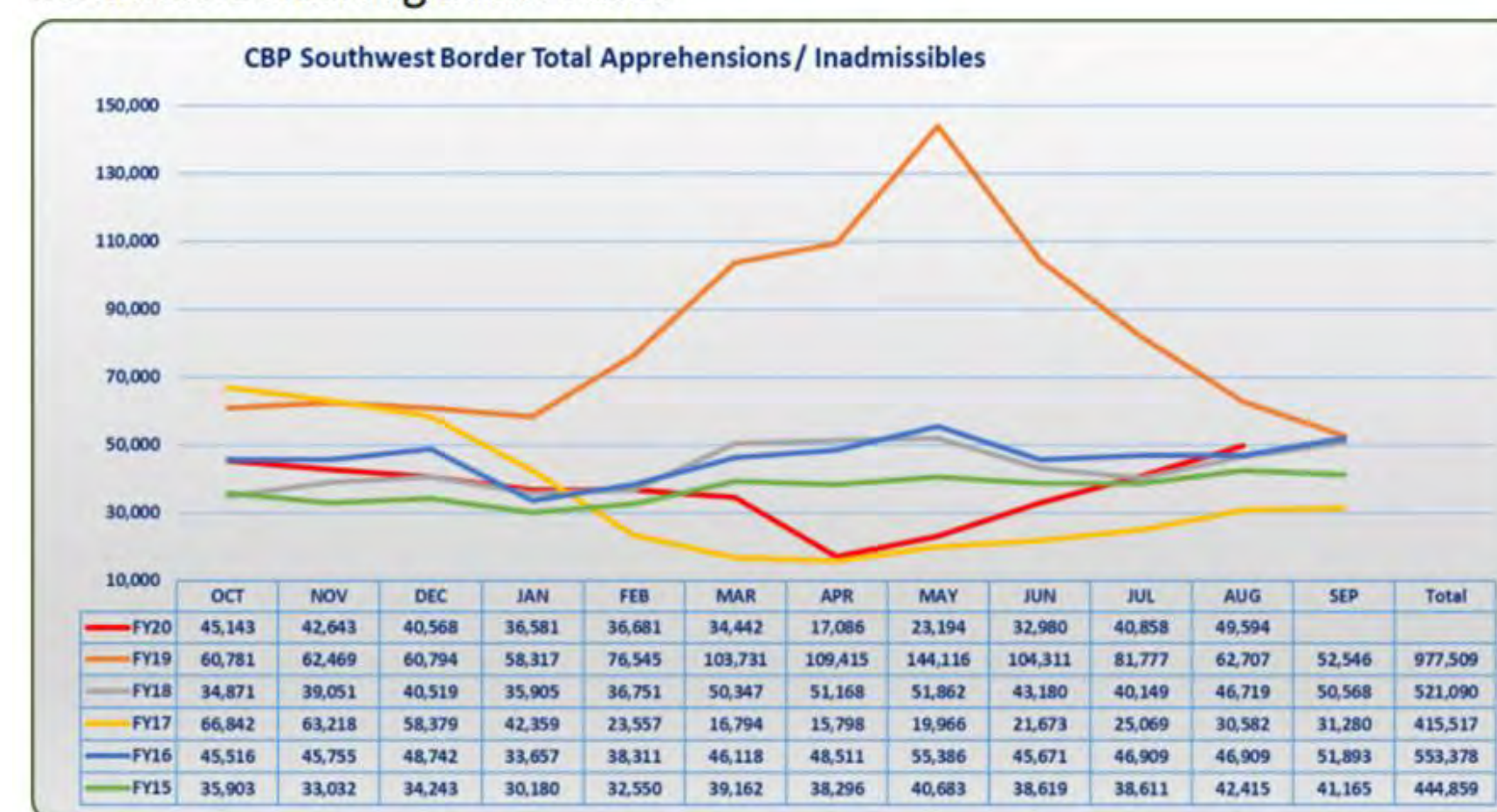
Dissemination

- Dissemination of project's findings to CAWC stakeholders completed on 10/30/20.
- CAWC in collaboration with UNICEF and Save The Children to present the toolkit to other U.S.-Mexico border shelters.
- 2021 AANP poster presentation submission and AANP article publications are currently pending.

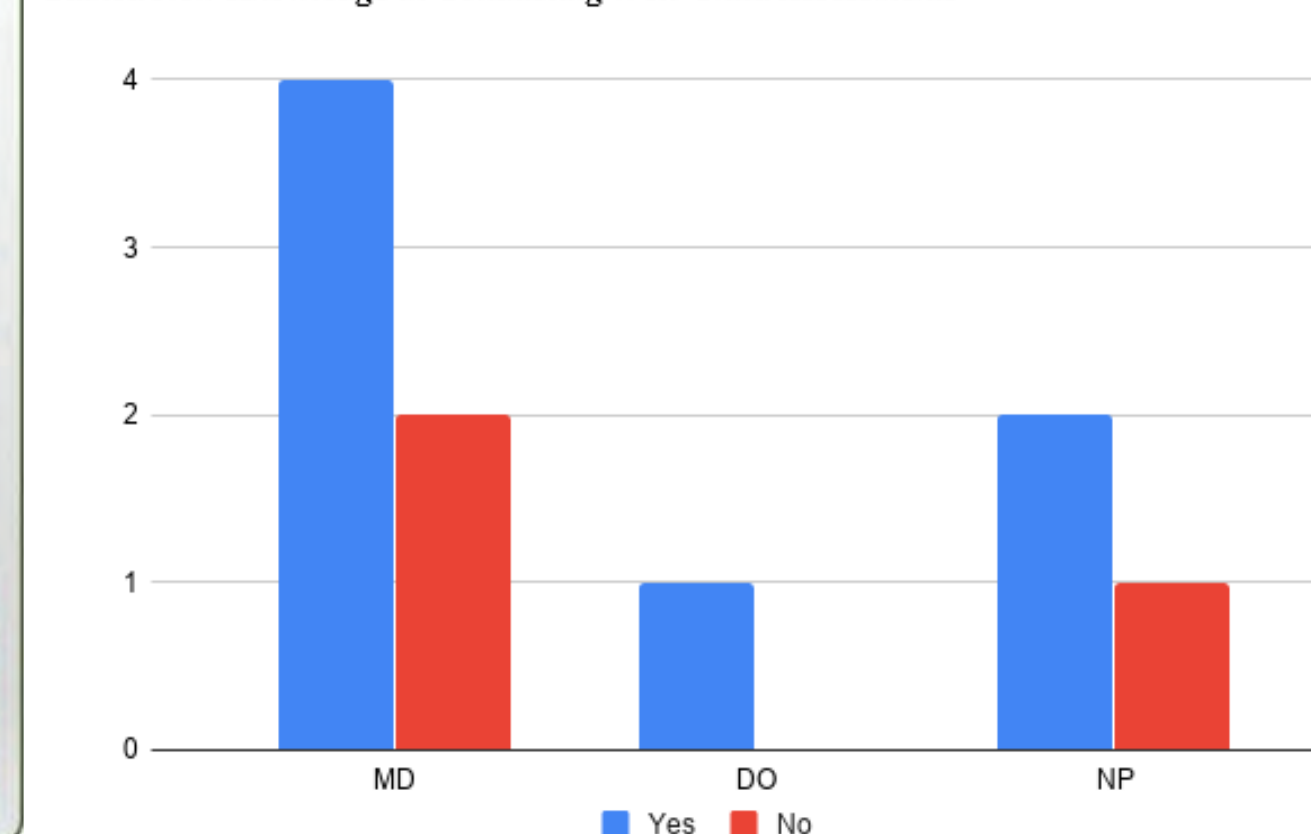
CONCLUSION

- The project met its outcomes.
- Current literature recommends that all healthcare providers caring for migrant children should evaluate their immunization adequacy, developmental surveillance, mental health, and physical health upon arrival to the U.S.
- This project has the potential to change the way care is delivered to migrant children in shelters across the U.S.-Mexico Border.

Southwest Border Migration FY 2020



Gained New Knowledge in Conducting Well-Child Assessments



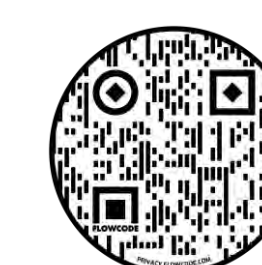
Author Contact Information:

Adriana Warne-
awarne@email.arizona.edu

Migrant Well-Child Health Toolkit



References



Purpose of the Project

To examine the primary care clinician's less than optimal ability to both recognize and manage patients with CKD, barriers to optimal management and identify potential improvement models to enhance guideline compliance.

Setting

Literature review of CKD management in the primary care setting, perceived barriers to optimal implementation, and strategies directed to improve guideline compliance.

Patient Population

Current management included 175,334 CKD patients from 301 practices in the US & UK, & 410, 409 individual CKD patients with clinical data stored in the ICES in Ontario Canada. Barriers included a systematic review & independent study including over 800 PCPs. Management improvement included 63 primary care practices and over 150, 000 patients, 14 APN primary care providers with pre, post and 30-day post intervention follow up, and a systematic review of 18 articles containing relevant CKD interventions in primary care totaling 45,496 patients

Problem

Currently, PCPs provide most of the care management for patients with early CKD. However, literature on the PCPs ability to both recognize and manage patients with CKD highlights areas for improvement.

Clinical Question

If additional education on CKD screening and management within the adult primary care provider population improves the quality of CKD detection and management in primary care when compared to providers without additional education?

Review of the Literature

Evaluation of Quality of Management

- ¹ 70% did not have uACR, 46% did not reach BP target, 25% did not receive ACE/ARB, 24% lacked anemia screening, and 26% used potentially harmful drugs.
- ² Only between 13.9% and 37% had annual uACR or uPCR 27 Adequate monitoring observed in 42% patients, metabolic parameters 2%, correct identification of CKD 31%, and reaching BP targets in 43%.
- ³ Less than 50% received follow-up tests after initial abnormal result, 70% received annual uACR testing, 16% received a NSAIDs prescription, ~ 75% were on an ACEi or ARB, with 25% of them receiving repeat labs within 7-30 days, and 65% were on a statin.

Identified Barriers

- ⁴ Lack of time, poor patient knowledge of CKD, guidelines perceived as confusing and difficult, inappropriate and frequently changing.
- ⁵ Barriers to developing nephrology partnerships, lack of timely information, and unclear roles and responsibilities.

Improvement Strategies

- ⁶ Intervention group received quarterly CQM, on-site visit, 2 webinars, and attended a "best practice" meeting. 21% increase in annual uACR, 5% decline in NSAID avoidance, with no significant changes in 8 if the remaining CQMs.
- ⁷ 14 APN PCPs attended an educational meeting on guidelines. Increase in knowledge post-intervention with questionable gains at 30 day follow up due to subject losses.
- ⁸ Comparing effectiveness of eCDSS alone versus eCDSS plus PF. Decrease in annual eGFR decline in eCDSS plus PF group (0.01) versus eCDSS (0.95). HbA1c decrease in eCDSS plus PF (-0.009) & rise eCDSS (+0.14). No differences in SBP management, NSAIDs, and ACE/ARB prescriptions.
- ⁹ Systematic Review to identify themes relevant to effective PCP CKD interventions. Themes identified were effective management of resources, and interventions which were similar with existing practices were more readily accepted.

Proposed Best Practice

Enhanced classification framework. Management and prevention of disease progression; individualized BP targets, annual diagnostic testing, prescribing ACE or ARBi when appropriate, glycemic control, monitoring salt intake, hyperuricemia, evaluation of anemia, metabolic bone disease, Vitamin D, serum phosphate, acidosis, consideration of diuretics, antiplatelet and cholesterol lower medications, medication management (GFR consideration, avoid nephrotoxic medications, monitoring of vaccination records, and timely referrals to specialist.

Conclusion

Accurate PCP identification and management of CKD patients is essential in order to optimize outcomes. Research on the effectiveness of identification and clinical interventions targeting CKD in primary care have shown mixed results. Furthermore, there is limited data in the literature on the effectiveness of clinical decision support strategies on the improvement of quality of care. The existing body of research highlights the need for better integration of researchers and clinicians in the design and evaluation of future models of care.

¹ (Allen et al., 2010), ² (Fraser et al., 2015), ³ (Nash et al., 2017), ⁴ (Neale et al., 2020), ⁵ (Greer et al., 2019), ⁶ (Litvin et al., 2020), ⁷ (Medina-Rosas et al., 2015), ⁸ (Carroll et al., 2018), ⁹ (Tsang et al., 2016)
Abbreviations: CKD chronic kidney disease, ICES Institute for Clinical Evaluative Sciences, uPCR urine protein to creatinine ratio, uACR urine albumin-to-creatinine ratio, ACEi Angiotensin-Converting Enzyme Inhibitor, ARB Angiotensin Receptor Blocker, NSAID nonsteroidal anti-inflammatory drugs, CQM clinical quality measure, eCDSS electronic clinical decision support system, PF practice facilitation

Improving Colorectal Cancer Screening Rates in a Rural Health Clinic

College of Health & Human Services

School of Nursing

Garrett Willer

Faculty Sponsor: Dr. Shelley Vaughn FNP-BC

Purpose of the Project

Up to one-third of eligible patients don't get screened for colorectal cancer (CRC). Regular screening can significantly reduce CRC deaths. This project produced an evidence-based guideline and recommended change of practice for CRC screening in rural Arizona primary care clinics.

Setting

Rural health clinics in Gila and Graham counties, Arizona

Patient Population

²Male and female patients 45 years old and over; patients that the guidelines recommend should have a CRC screening that receive care at a rural health clinic in Arizona.

References

- ¹ (Castaneda et al, 2020) ² (US Preventative Services Task Force, 2020)
³ (Gruner, Hoffmeister, Ludwig, Meny, & Brenner, 2020) ⁴(Arnold et al, 2016)
⁵ (Chen et al, 2019)

Clinical Question

Will offering patients a choice of colonoscopy or Fecal Immunoassay Test (FIT) with FIT provided in clinic for patient to take home with postage paid return envelope improve CRC screening rates in a rural outpatient clinic?

Review of the Literature

- ¹Mailing FITs alone or a FIT kit with in-person education tripled the CRC screening rate in Hispanic patients near the Mexico-California border
³ Providing patients with a FIT in the clinic or via mail and following up with a letter increased CRC screening completion rates by nearly 30%
⁴ Mailing FIT's and a nurse follow up phone call increased CRC screening completion rates over a 3-year period at 3 separate Federally Qualified Health Centers
⁵Offering a choice between colonoscopy and Fecal Occult Blood Testing increased CRC screening rates

Problem

¹Colorectal cancer (CRC) is the 2nd leading cause of cancer death in the U.S. Early detection can improve outcomes but patients in rural settings are at increased risk of inadequate testing. Arizona has a large, rural Hispanic population with an increased risk of CRC.

Proposed Best Practice

1. Offer in-clinic eligible patients a choice of colonoscopy referral or FIT to take home or via mail
2. Follow up at 2 and 4 weeks for non-completed FITs

Conclusion

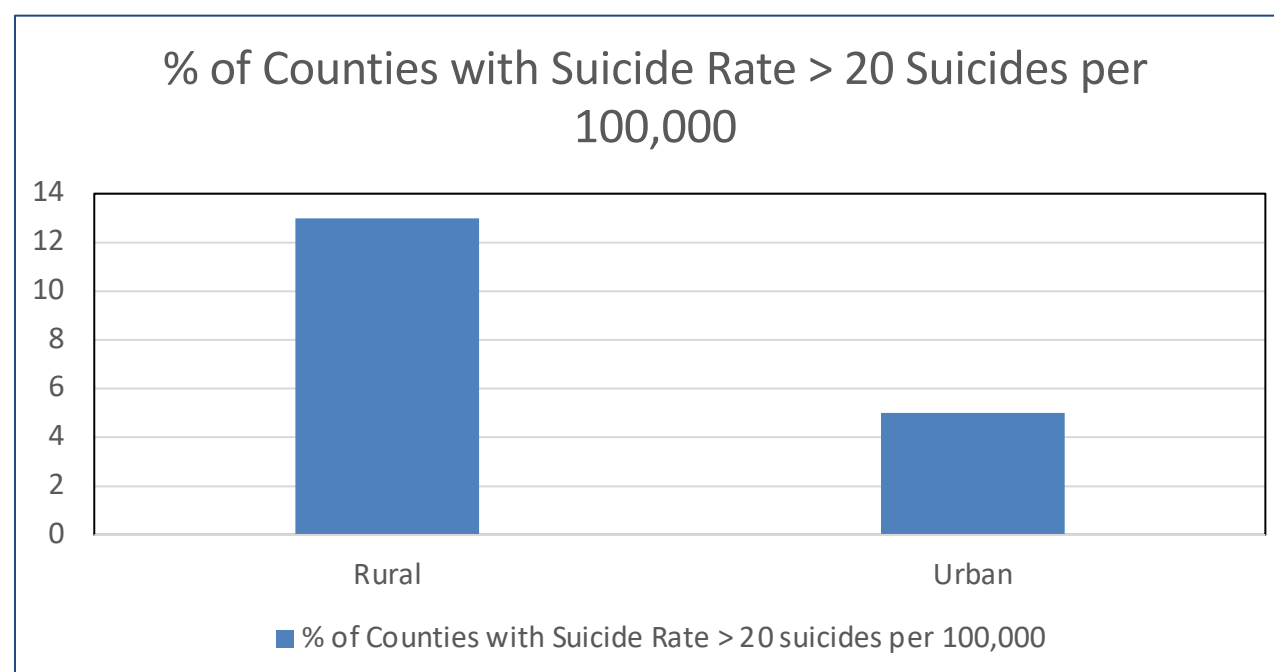
Evidence is substantial that CRC screening rates can be improved and sustained. Education at Cobre Valley Regional Medical Center Primary Care Clinic to physician preceptor, clinic RN and recently licensed FNP, and Medical Assistant staff.

Increasing Eating Disorder Screening & Telehealth Treatment in Rural Communities

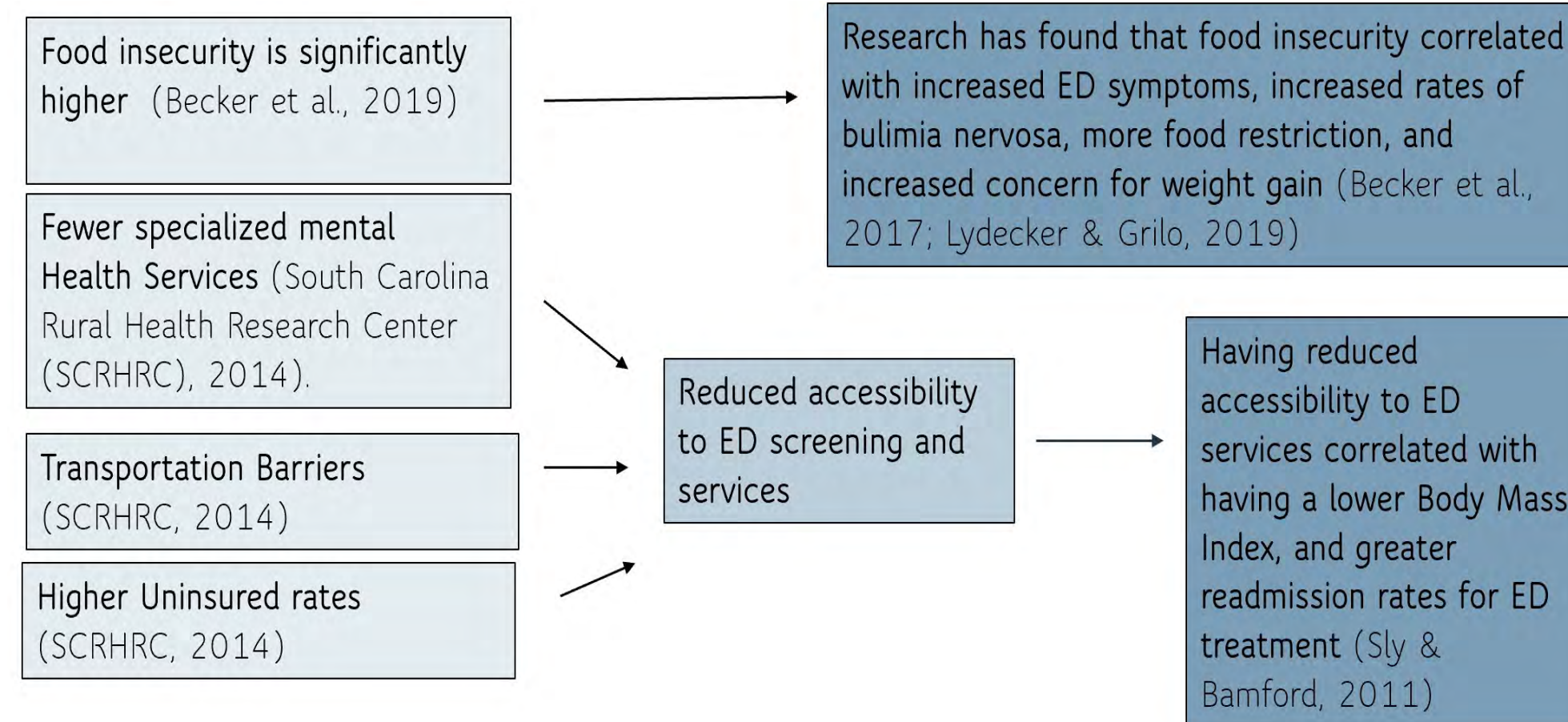
Jessica Capps, BSN, RN, DNP-PMHNP Student; Amanda Keenhold, BSN, RN, DNP-PMHNP Student

Problem Background

- Eating disorders (ED) have high prevalence rates with 10% of women experiencing an eating disorder within their lifetime (Smink et al., 2012)
- Only half of Americans diagnosed with an ED receive specialized ED treatment (Ward et al., 2019).
- Rural health communities has fewer specialized ED treatment services (Alman et al., 2014). Lack of specialized services has correlated with increased patient deterioration, more medical complications, and greater hospitalization rates (Schmidt et al., 2016)
- ED have high comorbidity rates with several mental health conditions, which is estimated to range from 45 to 95% depending on the study and mental health diagnosis (Herpetz-Dahlmann, 2015).
- Providers in rural communities have identified contributors to reduced ED treatment referral, which correlated with perceptions of poor ED prognosis, and knowledge deficits in differentiating ED from various other mental health conditions (Evans et al., 2020).
- Mortality rates of ED are the highest of all mental health conditions, with 20% of deceased patients with Anorexia Nervosa dying as a result of suicide (House et al., 2012; Smink et al., 2012). Suicide rates in rural counties are significantly higher compared to urban counties, which may also indicate increased ED mortality risk (Rossen et al., 2018).

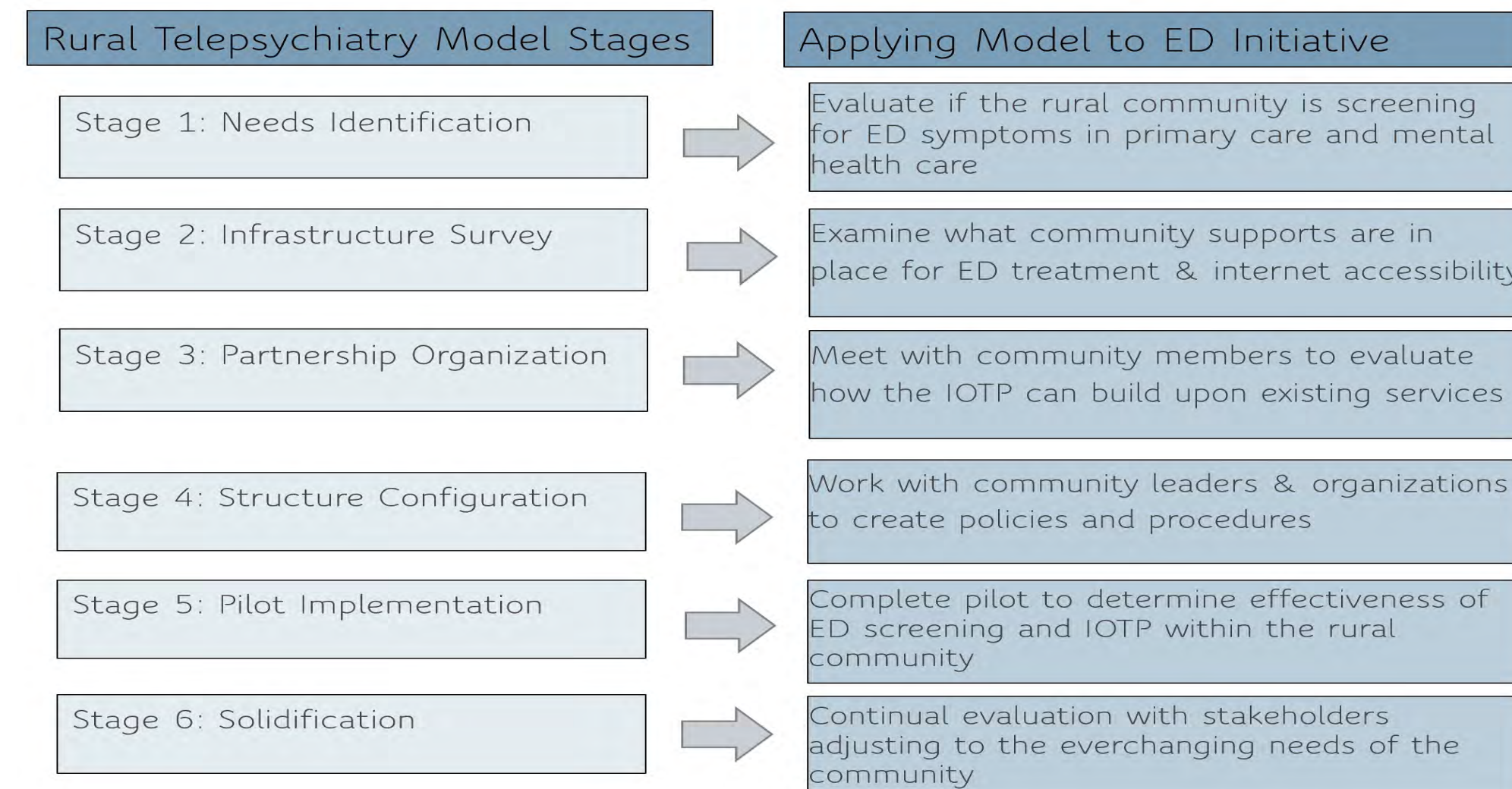


Rural Health Disparities Contributing to Increased Eating Disorder Risk Factors



Theoretical Application

- Application of the Rural Telepsychiatry Model created by Shore & Manson (2005) can assist in the development of an intensive outpatient telehealth program (IOTP) through the incorporation of six stages of program development.
- Community partnership is key.



(Shore & Manson, 2005)

Implications and Recommendations

- ED screening is frequently missed in outpatient mental health practice. The Sick, Control, One Stone, Fat and Food Screening tool can flag patients that potentially meet ED diagnostic criteria (Morgan et al., 1999).
- More research needs to be completed evaluating ED prevalence within rural communities related to evident risk factors. Further assessment of how these barriers impact specialized ED treatment would also be beneficial.
- The institution of an IOTP can expand accessibility for specialized ED services.
- Incorporating an interdisciplinary team will require significant buy-in through highlighting the risk of mental health comorbidity, rural health disparity risk factors, and the benefits of IOTP implementation.
- The recent increase in telehealth services with the current pandemic may attribute toward increased willingness to utilize this treatment modality for patients with ED in rural populations.

Conclusion

- The purpose of this poster is to emphasize the need for increased surveillance and specialized treatment for ED in rural communities.
- The Rural Telepsychiatry Model can aid in program development for incorporating the IOTP.
- Instituting an IOTP for patients with an ED diagnosis can improve patient outcomes in rural communities.
- Expanding ED research will be pivotal for further knowledge dissemination.

References



Increasing Psychotropics Adherence in Patients With Schizophrenia Using M. Interviewing

BILLEDALLEY, RN, BSN, DNP-PMHNP

Purpose

- This Quality improvement project is to evaluate the effectiveness of Motivational Interviewing (MI) by healthcare providers to improve psychotropics adherence in patients with schizophrenia

Background

- Schizophrenia is a psychiatric illness with a high incidence of patients not adhering to their psychotropic medication (Haddad et al., 2014).
- Nonadherence to psychotropics is a harmful behavior. This behavior influences the effectiveness of the medication, resulting in poor outcomes for patients with schizophrenia and other psychiatric diseases (Chaudhari et al., 2017).
- Antipsychotic medication reduces the severity of the symptoms and improves the patient outcome only if taking as ordered (Hartling et al., 2012).
- 75% of patients with schizophrenia discontinue their antipsychotic drug treatment within 18 months (Dobber et al., 2018)

Theoretical Framework

The Transtheoretical Framework and stages of change



Methods

- The design is a pre and post-test design to assess medication adherence pre- and post-interventions in patients with schizophrenia.
- The primary outcome of this study will be medication adherence. The pre-test will be administered before the in-service to determine the provider's level of knowledge
- Then the intervention and the first post-test. The second post-test will be distributed after three weeks to evaluate change.

Results

- Literature has supporting evidence that MI promotes medication adherence in patient with schizophrenia and other behavioral health problems.
- Implications**
- Implementing MI as a standard protocol tool in treating patients with schizophrenia has shown evidence supporting medication adherence, managing of symptoms, and changing the patient's attitudes towards their medication.
- MI is an effective intervention to enhance a patient's motivation to change behaviour. Patients with schizophrenia are often ambivalent; however, mental health nurse practitioners and psychiatrists can support them in solving this ambivalence.

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Initiation of long-term antihypertensive therapy in a patient with hypertensive crisis

Ruth Montoya PAS-II and Bettie Coplan, PA-C,
Northern Arizona University, College of Health and Human Sciences
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Hypertensive crisis is defined as having a blood pressure over 180 SBP (systolic blood pressure) or over 120 DBP (diastolic blood pressure).¹ Someone with hypertensive crisis is evaluated for signs of end organ damage, including myocardial infarction (MI), acute kidney injury (AKI), and stroke. If end organ damage exists, the condition is considered a hypertensive emergency.² After the acute episode resolves, long-term antihypertensives are often initiated. Determination of what long-term antihypertensive would work best depends on the patient's current conditions.

Case Description

A recently established 72-year-old white male patient with a history of benign prostatic hyperplasia (BPH) presented to an internal medicine office. He admitted that his BP the previous night had been 208/104. He reported he had chosen not to go to the emergency room even though he had experienced a headache, blurry vision, and decreased urinary output. During the visit, the patient stated that he felt well and was not experiencing any symptoms. He denied current chest pain, nausea, vomiting, shortness of breath, blood in the urine, visual changes, or headache. He admitted he continued to have decreased urinary output, but he was not concerned about this because he had experienced that symptom for years due to his BPH. He reported he had been without medical care for the past ten years.

Physical Examination

- Office blood pressure was 175/110.
- The patient appeared concerned about his elevated blood pressure readings but was not in acute distress.
- Pulmonary exam revealed that lungs were clear to auscultation bilaterally.
- Cardiac exam revealed regular rate and rhythm without murmurs.
- Examination of the extremities did not reveal any lower extremity edema, and pedal pulses were 2+ bilaterally.

Results

	9/1/20	9/4/20	9/11/20	9/14/20	9/21/20	10/5/20
BP	170/110	160/90	145/90	165/110	157/100	132/82
Labs	Drawn	Cr: 1.54 GFR: 45	Cr.: 2.28 GFR: 27	None	Cr: 2.19 GFR: 32	Cr.: 1.42 GFR: 52
Baseline: Cr: 1.04 GFR: 71			referral to nephrology			
Symptoms	Mild urinary retention	Mild urinary retention	Dizziness and mild urinary retention	Dizziness and worsening urinary retention	Symptoms resolved	
Medication management	Clonidine	Started lisinopril and tamsulosin	Discontinued tamsulosin	Discontinued Lisinopril; Started amlodipine; Continued tamsulosin	Increased amlodipine	

- **9/1/20:** Due to a BP of 170/110, 2 doses of clonidine were given at 30-minute intervals. By the end of the visit, his BP was 160/90. Office EKG revealed normal sinus rhythm.
- **9/4/20:** His blood pressure remained elevated (160/90), and labs revealed a significant increase in creatinine and decrease in glomerular filtration rate (GFR). Lisinopril 20mg daily was initiated. He had also been started on tamsulosin 0.4 mg daily by his urologist.
- **9/11/20:** His BP improved to 145/90, but his labs revealed worsening acute kidney injury (AKI): the creatinine was 2.2 times above his baseline. Patient reported dizziness after being initiated on his new medications and was advised to discontinue tamsulosin and monitor for resolution of dizziness.
- **9/14/20:** His BP was 165/100. He reported continued dizziness and worsening urinary retention. Physical exam revealed mild right-sided costovertebral angle (CVA) tenderness. He was advised to reinstate tamsulosin, start amlodipine 5mg daily, and discontinue lisinopril.
- **9/21/20:** His blood pressure (157/100), dizziness, urinary retention, creatinine, and GFR demonstrated improvement during the next office visit. His amlodipine was increased to 7.5 mg daily.
- **10/5/20:** His blood pressure was 132/82, and his creatinine (1.42) and GFR (52) continued to improve.

Hospital Course

The patient's urinary output improved significantly with tamsulosin. His BP reached normal range upon initiation of amlodipine 7.5 mg daily, and his kidney function improved with removal of lisinopril. He was encouraged to continue seeing urology for management of BPH and his nephrologist for continued monitoring of kidney function.

Discussion

- After hypertensive crisis, some patients require long-term treatment with anti-hypertensives. It is important to consider the patient's chronic (BPH) and acute conditions (AKI) as well as demographics (elderly man) when selecting an agent.
- If a patient has evidence of AKI and an agent like lisinopril is initiated, creatinine should be monitored closely. Upon initiation of an ACE inhibitor, a moderate (less than 30%) increase in creatine can be expected, but a rise above this number can be an indication to discontinue it.³ Calcium channel blockers (CCBs) are more effective at managing hypertension in the elderly, and they are not associated with increases in creatinine or decreased GFR.⁴
- If two medications are initiated at the same time and both have a side effect profile that includes a complaint the patient is having (dizziness in this case), changing the medication for the condition that has the most treatment options is often the best initial choice.
- Alpha-1 blockers are first-line agents and the main drug class to improve bladder emptying, but several drug classes are considered first-line for hypertension.⁵ Therefore, transitioning the patient to amlodipine to manage his BP was appropriate in this case.

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Background

Cancer clinical trials are opportunities for patients to access novel, experimental therapies.

- Clinical trial enrollment however is **competitive**, meaning spots in these clinical trials are limited.
- They are **complex** in their design and **resource-heavy**, with urban, academic medical centers among those with higher likelihood of being selected by trial sponsors to host these trials.
- In 2018, it was identified that 1.2 million invasive cancer cases were documented in rural areas, comprising of **almost 17% of total patient cases** overall¹
- Mortality rates remain disproportional** with rates of urban cancer cases (180.4 per 100,000 rural deaths compared to 157.8 urban deaths²

Challenges in Rural Cancer Trial Participation

- Rural cancer patients travel a median of 39.4 to 41.2 miles** to participate in these trials and face challenges with paying for the increased monitoring, gas, and lodging³
- Digital access** remains a challenge in rural areas, such as Internet and mobile devices being readily available⁴
- Misalignment of healthcare availability** between the research site and the local healthcare system increases the likelihood of missed care and inadequate monitoring for adverse events⁶
- Racial and financial disparities** heighten, with minorities and individuals at low or middle-income status least likely to access clinical trials⁷

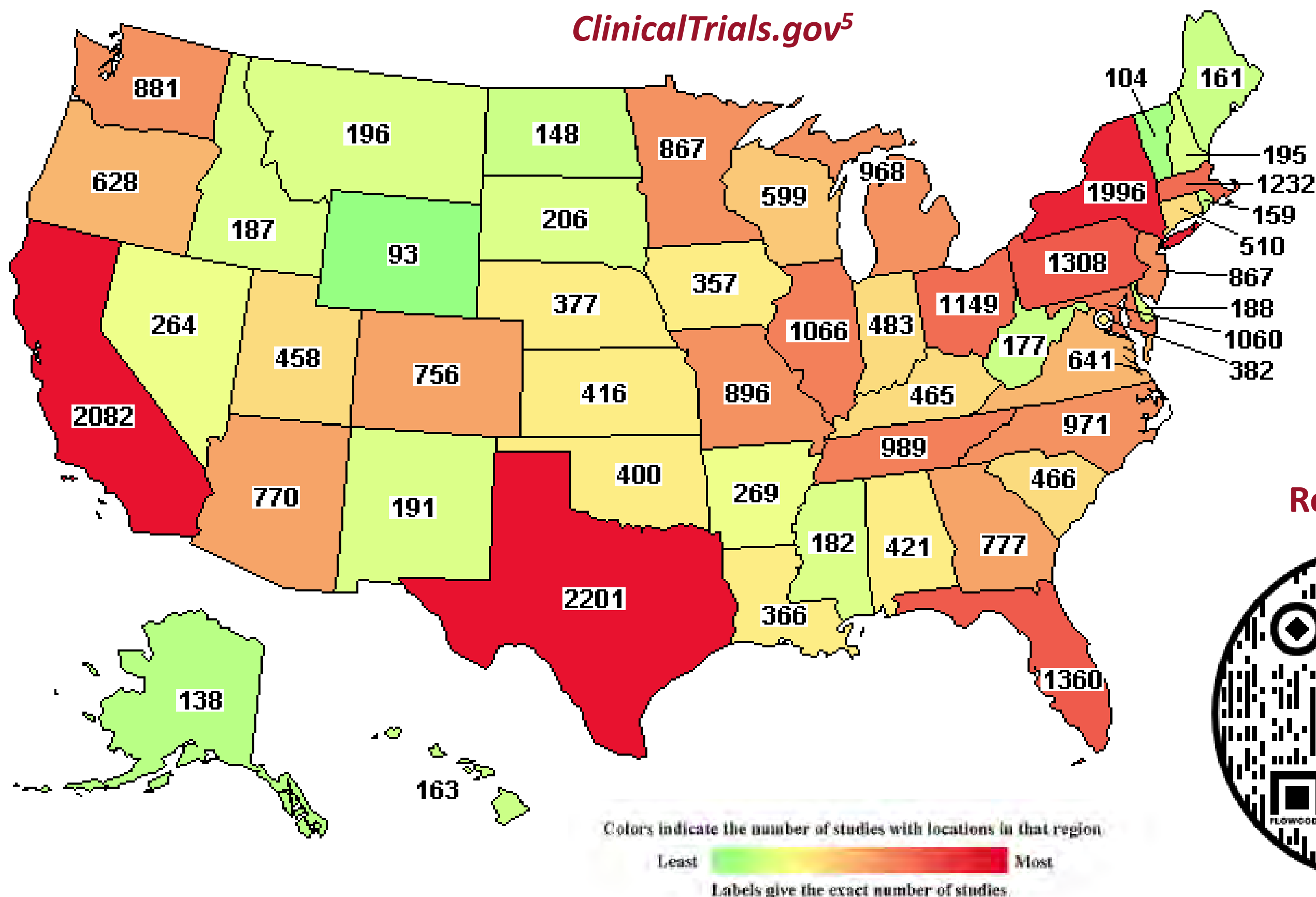
Nursing Perspectives to Support Rural Cancer Patients Seeking Trials

Community and rural health nurses can support cancer patients participating or seeking participation on clinical trials:

- Researching financial support**, such as insurance coverage for clinical trials and patient advocacy groups to cover travel expenses and monitoring
- Provide resources**, such as ClinicalTrials.gov, for reputable reporting of active/enrolling clinical trials
- Advocate for clinical trial literacy** through review of the informed consent form and visit schedules with the patient with comprehension checks
- Reach out to the research team** for more information on monitoring parameters, signs/symptoms, or other critical safety information which should be integrated into clinical care

Heat Map of Enrolling U.S. Cancer Clinical Trials

ClinicalTrials.gov⁵



References



Medication-Assisted Treatment to Improve Border Health

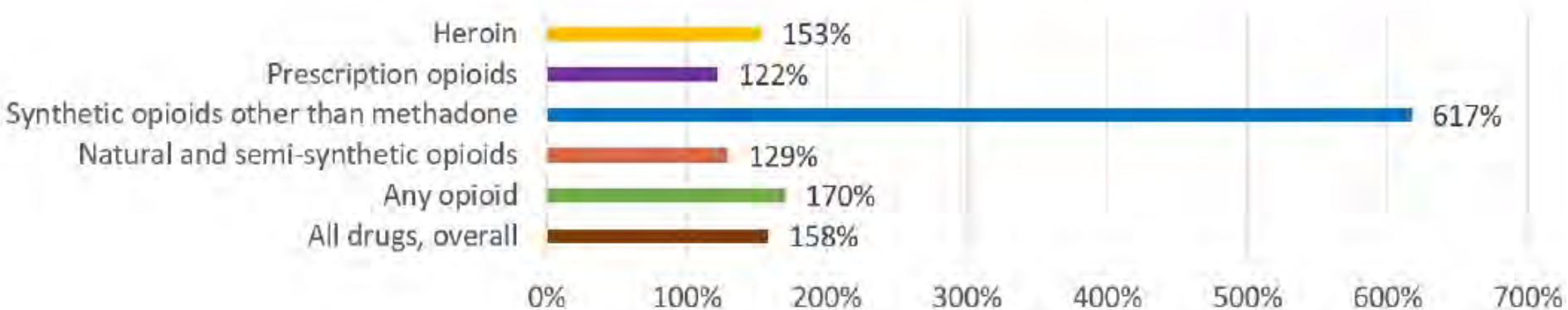
Erica Castillo, PMHNP-DNP Candidate Class of 2021

Background and Introduction

Opioid use disorder (OUD) is a chronic health issue linked to high mortality rates and has been identified as a public health crisis by the U.S. Department of Health and Human Services¹.

- In 2017, **5,988 Hispanics drug overdose deaths** were reported⁴.
- In 2018, **1.7 million Hispanic/Latinos**, 12 years and older engaged in opioid misuse².
- Fatal opioid overdose rates in rural communities are **45% higher** than their urban counterparts³.
- Limited infrastructure^{3, 5}.
- Disproportionately low access to preventative, treatment, and recovery services for OUD³.
- 60% of rural communities do not have access to medication-assisted treatment (MAT) services⁶.

Figure 1. Percent increase from 2014 to 2017 in overdose death rates by drug among the Hispanic population in the United States, data from CDC National Vital Statistics System



Medication Assisted Treatment (MAT)

- Office-Based Treatment for Opioid Dependence
- Buprenorphine (Subutex) and Buprenorphine/naloxone (Suboxone)^{9, 10}.
 - Suboxone is less likely to be abused due to the presence of naloxone
 - Bind to mu opioid receptors⁹.
 - Buprenorphine (partial agonist)⁹.
 - Naloxone (antagonist) - Precipitated withdrawal⁹.
 - Relieve withdrawal if patient is already in withdrawal⁹.
 - Reduces cravings⁹.
 - Decreased opioid consumption⁹.



Nogales, Arizona

- The largest of 12 rural communities located in the Santa Cruz County of Arizona⁷.
- Borders the city of Nogales, Sonora, Mexico.



Demographics

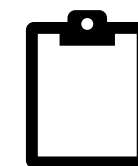
- Population estimate (July 1, 2019): 20,103 people, 51% female, 24.7% under 18 years, 48.4% between 18-65, 16.9% over 65 years⁷.
- 94.5% Hispanic, 41.6% are foreign born persons⁷.
- 29.7% live under the poverty level⁷.
- 91.7% speak a language other than English at home⁷.
- 75.4% of households have a computer, of which 66.9% are broadband⁷.

Methods

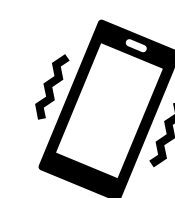
Internet Exploration



Windshield Survey



Phone calls



Results

Mariposa Community Health Center (FQHC)¹¹.

- 15 providers (MD/NPs) - OBGYN
- 4 Therapists (Individual Therapy)
- AHCCCS/Private/Commercial
- F2F/Telemedicine
- Transportation



Community Health Associates¹².

- 1 provider NP (Telemedicine – FL)
- 1 nurse (bilingual)
- 1 Therapist (Group substance abuse – Tues/Wed 9
 - IOP relapse / IOP education group



Pinal Hispanic Council¹³.

- 1 provider NP (Telemedicine – Eloy, AZ)
- 1 Therapist
- AHCCCS Only



Community Medical Services¹⁴.

- 1 provider NP (Telemedicine – Tucson, AZ)
- 1 Therapist
- AHCCCS Only
- Self Pay/Grant opportunity
 - \$150 (Initial Visit/Meds), \$85-\$115/week



Barriers

Language Barriers².

- Bilingual Healthcare Providers

Stigma and Misperceptions².

- Many Hispanics don't believe that OUD is a disease, instead they believe it's a moral failing and do not seek treatment².
- MAT is a substitution for drug abuse².
- Cost and affordability

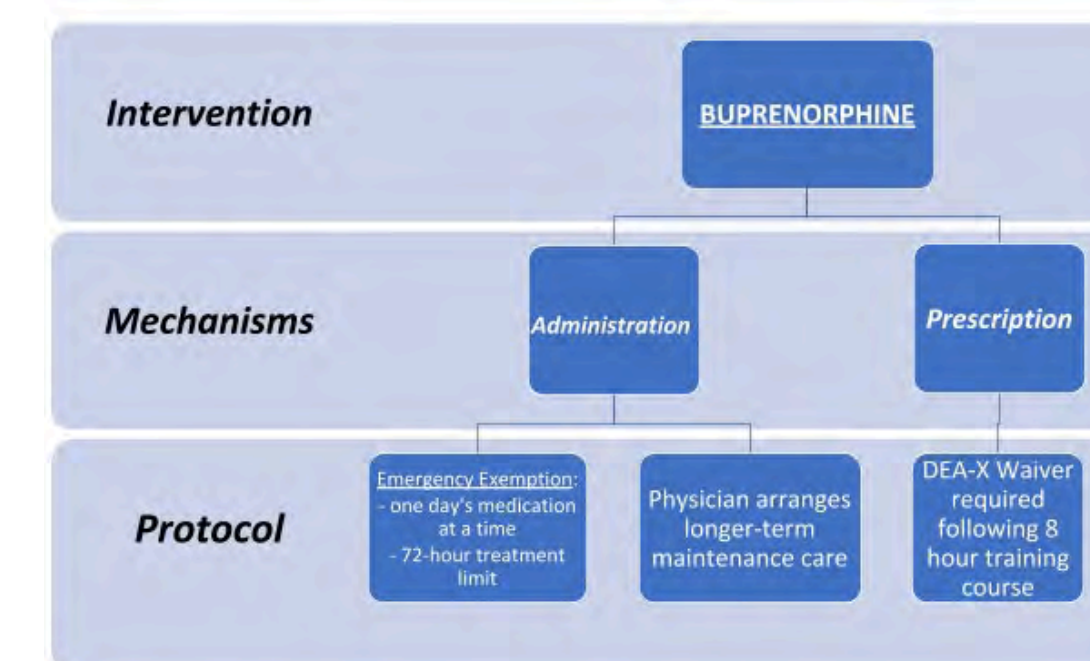
Knowledge Gaps

- Hispanic community unaware of MAT services².
- More than half of waived providers are not prescribing Buprenorphine– Lack of provider confidence
- Not practicing at full patient capacity¹⁵.
 - 91.2% of 30-patient waived providers
 - 89.7% of 100-patient waived providers
- Local Hospital – No MAT services

Intervention Opportunities

Train Local Healthcare Providers

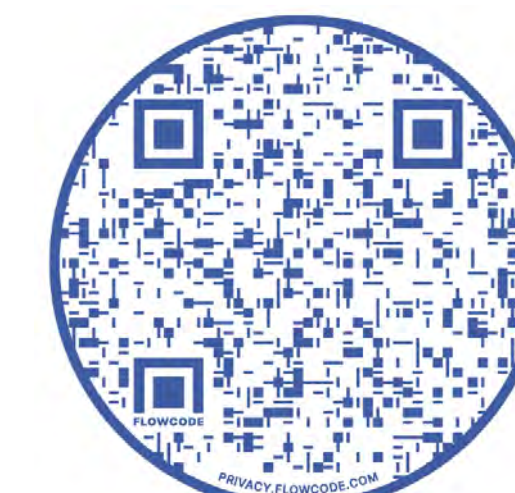
- Three Day Rule (72 Hour Rule)^{16, 17}.



- MAT Waiver Training¹⁸. – General Practitioners
 - 24-hour course – Nurse practitioners & Physician assistants
 - 8-hr course – Medical doctors
- AzMAT Mentors Program¹⁹.

Increase Public Health Literacy through Education

- Leverage community resources (Promotoras or community health workers)².
- Familismo².
- Spanish media public awareness/ Social marketing campaigns².



Meeting Mental Health at the Border

WAHEC Scholars 2020-2022

Eric Arreola BS, PA-S (NAU); Holly Cortes, BSN, RN (ASU); Marisol Gandee BSN, RN, CNRN, SCRNP (ASU); Leticia Garcia, PharmD-S (UA); Brooke Hawkes, BS (UA); Katrin Henry, PharmD-S (UA); Sarah Jane Krepps, MS, RN (UA); Trudy Massie BS, PA-S (NAU); Lacey Parkman, MSN, RN (ASU); Alejandra E. Vasquez, BSN, RN (UACON)

INTRODUCTION

Yuma County (YC) is a rural-urban community in Arizona, located along the California and Mexico borders. WAHEC scholars completed a community assessment to research what healthcare resources are needed in this underserved area.



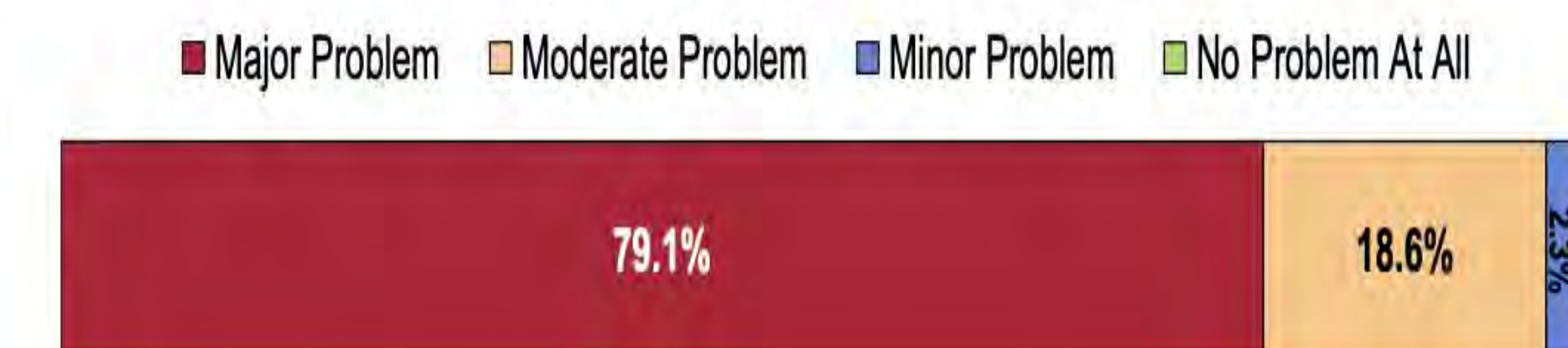
PURPOSE

- Identify key areas for healthcare improvement within Yuma, as well as identify healthcare services already available within Yuma community.
- Identify deficiencies in healthcare access and delivery within the Yuma community.
- Identify social determinants of health that may play a role as barriers to accessing healthcare.

Key Informant Input: Mental Health

Almost eight in 10 key informants taking part in an online survey characterized *Mental Health* as a "major problem" in the community.

Perceptions of Mental Health as a Problem in the Community (Key Informants, 2019)



Sources: PRC Online Key Informant Survey, PRC, Inc.
Notes: Asked of all respondents.

METHODS

Data Collection

- Windshield survey
 - Virtual
 - Live
- Interviews with local community members.
- Informal social media polls
- Reputable website searches:
 - AZ Board of Pharmacy
 - AZDHS
 - City of Yuma
 - US Census Bureau
 - FBI
 - YC Chamber of Commerce
 - YRMC & RCBH

Analysis

- Data collected was reviewed by the WAHEC Scholars.
- With guidance from regional facilitator, themes in data were identified.
- Common and prominent themes were extracted and used in selection of project topic.

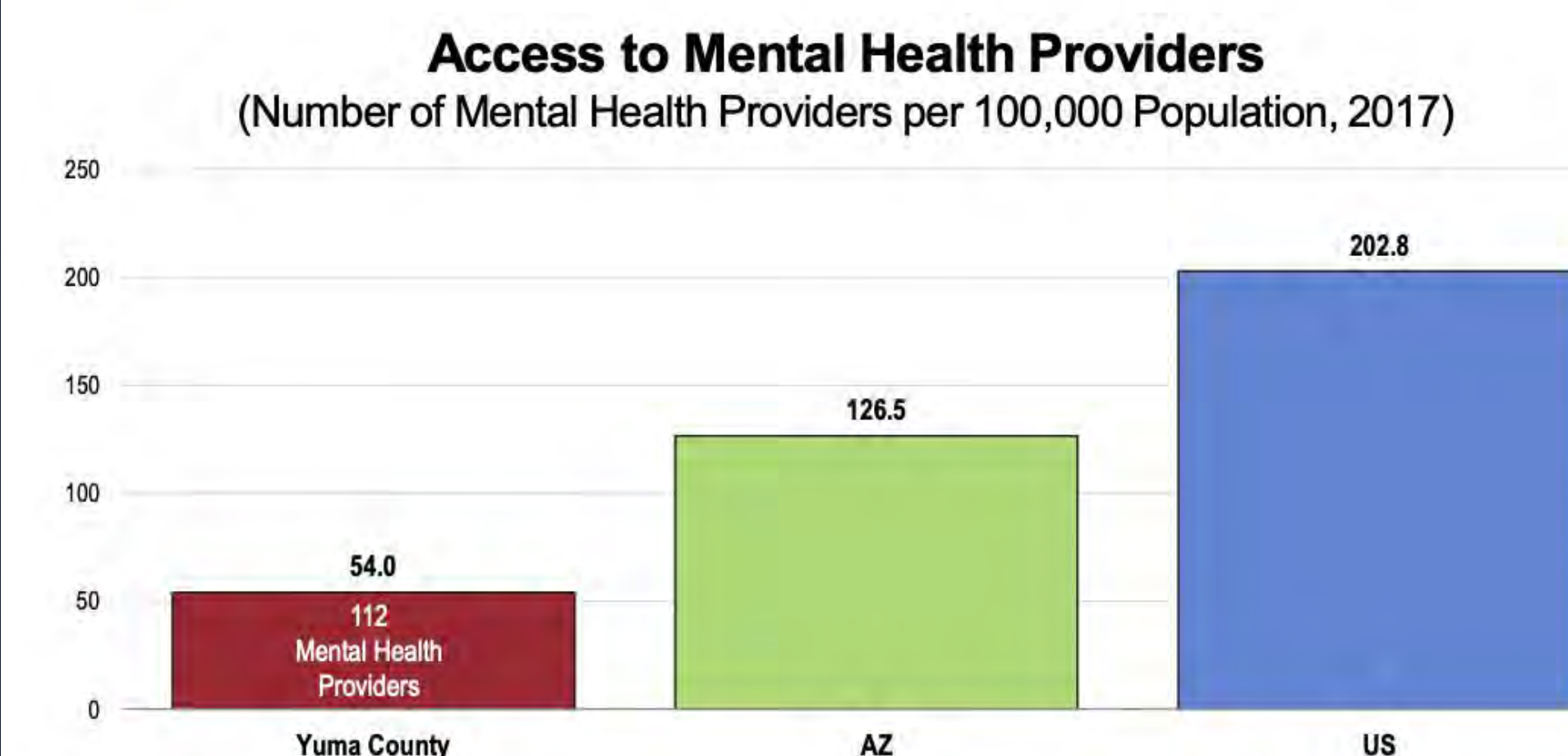
FINDINGS

- Members of the Yuma community desire more comprehensive mental health services (MHS).
- YC has far fewer mental health providers per capita compared to state and national averages.
- One mental health facility and two residential treatment programs for substance use disorder cover YC.
- 78.3% of community key informants report substance abuse as local burden.
- 20.9% of adults in YC have been diagnosed with a depressive disorder.
- From 2015 to 2017, 13.4 deaths by suicide per 100,000 population occurred in YC, failing to satisfy the Healthy People 2020 Objective of ≤ 10.2 .
- The statewide suicide rate was 18.0 per 100,000 between 2015-2017.

Mental Health Providers

In Yuma County in 2017, there were 54.0 mental health providers for every 100,000 population.

● BENCHMARK: Notably lower than state and (especially) national rates.



Sources: University of Wisconsin Population Health Institute, County Health Rankings; Retrieved July 2019 from CARES Engagement Network at <https://engagementnetwork.org>.
Notes: This indicator reports the rate of the county population to the number of mental health providers including psychiatrists, psychologists, clinical social workers, and counselors that specialize in mental health care.

SUMMARY

- WAHEC scholars found that there are resources in Yuma community for mental health but a lack of education on the availability.
- Due to stigma and misperceptions on availability, MHS and resources are unrecognized and underutilized.
- The goal is to facilitate access to mental health resources and patient knowledge through health promotion strategies.

CONCLUSIONS

- Mental health resources are limited in YC; however, it is important to raise awareness in the community on MHS.
- Widespread and collaborative efforts between local health care providers could help mitigate barriers in access to MHS
- WAHEC scholars will focus on mental health care promotion through education and stigma mitigation strategies.
- Strategic advertisement via newspaper, pamphlets, and posters in the community will be included.

ACKNOWLEDGEMENTS

We would like to acknowledge the WAHEC center for providing videos for the windshield survey, Joena Ezroj, WAHEC Director, Jacob Gubler, Faculty Mentor, and all of the phenomenal speakers who graciously devoted their time to our efforts.



THE UNIVERSITY OF ARIZONA
Arizona AHEC
Area Health Education Centers

Assessing Oregon's SBIRT App for Primary Care Self-Screening

Stacy James DNP, FNP; Patricia Daly PhD, FNP-BC, ENP-BC, FAANP; Christy Pacheco DNP, FNP-BC; Kimberly Shea PhD, RN, FWAN, CHPN

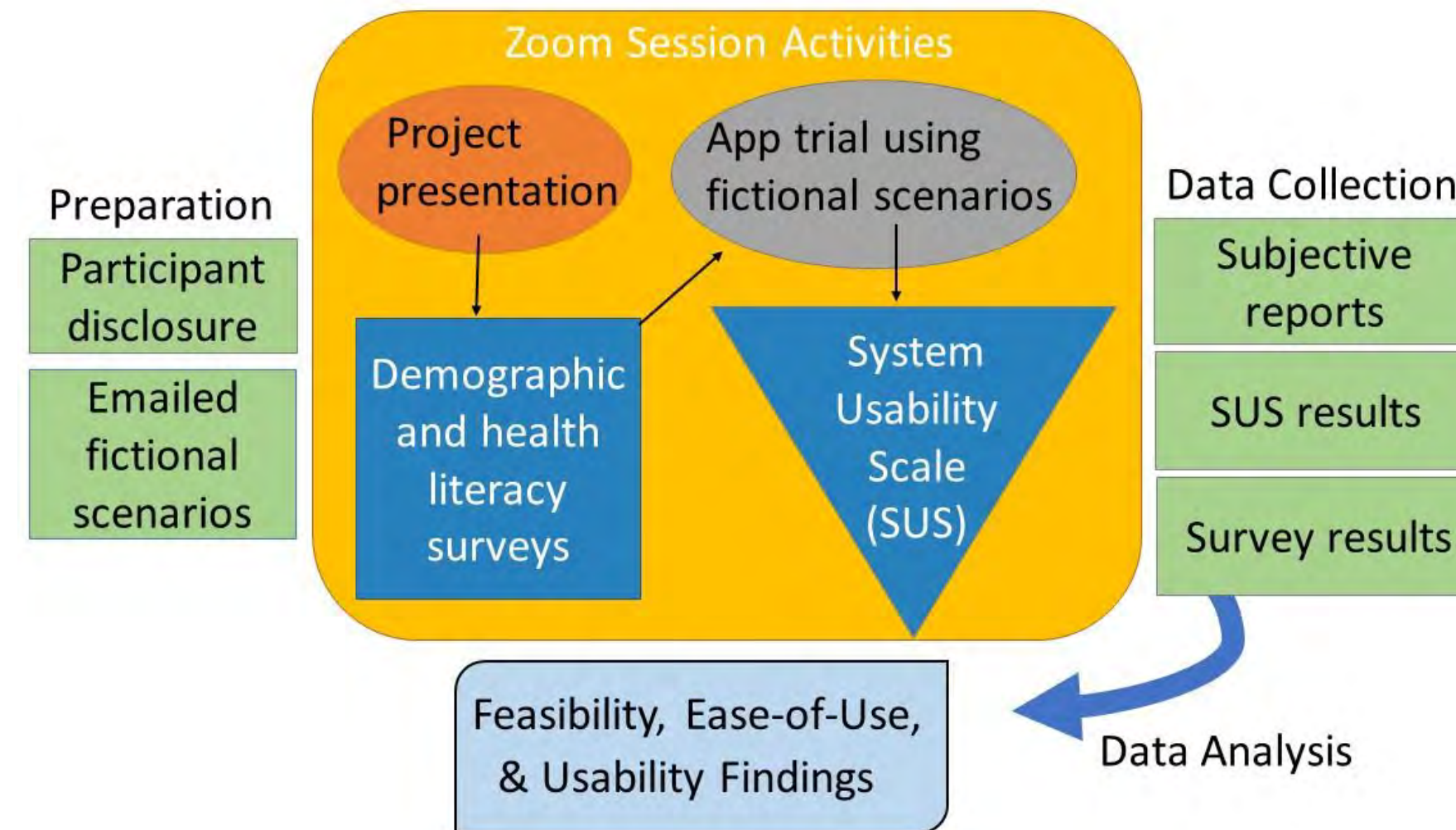
Purpose

To determine if the Oregon SBIRT App is feasible, easy-to-use, and usable for self-screening in a primary care setting.

Background

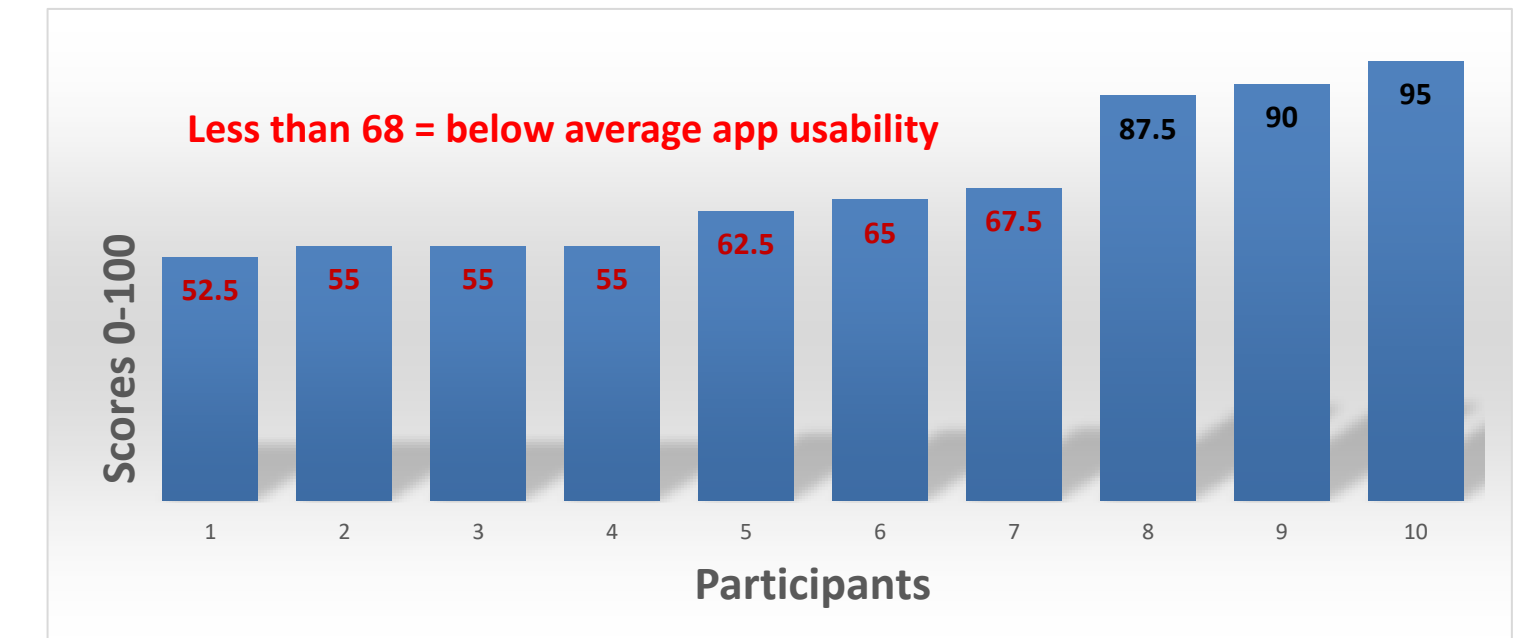
- Unhealthy substance use and its effects continue to worsen.
- mHealth offers a convenient platform for self-screening using the recommended SBIRT method.
- Primary care is an ideal setting for primary and secondary prevention of risky substance use.
- Patient self-screening encourages active participation in evidence-based treatment.

Diagram of Methods



***Due to COVID-19 restrictions, this QI project was conducted virtually with a group of volunteer participants using fictional substance use histories**

System Usability Scale (SUS) Results



Conclusion

- ✓ **Feasible for use** among primary care patients with high educational and health literacy levels
- ⊖ Participants' subjective reports indicated the app is **somewhat easy-to-use**
- ⊘ Overall, the app is considered **unusable** based on below average SUS results and absence of EHR compatibility

Practice Implications

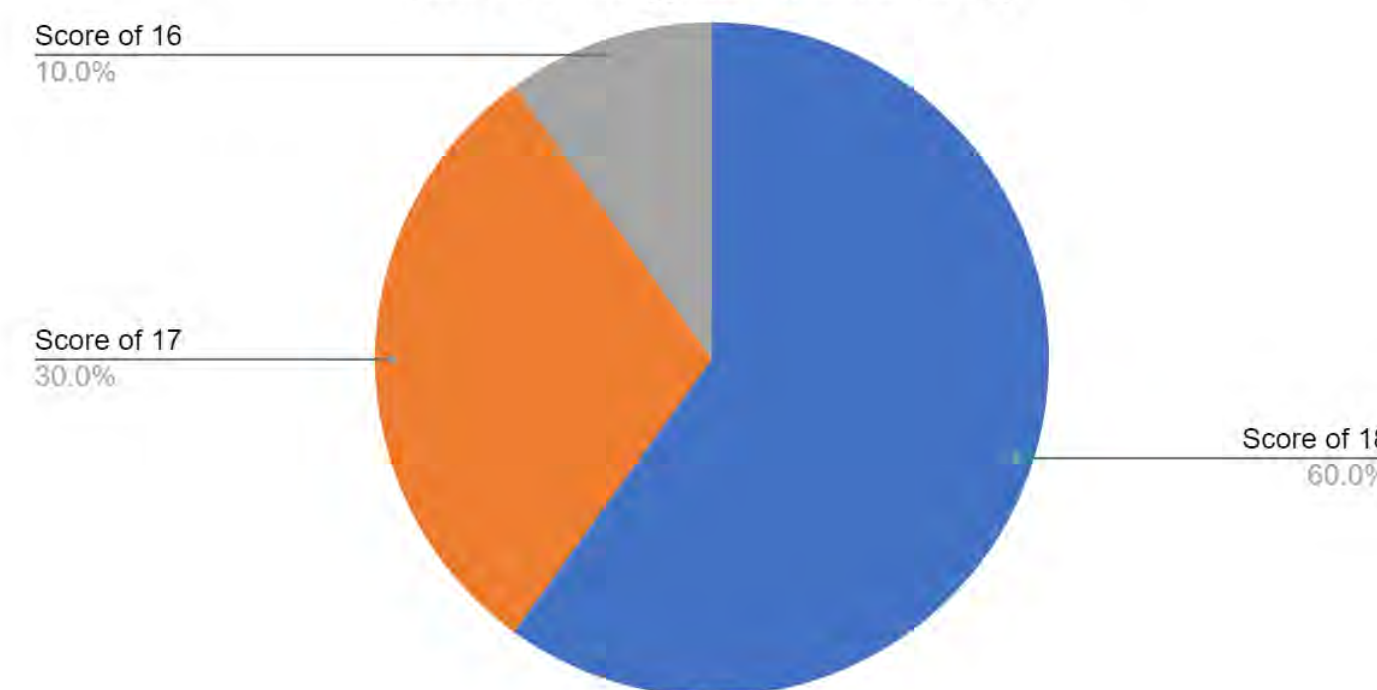
- Focus on *human factors* when assessing mHealth usability components.
- Avoid patient frustration by providing adequate time and tech support for app completion.
- Design apps with EHR compatibility at inception.
- Trial apps within the target population in a real-world setting, if possible.
- Zoom group platforms may be ideal for focus groups, but app trials are best one-on-one.

References



Health Literacy Results

Participants' SAHL-E Health Literacy Scores
Less than 14 suggests low health literacy



mHealth + SBIRT

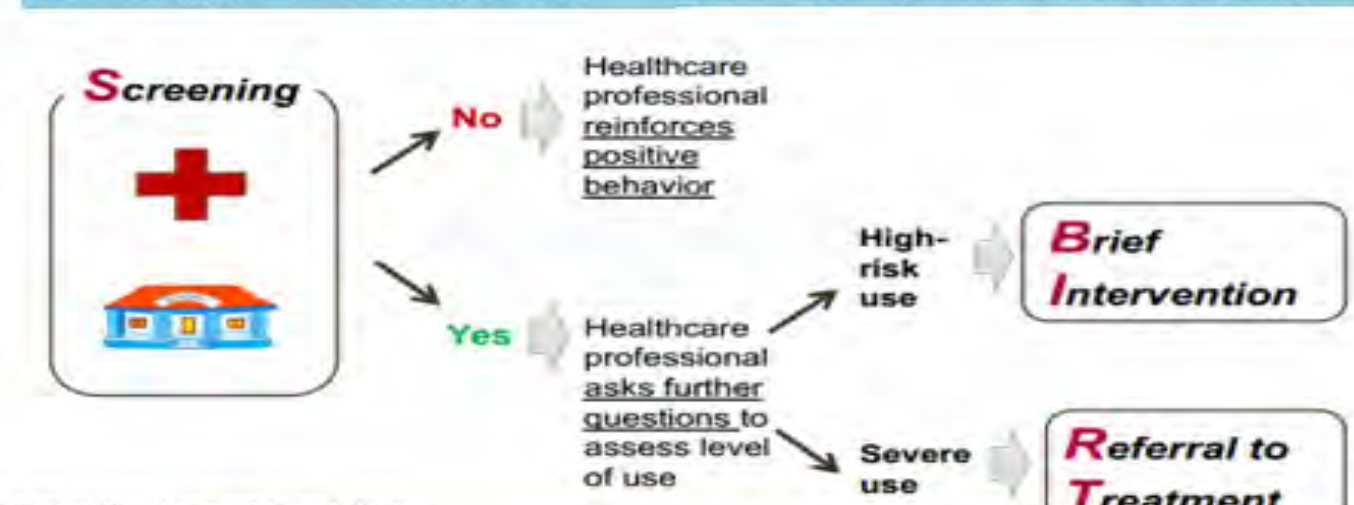


Fig. 1 Adapted from Community Catalyst (2020)

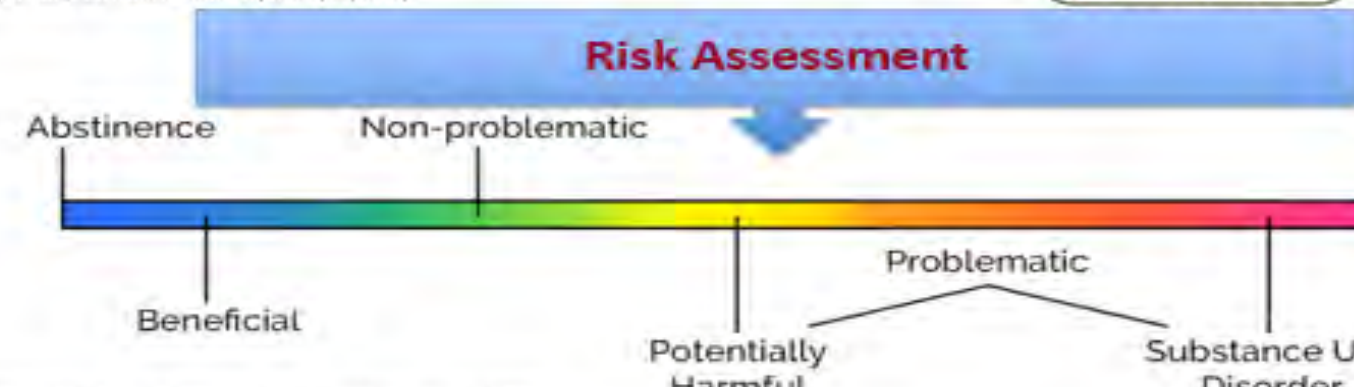


Fig. 2 Adapted by Ontario Ministry of Advanced Education and Skills Development (2018) from F3 at Macleod Health Authority, British Columbia Ministry of Health & Health Canada. (2013).

Payson, AZ Community Health Assessment

Kengne Fosso RN, DNP PMHNP student

Introduction

- Payson is a town located in northern Gila County, Arizona.



- Payson is surrounded by the Tonto National Forest and bordered in the north by the Colorado plateau.
- Its estimated population in 2018 was 15,813 with Caucasians being the predominant race (89.7%) followed by Hispanic or Latino (7.5%) and other races such as American Indian, Alaska Native, African American, Asian etc.
- In 2018, median household income was \$50,049.
- Largest industries are retail trade (875 people), accommodation and food services (782 peoples), and social assistance and healthcare (762 people).



Community Resources

Hospitals and medical centers

- Payson Regional Medical Center, a 24-hour emergency trauma center with 44 beds and inpatient and outpatient services. 2,467 admissions per year, and 15 physicians and dentists combined.
- RTA Hospice and Palliative Care.
- Payson Care Center.
- Rim Country Dialysis
- Rim Country Health and Retirement Community
- Payson Regional Home Health

Police

- 1 police department
- 25 full-time officers (1.59 per 1000 residents)
- Crime rate in Payson was 348 per 100,000 people in 2018.

Recreation

- Recreational activities include hiking, camping, boating, fishing, golf, and water sports.
- 2 parks: Rumsey Park and Green Valley Park.
- 1 airport
- 1 public library

Community Health

- 12.4% of the population in Payson lives below the poverty line.
- 17.7% of the population does not have health insurance.
- 13.6% of the population under 65-years-old have disabilities.
- Gila county ranks 13th out of 15 with 15 being the poorest health outcome.
- 36.5% of the population is obese and 19% of the population has poor or fair health.
- 2,140 residents per one primary care physician.
- 1,540 residents per one mental health provider.

Healthy diet rate	Average BMI	People feeling bad about themselves	Overweight
Payson 53.6% Arizona 48.4%	Payson 28.6 Arizona 28.5	Payson 20.8% Arizona 21.5%	Payson 36.5% Arizona 33.3%

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Practice-Based Strategies to Improve Chronic Pain Management in Primary Care

Christy Pacheco¹, DNP, FNP-BC; Elizabeth Hall-Lipsy², JD, MPH; ¹University of Arizona College of Nursing, ²University of Arizona College of Pharmacy

Overview

Opiate Epidemic

Opiate use and abuse has reached epidemic proportions in Arizona, with Arizona among the highest in the nation for mortality and morbidity.

- National trend of increasing opioid sales and dosing¹
- Worsening mortality and morbidity with COVID-19 pandemic
- Arizona among top five for opioid prescribing² and top six for drug overdose mortality nationally³

Chronic pain management for non-terminal pain was identified as a top priority at a statewide interprofessional practice-based research planning conference for the AZ Interprofessional Practice-Based Research Network, an academic-community partnership being developed between University of Arizona and community stakeholders, including clinicians, researchers and administrators.

This poster provides overview of a multi-phase chronic pain practice project that is an opportunity for interprofessional education, practice, research, and community engagement to improve clinical practice and outcomes, as well as preceptor development, and recruitment and retention of rural providers.

Community and Academic Partnering

Partnerships: Promote interprofessional collaboration and partnerships among community clinicians and academic clinicians and researchers to identify and answer locally clinically relevant clinical questions.

Rural recruitment & retention: Participation in a practice-based research network has been shown to be an important recruitment and retention tool for rural primary care providers.⁵

Interprofessional Education & Practice

Interprofessional Telemedicine activity

Best Practices for Chronic Pain Management in Primary Care, Conducted by Rural Health Professions Program Directors

- Focus: evidence-based recommendations and interprofessional collaboration for chronic pain management
- Based on evidence-based guidelines from Arizona Department of Health Services, including
 - Patient Assessment and Monitoring
 - Chronic Pain Agreements
 - Urine Drug Screening
 - AZ CS PMP Controlled Substances Prescription Monitoring Program online prescribing database

- 3 Telemedicine sites across Arizona: Northern Arizona Area Health Education Center (NAHEC)/North Country Healthcare in Flagstaff, University of Arizona College of Medicine in Phoenix, and University of Arizona College of Nursing in Tucson

AHEC Regional Centers



Activity includes regional AHEC collaboration and demonstration sites across Arizona.*

- Featured interprofessional, expert speaker panel and facilitated, interprofessional patient case studies
- 57 health professions students registered from across AZ: DO, NP, PA, and PharmD from UA COM, CON, COP, NAU, AT Stills, and Midwestern
- Preceptors invited; CE awarded
- Primary finding: improved knowledge - collaboration with pharmacist in primary care

Practice-Based Research & QI Projects

Multi-phase, Interprofessional, Community Partnering Projects:

Opportunity for research or QI

- Evaluation tailored to practices for QI initiatives
- Aggregate data combined across sites

PDSA Cycle for QI⁷



Phase I: Development of Clinical Practice Assessment Tool

- Online assessment tool developed and pilot tested by CON DNP student. Focus: knowledge, practice patterns and system and provider level barriers for evidence-based care

Phase II: Implementation

- Data collection planned for clinical sites across Arizona
- Opportunity for interprofessional health profession student projects for each clinical site (local and aggregate data analysis), and
- Collaboration between academic and clinical sites

Phase III: Dissemination

- Results and recommendations to be disseminated back to clinical sites

References available upon request

Pulmonary Embolism in a Patient with a Recent History of COVID-19

Ana Velo Legarreta PAS-II and Amber Brooks-Gumbert, MMS, PA-C
Northern Arizona University, College of Human and Health Sciences
Department of Physician Assistant Studies, Phoenix, Arizona

Introduction

Pulmonary Embolism (PE) is a life-threatening condition in which one or more arteries in the lungs is occluded by a clot. As more investigations are being done on coronavirus disease-2019 (COVID-19), recent data has shown a possible association between patients infected with COVID-19 and significant procoagulant events, including PE and other venous thrombotic emboli (VTE). This is due to an increase in inflammatory markers in the blood, such as D-dimer and fibrinogen. It is being recognized as COVID-19 associated coagulopathy (CAD).

Case Description

A 46-year-old man with a past medical history significant for hypertension and hyperlipidemia presented to the emergency department (ED) after he was referred by urgent care for further evaluation of chest pain, SOB, and persistent cough for the past day. He reported pain worsening with deep inspiration. Patient tested positive for COVID two weeks prior and reported symptoms were resolving until this presentation. Patient denied fever, chills, syncope or dizziness.

Physical Examination

- The patient's oxygen saturation at urgent care was 89% on room air. Albuterol nebulizer was administered, after which O2 saturation decreased to 81% on room air. At this point, patient was referred to the ED.
- **Vital signs:** Temp 99.8 °F, BP 97/78, HR 109, RR 32.
- On physical examination, patient appeared in severe distress. He was diaphoretic and struggled to speak in complete sentences. Lung sounds were slightly diminished but otherwise unremarkable. Patient was tachycardic with no murmurs, rubs, or gallops. Abdominal exam and lower extremities were unremarkable. Homan's sign was negative bilaterally.

Results

- Upon arrival to the ED an EKG was performed which showed sinus tachycardia and right heart strain suggested by 'S1 Q3 T3' pattern.
- Labs were drawn and D-dimer was 3,032 ng/mL (normal value <500ng/mL).
- Based upon patient presentation and lab results, a CT angiogram of the lungs was ordered which was significant for massive saddle embolus in the pulmonary arteries.



Picture courtesy of Dr. Siyab Panhwar from <https://abcnews.go.com/Health/covid-19-patients-blood-clots/story?id=70131612>

- Bedside echocardiography after admission to the ICU showed a dilated, impaired right ventricle and a 'D-shaped' left ventricle with pronounced left-ward septal deviation, more pronounced during systole indicative of pressure overload.

Hospital Course

- The patient was treated with thrombolysis which consists of two hours of intravenous infusion of 1.5 million units of streptokinase, followed by intravenous heparin.
- Intravenous anticoagulation was continued for 5 days.
- Patient was discharged on day 8 of hospital admission in stable condition.

Discussion

- The risk for VTE increases in patients with COVID-19, especially those in the ICU due to an elevation in inflammatory factors.
- Thromboprophylaxis should therefore be started in COVID-19 patients admitted to the hospital and intermediate therapeutic doses of anticoagulants can be considered in patients requiring ICU admission or those with multiple risk factors for VTE.
- Therapeutic anticoagulation is associated with increased survival rates in patients with COVID-19.

References

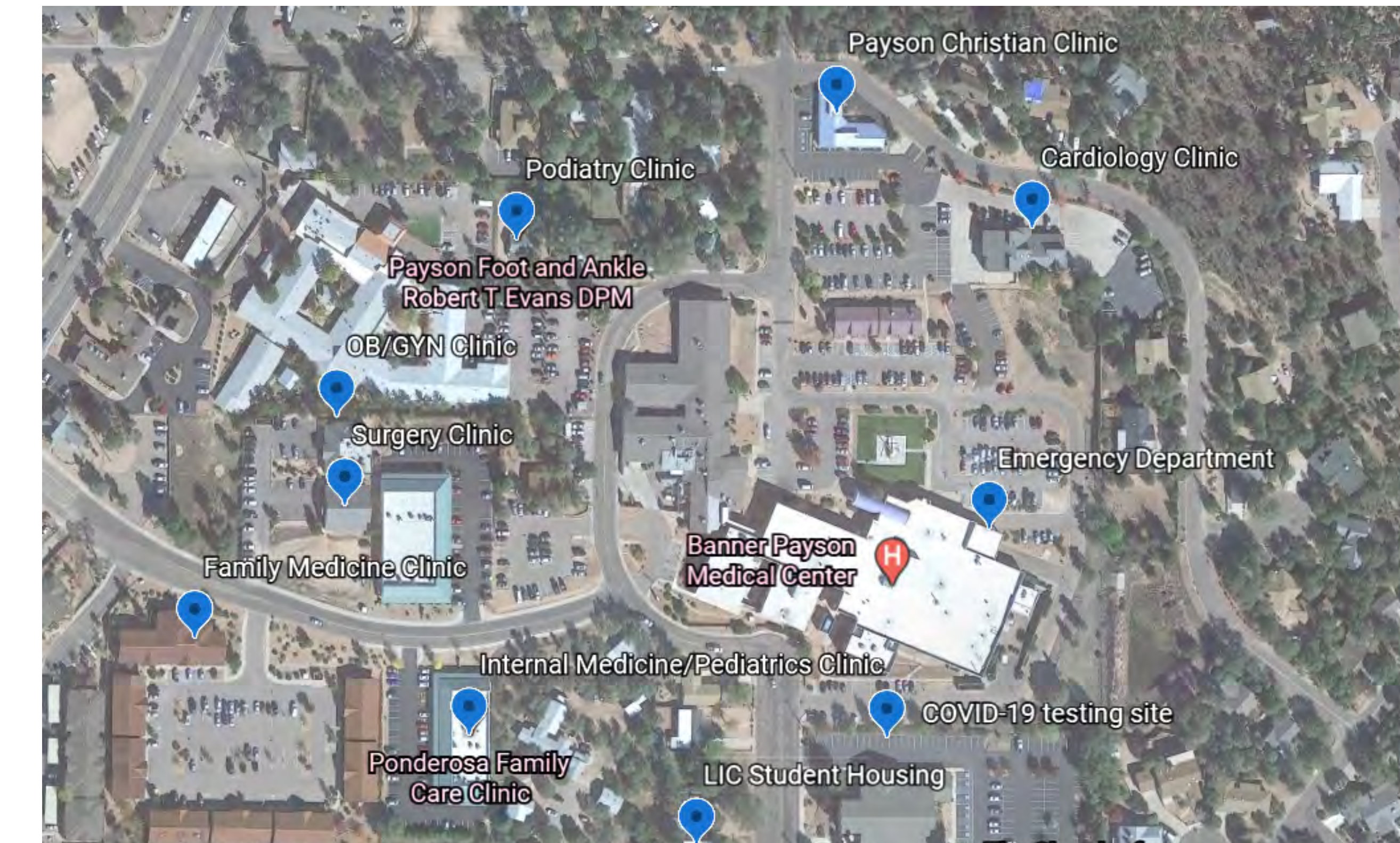
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Overview of LIC Programs

The **Longitudinal Integrated Clerkship (LIC)** is an innovative approach to clinical education which allows medical students to learn in a single geographical site for an average of nine months. Such curricula involve patient panels that medical students continuously follow, reflecting an important aspect of primary care that is not generally afforded by the hospital-based rotation system. Rural LIC programs, especially, allow for students to be a true part of the community where they live and work. The University of Arizona College of Medicine - Phoenix (UACOM-P) has joined the ranks of 44 other medical schools (as of 2016) [1] that have also started LIC programs. From April 2020 to February 2021, three students completed the first iteration of the UACOM-P LIC.



Ribbon cutting ceremony of the new UACOM-P Rural Health Clinic in Payson, with the LIC students and stakeholders from MHA Foundation and UACOM-P



A labeled Google Maps image of the majority of medical facilities in Payson. Student housing was in immediate proximity to these care settings.

Implementation in Payson

- Students completed equivalent rotations in **internal medicine, family medicine, OB/GYN, surgery, pediatrics, and emergency medicine** throughout the year, without the restriction of only completing one clerkship at a time.
- Each student oversaw the primary care of a panel of 10-20 patients throughout the year in continuity clinics at the Payson Christian Clinic (clinic for uninsured and underinsured patients) or Ponderosa Family Care.
- Students performed clinical duties in the Banner Payson Medical Center, Payson Christian Clinic, Ponderosa Family Care, and other primary care or specialty care settings.
- Opportunities to explore other areas of medicine including cardiology, physical therapy, optometry, podiatry and more were available.

Takeaways from Faculty & Participants

“Inaugurating the Payson LIC two months earlier than planned, at the height of a pandemic, was a seat-of-the-pants experience only made possible by the patience and flexibility of our three LIC students. They had to endure frequent uncertainty: education policy changes, LIC requirement modifications, housing transitions, extra work related to COVID testing and later vaccinations. In spite of it all, they were able to show us why a LIC is a superior educational structure. The students surpassed our expectations as they advanced their clinical skills, while endearing themselves to the faculty, patients, and community.”
- *Dr. Cartsonis, UACOM-P RHPP Director*

“My LIC experience solidified my commitment to a career in rural medicine. I am so grateful to all of our clinical faculty and for the patients who invited me to learn alongside them and taught me about their health, their families, and their lives. I am excited to be a future primary care physician and to embrace a community as wholeheartedly as Payson embraced me as a student.”
- *Maryssa Spires, MS3 and LIC participant*

“I am forever grateful to the town of Payson for enthusiastically welcoming me and integrating me into their healthcare system. To be able to move smoothly between different specialties and clinics each week (and sometimes each day) allowed me to truly be an advocate for my patient panel. My curiosity of rural medicine turned into a passion, and I having functioned as a member of a rural interprofessional team, I can envision myself returning to rural Arizona after residency.”
- *Luke Wohlford, MS3 and LIC participant*

Student/Program Evaluation

Logistical difficulties of a new LIC were compounded by extra challenges of the COVID-19 pandemic. However, with the help of telemedicine to allow safe patient interactions, the LIC was completed without sacrificing clerkship quality. Students logged their patient experiences in personal journals and on the myTIP Report application, each demonstrating >1000 individual patient encounters throughout the year. Specific procedures and diagnoses required in each target specialty were logged several times each, surpassing the requirement of at least one in every procedure and diagnosis category. Students received ongoing formative feedback from clinical faculty verbally and in written format, allowing for students to track learning over time.



	LIC Student 1	LIC Student 2	LIC Student 3
Monday	Emergency Medicine	Internal Medicine/Pediatrics	Surgery
Tuesday	OB/GYN	Surgery	Family Medicine
Wednesday	Surgery	Family Medicine	Emergency Medicine
Thursday	OB/GYN	Emergency Medicine	Internal Medicine/Pediatrics
Friday	Continuity Clinic/Didactics	Continuity Clinic/Didactics	Continuity Clinic/Didactics
Saturday	On Call for C-sections		Ultrasound Class
Sunday	On Call for C-sections		
Monday	Inpatient Internal Medicine	Surgery	Internal Medicine/Pediatrics
Tuesday	Inpatient Internal Medicine	OB/GYN	Optometry
Wednesday	Inpatient Internal Medicine	Emergency Medicine	Internal Medicine/Pediatrics
Thursday	Inpatient Internal Medicine	OB/GYN	Internal Medicine/Pediatrics
Friday	Continuity Clinic/Didactics	Continuity Clinic/Didactics	Continuity Clinic/Didactics
Saturday		On Call for C-sections	Vaccine Clinic
Sunday		On Call for C-sections	

Example of a weekly schedule for an LIC student

Future Directions

- Emphasis on establishing primary care patient panels early in the year will be important in coming years
- The number of LIC students is planned to increase to six in 2022 and ultimately increasing to nine students in 2023, spanning multiple cities in Arizona

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Relationship Between Evidence-Based Practice Interventions and Colorectal Cancer Screening Rates

Yecenia Villarreal¹, Jonathan Cartsonis², MD

FRONTERA Program Scholar¹, University of Arizona Health Sciences,¹
University of Arizona College of Medicine-Phoenix.²

Introduction

Colorectal cancer (CRC) is a leading cause of death for both men and women. However, the death rate is declining due to the screening and detection of colorectal polyps, the precursors to CRC. The 5-year survival rate for CRC detected through screening is 90%.¹ Greater screening rates has the potential to make CRC a rare disease yet only 1 in 3 eligible individuals undergo screening despite the American Cancer Society's screening goal of 80%.^{1,2}

Background

The purpose of this study was to assess whether there is a relationship between evidence-based practice interventions (EBPI) for CRC screening at various Federally Qualified Community Health Centers (FQHCs) and their respective CRC screening rates, and the strength of that relationship. It aims to find out whether there is a positive correlation between the two variables and to utilize the findings and encourage the adoption and implementation of the EBPI at the FQHCs to improve CRC screening rates in 50-75-year-old patients.

FQHCs play an important role in providing access to healthcare for vulnerable populations including racial and ethnic minorities. They reduce barriers, such as cost, lack of insurance, distance, and language.³ They are essential in improving CRC screening rates, especially in communities of color where existing health disparities lead to disproportionately higher rates of negative health outcomes.

Furthermore, the United States Preventive Services Task Force recommends screening for CRC starting at age 50 and continuing until age 75.⁴ CRC screening is a Grade A recommendation, meaning there is a high certainty that the net benefit is substantial.⁴ There are several acceptable screening methods. The types of criteria approved screening are commonly FIT testing and colonoscopies.

Methods

CMOs at the Arizona Alliance for Community Health Centers (AACHC) were surveyed in June of 2019 via Survey Monkey. Of 25 FQHCs, 15 responded. Survey data was compared with CRC screening rates reported to AACHC for the same quarter that the survey was completed (2nd quarter 2019). CMOs were questioned whether their center had in place six operational clinic practices:

- Screening at **every** visit, not just preventive visits
- Setting up standing orders for medical assistants, nurses, health coaches, and other team members to order and provide stool tests at any visit or by outreach efforts between visits.
- Sharing regularly with medical providers the CRC screening rates of their patient panels
- Reporting daily to providers regarding screening care gaps in for each anticipated patient encounter in each day
- Programs for CRC screening not limited to clinic visits. For example, using registries of patients needing CRC screening and developing population-based strategies to screen them (e.g. mailing them FIT testing cards).
- Operationalizing a system for following-up and reminding patients. For example, asking patients to return FIT tests via reminder letters, texts, emails, or calls.

On an X-Y axis, the centers were plotted according to the number of operational interventions in process at their health centers versus current CRC screening rates in that quarter. The Wilcoxon Rank Sum was used to assess differences in mean cancer screening rates between criteria compliance vs non-compliance.⁵ Univariate linear regression was used estimate mean differences in screening rates relative to the total number of complied screening parameters. ⁵ P<0.0001 was considered statistically significant.⁵

Results

Several experts and government agencies have made CRC screening a high priority because of epidemiological data showing its effect in lowering rates of CRC. The literature is full of recommendations of practices that will improve screening rates. This study shows there is a positive correlation between these Evidence Based Practice Interventions (EBPI) and CRC screening rates that is highly statistically significant (P<0.0001) overall.

Center	Screen only at preventive visits	No Standing orders	No reports to providers	No gaps in care rpt daily	Screen only when pts come in for appt	No f/u of the kits given to pts	Total EBPI
AA							6
BB							6
CC							6
DD		x		x	x		3
FF							6
GG						x	5
HH						x	5
II							6
JJ	x	x	x			x	2
KK					x	x	4
LL						x	5
MM							6
OO	x	x			x	x	2
PP					x		5
QQ			x			x	4

Discussion and Conclusion

A correlation between number of EBPI adopted by the FQHCs and their success with CRC screening was found to be positive. This correlation was found to be of highly statistical significance (P<0.0001). Study limitations include small sample size, inadequate power to assess for relative strengths of each intervention, and no accounting for large differences in the size of each of the FQHCs. It was determined that with more interventions, higher CRC screening rates were observed. The results suggest that FQHCs that implement more of these measures will have greater CRC screening success. This would in turn have a measurable impact on CRC rates in the communities that they serve. Resources are scarce and community health centers need to have the best guidance on the operational interventions that have the greatest impact on patient care.

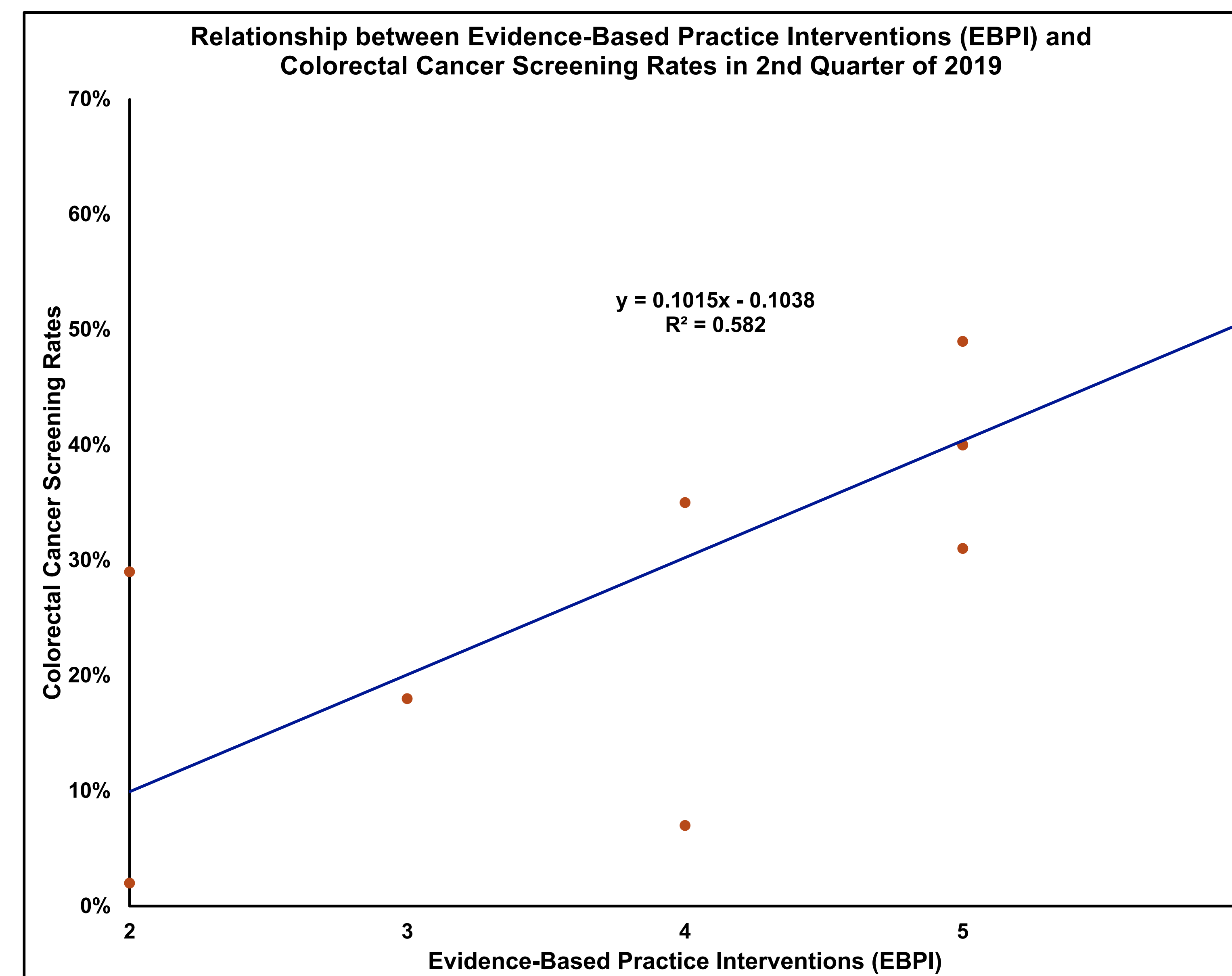
For future direction, further studies with more statistical power could look at each operational intervention individually or the correlation between each operational intervention on screening rates. This could help community health centers learn which operations are the most important, so they are to be tackled with most urgency. A national study with a greater sample size could evaluate the relative power of each intervention, allowing centers to prioritize what practices should be implemented first.

Acknowledgements

Special thanks to Paul Kang, MPH for assistance with the biostatistical analysis. The FRONTERA program and Alejandra Zapien MD, MPH.

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Retained Non-hormonal Intrauterine Contraceptive Device

David Escobedo PAS-II and Ian McLeod PA-C, MPAS

Northern Arizona University, College of Health and Human Services
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

Intrauterine contraceptive devices (IUDs) are widely regarded as the most effective method of contraception available, due to the efficacy of the device's biochemical mode of action, as well as the fact that the patient has no role in maintaining contraception while using the device.¹ While most IUDs available on the market today make use of estrogen and progesterone to prevent pregnancy, one of the oldest methods involves using the peculiar properties of elemental copper to prevent pregnancy. Additionally, copper-containing IUDs, Paragard in the United States (U.S.), are non-hormonal which limits systemic side effects. Another advantage of copper IUDs is that currently in the U.S., they are approved for 10 years of use, which is longer than most other IUDs on the market.² Paragard is made of a plastic frame in the shape of a capital T, with several windings of copper wire located near the ends of each arm and the stem of the T. This allows the IUD to remain flexible at the intersection of the arms with the base, which in turn makes insertion into the uterus simpler and safer.

Case Description

A 51-year-old female with past medical history of colon cancer in remission after radiation and chemotherapy presented to a family medicine clinic with a history of copper-based intrauterine device insertion in 2005 in Cuba. She requested removal of the IUD; performed on 11/16/20. During translocation through the cervix, an audible and tactile pop preceded a partial IUD removed from the uterus via the attached string. There was no pain in the pelvis or blood noted at the external cervical os. The IUD was identical to the one seen on Figure 1. Radiograph of the pelvis confirmed a linear density, representing the retained IUD fragment, in the midline pelvis.

On 11/24/20 the patient returned to the clinic and an attempt at blind retrieval of the fragment was made with alligator forceps by transvaginal approach under direct cervical visualization by speculum. Attempt was unsuccessful due to difficulty cannulating the external cervical os. She was referred to gynecology for definitive treatment, where the cervix was sounded, and the fragment was retrieved utilizing alligator forceps with bedside ultrasound guidance.

Case Description

Figure 1. The copper IUD fractured in a similar place on the frame as the device pictured.³



Discussion

- IUD removal via the string is a common procedure which can safely be performed by a provider or patient.
- IUD fracture is rare, with few number of case reports published.⁴
- Potential consequences associated with retained IUD fragments include abnormal bleeding, infertility, and infection.⁴
- Current FDA guidelines for copper IUDs do not discuss limitations regarding cancer treatment.²
- Investigation of the effects of radiation and chemotherapy on the polymers used in IUD construction may be worthwhile to provide guidance on when additional resources should be utilized for optimal management of IUD manipulation.
- In a gynecology clinic setting, additional resources are available including cervical sounds, hysteroscopes, tenacula, and providers with more experience and training.

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Safford, Arizona Community Assessment

EAHEC Scholar 2020-2022 Cohort | Amber Allen, Jesus “JP” Prado, Edward Ornelas, Sandra Matheny, Colby Hale, Tiffany Rogers, Christina Jones, Anyangatia Ndobegang, Teresa Curry, & Nicole Ferschke (Mentor)



Purpose

The purpose of this community assessment is to collaborate as an interprofessional team of students in studying the social determinants of health in Safford, Arizona and to further provide awareness and advocacy for the communities health needs.

Safford, Graham County, Arizona



Methods

Primary Methods:

EAHEC Immersion Zoom Interviews with Community Leaders representing the Graham County Health Dept, Chamber of Commerce, Sheriff’s Dept, Prison System, Mental Health Providers, and more.

Windshield Survey by Proxy- EAHEC team mentor Nicole Ferschke collaborated with Shelley Vaughn, NAU RHPP Program Director and Safford resident, to film a tour of the city by vehicle.

Secondary Methods:

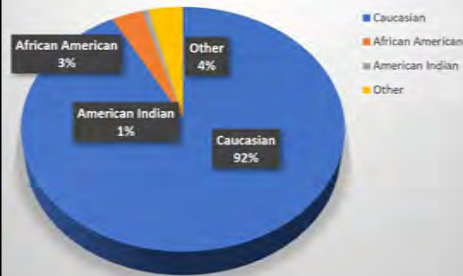
Online Resources (National, State, County & Local) scoured for applicable Safford, AZ data.

2019 Graham County Community Health Assessment was provided to team members to review and use for better community understanding.

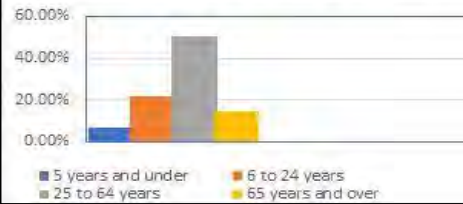
Demographics

Population: 9,983

Races In Safford, Arizona



Age Distribution in Safford, Arizona



Economics

	Arizona	Safford
Median Household Income	\$56,500	\$50,255
Unemployment Rate	4.9%	5.1%
Poverty Rate	13.5%	20.5%

Findings

The 2019-2024 Strategic Issues Identified by a Community Health Assessment:

1. Mental Health
2. Substance Misuse and Abuse
3. Healthy Living, Nutrition, and Physical Activity

Top 6 Reported Concerns By Area Residents

- | | | |
|---------------------------------|--|---------------------------|
| 1. Availability of Employment | 2. Counseling/ Mental Health/ Support Groups | 3. Road Maintenance |
| 4. More Recreational Facilities | 5. More Law Enforcement Presence | 6. Better Housing Options |

22%

Survey respondents who needed, or had immediate family who needed mental health services in the past year.

28%

Survey respondents above who had to travel outside of Graham County for mental health services.

31%

Survey respondents who reported a history of depression.

30%

Survey respondents above who reported not knowing who to contact for help.

Access To Mental Health Services

Indicator	Graham County	Arizona	U.S. Top Performers
Primary Care Physicians	1,880:1	1,540:1	1,050:1
Dentists	1,500:1	1,630:1	1,260:1
Mental Health Providers	2,500:1	790:1	310:1

Outcomes

Community Strengths

- >County seat with most allocated resources
- >Commitment to improvement
- >Strong family values

Community Limitations

- >Distance from metropolitan areas
- >Mental health education and resources
- >Lack of public transportation

Recommendations

- >Increase mental health literacy
- >Increase mental health access
- >Promote available mental health services

Conclusion

The city of Safford has many opportunities for improvement where the EAHEC Scholars could focus their attention during the 2020-2022 AzaHEC program. Together it was determined that the advocacy and care of mental health in the community is the most significant need. The next step is to research evidence-based interventions that have been successfully implemented in other rural communities.

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Surveying Winchester Heights

An Interprofessional Review of Resources and Social Determinants of Health

Daniel Tellez
University of Arizona
College of Pharmacy
Tucson, Arizona

Danielle Swets
Arizona State University
Edson College of Nursing
and Health Innovation
Phoenix, Arizona

Swati Chandra
University of Arizona
College of Medicine
Tucson, Arizona

Carly Eads
Northern Arizona University
College of Health and
Human Sciences
Phoenix, Arizona

Mariana Felix
University of Arizona, Mel
and Inid Zuckerman College
of Public Health
Tucson, Arizona

Cynthia Flores
Arizona State University
Edson College of Nursing
and Health Innovation
Phoenix, Arizona

Rebeca Gonzalez
Northern Arizona University
College of Health and Human
Sciences
Phoenix, Arizona

Francisco Romo
University of Arizona
College of Medicine
Tucson, Arizona

INTRODUCTION TO COMMUNITY AND PROJECT

- Location:** Cochise County in southern Arizona
 - Approximately fifteen miles north of Willcox
- Population (estimated):** 600
 - Not counted in the 2010 US Census
- Major Occupation:** Farmworkers at nearby fields
- Race and ethnicity (majority):** Latinx
- Designation:** Colonia (as of May 2011)
 - Colonia → an unincorporated community within 150 miles of the US-Mexico border that lacks basic infrastructure
- Southeast Arizona Area Health Education Center**
 - Organization within AHEC that works to recruit, place, and retain competent health professionals in rural and underserved communities
 - Goal:** To address health and social disparities in southern Arizona
 - Abbreviation → **SEAHEC**
- Windshield survey:** informal survey to observe health-related aspects of a community to drive future research and policy

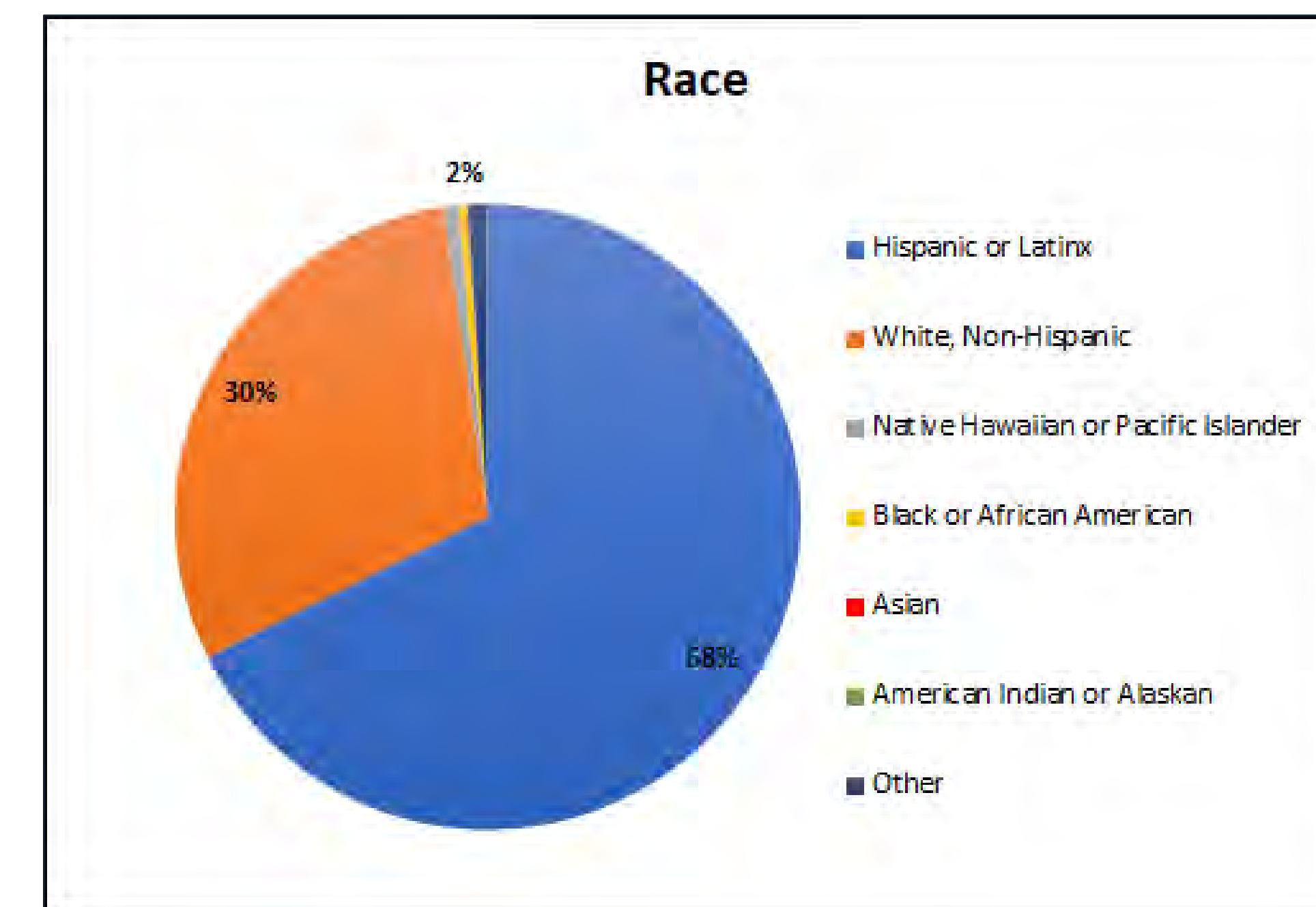
PURPOSE

- To identify, analyze, and report the healthcare barriers and social determinants of health (SDOH) present in Winchester Heights

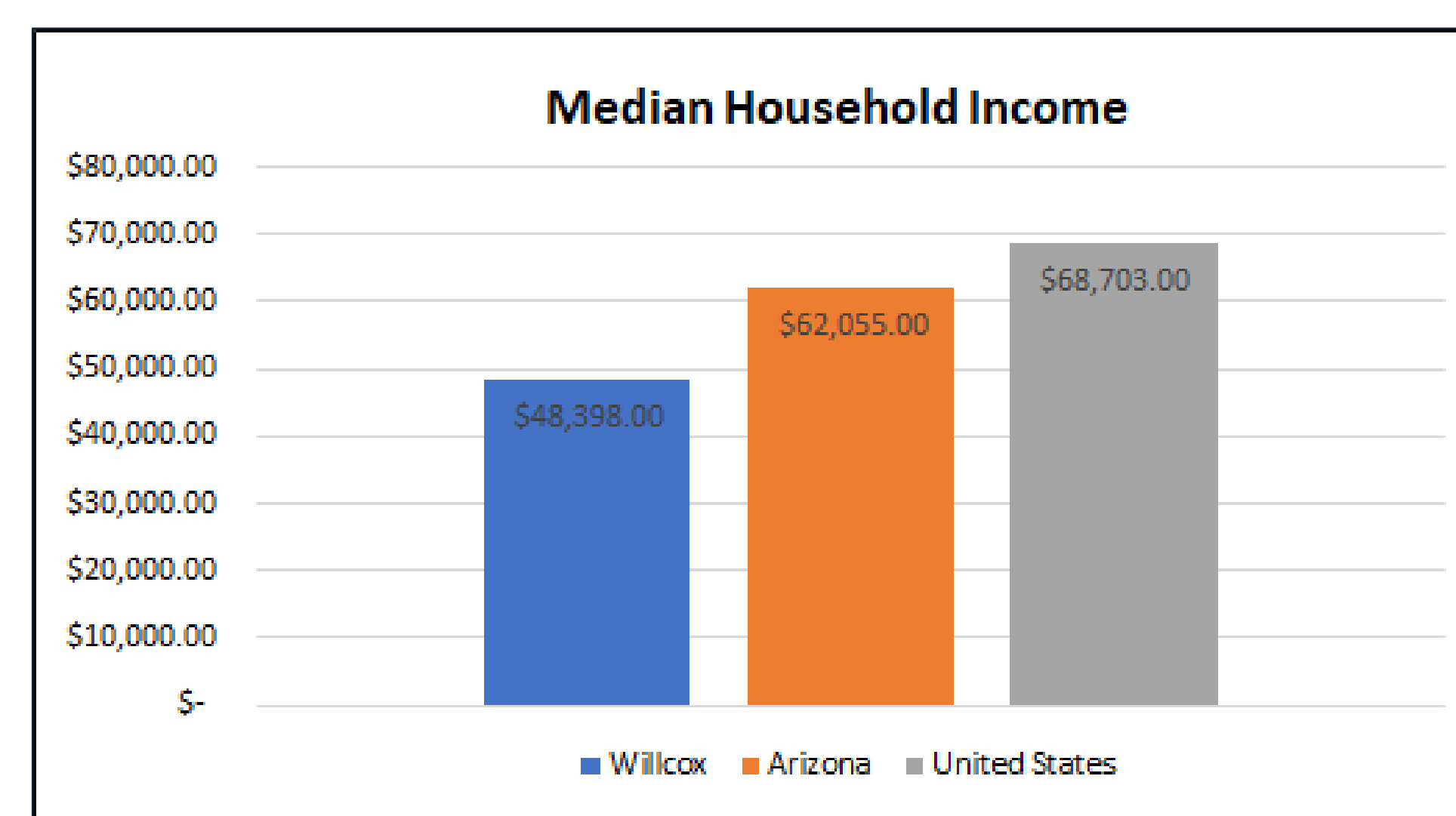
METHODS

- Primary data sources:**
 - Interviewed community stakeholders
 - Engaged in a virtual community introduction and walkthrough
 - Conducted interprofessional seminars regarding SDOH and applied associated concepts to windshield survey
- Secondary data sources:**
 - Gathered data through online resources
- Regional-, county-, and state-level data was included in situations of limited Winchester Heights information

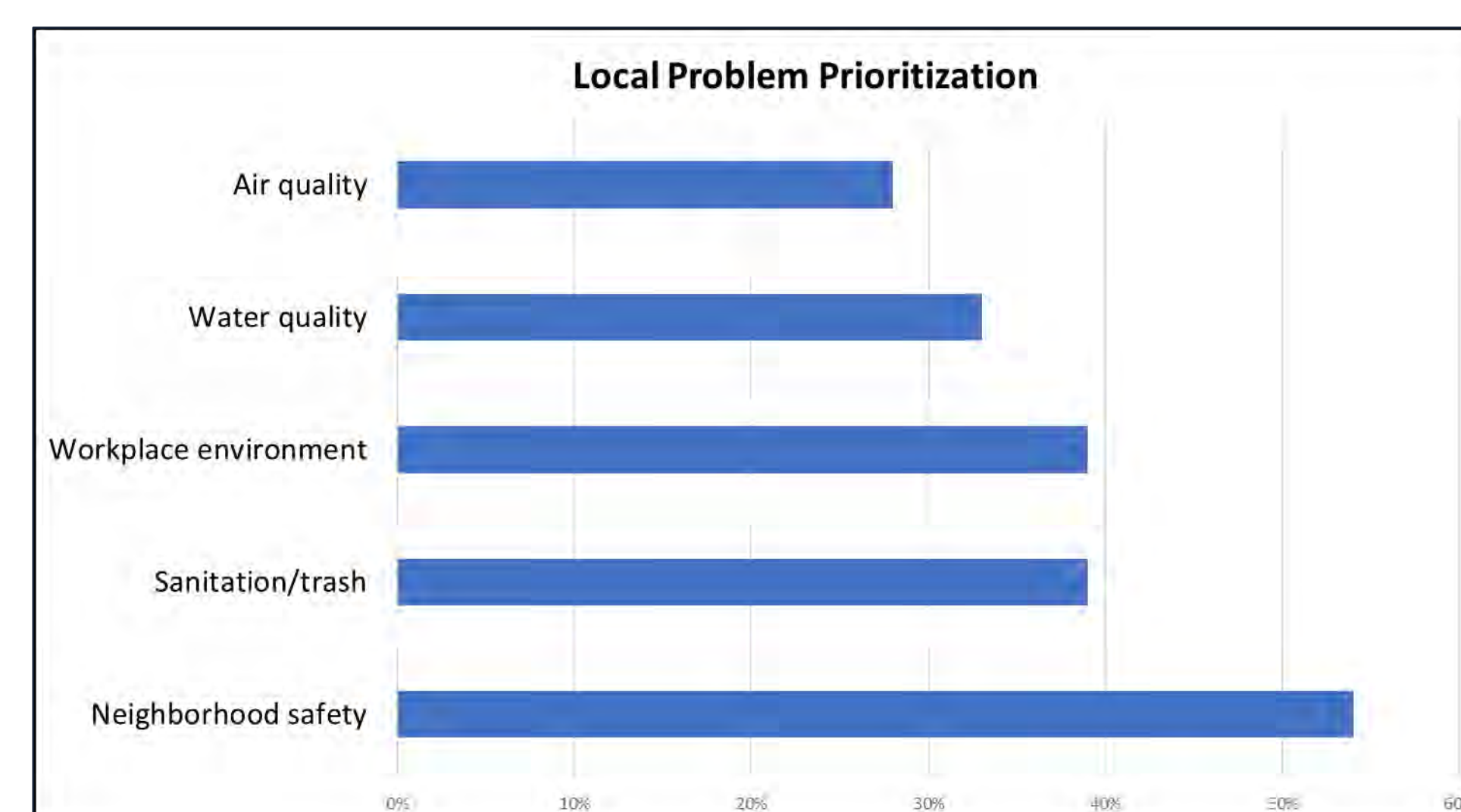
RESULTS



Willcox race and ethnicity demographics (Data USA, 2017)



Median household incomes from Willcox, Arizona, and the United States (US Census, 2018 and 2020, and Data USA, 2017)



Percent of Winchester Heights stakeholders that listed a particular community aspect as a problem

WINDSHIELD SURVEY



Main road through Winchester Heights



Local and migrant community farmworkers



Winchester Heights Community Center



Chiricahua Mobile Health Unit

SUMMARY

- Health:** Weekly healthcare resources are provided by Chiricahua Mobile Health Unit, but lack of access to healthcare due to rural location remains worrisome.
- Physical Environment:** Concerns include litter, unpaved roads, stray dogs, and lack of green spaces.
- Housing:** Residents primarily live in older mobile homes with concerns of mold, lead paint, and inadequate air quality.
- Economy:** High poverty rate impacts quality of life. Most residents working in agriculture are subjected to poor work conditions.
- Community and Social Services:** Winchester Community Center is the main hub for social events.
- Safety:** Trust in law enforcement is lacking, especially due to the distance from many public safety offices.
- Education:** Most students attend schools in Willcox Unified School District, accessible via school buses that stop along a major local road.
- Streets/Transportation:** Personal cars are the main mode of transportation, yet dirt roads are of concern.
- Nutrition:** Considered a food desert as the distance from grocery stores and local markets promotes low access to foods (especially fresh foods)

STRENGTHS AND LIMITATIONS

- Strengths:** The Winchester Heights Community Center has been a major improvement to the local quality of life, providing a common area for gatherings, education, and recreation.
- Limitations:** Winchester Heights continues to face challenges with regards to neighborhood safety, sanitation/trash, workplace environment, and air and water pollution. Additional community improvements must be done to address these disparities and improve the quality of life for local residents.

ACKNOWLEDGEMENTS

- Faculty Mentors:** Amy Devine & Marc Verhoughstraete
- SEAHEC staff:** Gail Emrick, Erin Sol, Linda Cifuentes, & Brenda Sanchez

LOGISTICAL INFORMATION

- References available upon request
- Contact corresponding author Daniel Tellez for additional information (dtellez@email.arizona.edu)
- Project funding provided by SEAHEC

Title

College of Health & Human Services

School of Nursing

Christina Andre

Faculty Sponsor: Dr. Shelley Vaughn, FNP-BC

Purpose of the Project

Diabetes management requires a multidisciplinary team, often requiring patients to travel to specialists such as endocrinologists, podiatrists, and nutritionists.

GOAL: Understand the benefits of telemedicine and use best practice to assist patients to be compliant with specialist appointments and treatment plans

Problem

Patients living in rural areas, especially those with limited or fixed income, have trouble getting to specialist appointments because there are often no specialists in their area and/or they cannot travel to the city where the specialists are. When they do not get to their specialists, they are less likely to gain control of their diabetes.

Setting

Small clinic in rural Globe, Arizona.

Patient Population

Diabetic patients over 40 living in the community and seen at this clinic

Clinical Question

Are diabetic patients living in rural communities who have access to telemedicine for diabetic specialists more likely to gain control of their condition within the first five years after diagnosis compared to those who do not have access to specialists via telemedicine.

Review of the Literature

¹ Overall health outcomes improved by use of telemedicine by diabetic patients in rural areas

² Measurable improvement of access to enhanced diabetic care, i.e. specialists, as well as increased compliance with routine follow up appointments with telemedicine.

³ Using telemedicine for access to dietician showed statistically significant improvement in HgbA1C control.

⁴ Telemedicine improved patient access to specialist care, which then improved

⁵ Telemedicine improved patient satisfaction, and satisfaction of caregivers for pediatric patients due to easier access to specialist and getting appointments sooner.

Proposed Best Practice

Telemedicine allows patients to see their specialists and get full interdisciplinary care, so they are more likely to comply with the treatment plan and gain control of their diabetes.

Conclusion

Diabetic patients seen in the clinic who do not have control, i.e. A1C went higher or stayed the same at follow up, often stated they could not get to their specialist appointment due to distance and inability to travel.

Findings regarding best practice a using telemedicine for diabetic patients was presented to providers in the clinic. Providers were receptive to the idea of incorporating more telemedicine at the clinic, and discussing with patients their ability to get to out of town specialists if needed. Providers also receptive to looking for out of town specialists that offer telemedicine visits to refer patients who are unable to travel out of town to see a specialist.

¹ (McClendon, Wood, & Stanley, 2019) ² (Paul et. al., 2020)

³ (Benson et.al, 2019) ⁴(Xu, Pujara, Sutton, & Rhee, 2018) ⁵ (Smith & Satyshur, 2016)q

Testosterone Replacement Resulting in Supraphysiologic Testosterone Levels

Brittany Barbarisi, PAS-II and Jennifer Feirstein, MSPAS, PA-C, DFAAPA
Northern Arizona University, College of Health and Human Services
Physician Assistant Studies Program, Phoenix, Arizona

Introduction

As men age, bioavailable testosterone levels naturally decrease at a rate of approximately 1.6% per year, which can result in late-onset hypogonadism.¹ Symptoms associated with hypogonadism include fatigue, low libido, depression, and reduced strength. It is important to note that the symptoms associated with hypogonadism can overlap with normal physiologic changes associated with aging.¹ According to the American Urological Association, a total testosterone level below 300 ng/dL supports the diagnosis of testosterone deficiency (grade B guideline).² Recent studies have revealed a dramatic increase in inappropriate use of testosterone therapy in healthy, middle-aged and older men.³ This overuse often leads to supraphysiologic testosterone levels, which can cause life-threatening problems such as polycythemia vera, hepatotoxicity, and increased risk of cancer development. This case study evaluates the importance of a thorough workup to determine the best approach for treatment of aging men with possible late-onset hypogonadism and reviews the adverse effects of inappropriate testosterone supplementation.

Case Description

A 55-year-old male with history of myocardial infarction with subsequent stent placement in 2009, hypertension, and hyperlipidemia presented in the internal medicine office to discuss concerns about testosterone levels. He obtains testosterone supplementation through a men's clinic due to testosterone deficiency and estrogen excess, associated with symptoms of fatigue, depression, low libido, and weight gain. Prior to initiation of supplementation in 2015, testosterone levels were 341 ng/dL and estrogen levels were 74.5 pg/mL; in 2016, levels increased to 1,221 and 128, respectively. The patient was prescribed anastrozole for the hyperestrogenism; subsequently, his estrogen levels decreased toward his baseline level in the 70-80 ng/dL range. Later in 2016, he developed erythrocytosis, for which he undergoes regular phlebotomy. Then, in 2017, tamoxifen was added to his medication regimen. Family history includes breast cancer in his mother and two sisters, and metastatic lung cancer in his father.

Physical Examination

- Vital signs: Temp 97.5 °F, BP 118/78 mmHg, P 114/minute, R 20/minute, and pulse oximetry 95% on room air.
- On physical examination, the patient was well-appearing and in no acute distress. Abdominal examination without hepatosplenomegaly. Breast examination without masses, nipple retraction, or skin changes. No axillary lymphadenopathy.
- Patient denied digital rectal examination of the prostate.

Results

- 09/28/2020-CMP, CBC, testosterone and estradiol levels

Test	Results	Reference Ranges
Testosterone Levels (Total)	1,202 ng/dL	250-840 ng/dL
Estradiol Levels	73 pg/mL	<=44 pg/mL
Aspartate Transaminase	54 IU/L	10-50 IU/L
Alanine Transaminase	63 IU/L	5-60 IU/L
Hematocrit	48.1%	40.0-53.0%
Hemoglobin	14.14 g/dl	13-18 g/dL

- 10/09/2020-abdominal ultrasound: severe fatty liver

Appropriate Workup

Test	Rationale
Sex Hormone Binding Globulin (SHBG)	Levels may increase with aging, which interferes with bioavailable testosterone
Follicle Stimulating Hormone and Luteinizing Hormone	Differentiate between primary or secondary hypogonadism. Low=secondary (pituitary) High=primary (gonads)
Prolactin	Prolactinomas can lead to decreased release of testosterone.
Free and Total Testosterone Levels	Confirms whether levels are truly low and should be obtained twice before treatment. ²
Estradiol Levels	May be high due to aromatase excess, excess cortisol production, or tumors.
PSA	Increased levels may indicate benign prostatic hypertrophy or cancerous process.
Prostate and Testicular Exam	Rule out benign tumors and/or BPH.
CBC	Assess for erythrocytosis. >50% hematocrit is an absolute contraindication to supplementation. ²
CMP	Assess liver function. Cirrhosis can cause increase in SHBG. Also provides a baseline prior to any treatment to assess for hepatotoxicity.
Thyroid Panel	Thyroid function can affect testosterone levels secondary to increased or decreased SHBG levels. ²

Discussion

The appropriate diagnostic evaluation for testosterone deficiency is necessary to determine the etiology of the patient's symptoms and implement the best treatment plan. In this patient's case, he had elevated estrogen and low testosterone levels prior to treatment. Although mildly increased estrogen levels may be a normal physiologic change with aging, this patient's family history of breast cancer in conjunction with the extent of his hyperestrogenism is cause for concern. Alternate treatment plans may have been more beneficial than testosterone cypionate supplementation. The resultant supraphysiologic testosterone levels after initiation of supplementation are likely associated with his development of erythrocytosis and fatty liver disease, and increases his risk for hormone-receptive cancers.

- Erythrocytosis, or polycythemia, is a known side effect of testosterone replacement therapy.⁴
 - Hematocrit greater than 50% should prompt either a reduction of dose if testosterone levels are high or high-normal, or cessation of treatment if levels are low-normal.¹
 - There have been increased rates of cerebral ischemia and reports of stroke during testosterone induced polycythemia.¹
- Anabolic steroids could induce toxicant-associated fatty liver disease (TAFLD) development.⁵
- Treatment with tamoxifen, a selective estrogen receptor modulator, is known to also have hepatotoxic effects.
- Men with the highest free testosterone levels face an 18% greater risk of prostate cancer, compared to those with the lowest levels.⁶

As providers we have a duty to protect our patients and investigate clinical presentations to provide the best outcomes in treatment. Further investigation into this patient's case may have lead to a different treatment plan. For example, use of an aromatase inhibitor alone to decrease testosterone aromatization into estrogen. It's also important to recognize when treatment is causing unwanted adverse effects, especially if it may lead to life threatening conditions.

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To Call or Not to Call: The Impact of Phone Call Reminders on Influenza Vaccination Rates

Linnea Dixson, MS4, University of Arizona College of Medicine, Phoenix
Paul Kang, MS, MPH, Kristen Samaddar, MD – Phoenix Children’s Hospital



Introduction

The CDC estimates that since 2004-2005, flu-related deaths have ranged from 37-188 children during regular flu seasons¹. Annual vaccination is the most effective way to decrease mortality. Automated recall and reminder systems have become extremely popular within healthcare practices. A Cochrane review has reported only 3 single-method recall methods to be effective in increasing vaccine rates: postcards, text message, and auto dialer². The use of telephone reminders was reported to “probably” increase vaccination rates with moderate certainty². This quality improvement (QI) project aims to determine the efficacy of telephone reminders for flu vaccination in our population.

Research Question

Do personalized phone call reminders increase seasonal influenza vaccination rates in pediatric patients seen at the Phoenix Children’s Hospital General Pediatric Clinic when compared to patients who did not receive a phone call?

Is there a difference in vaccine rates between rural and urban populations following the intervention?

Materials and Methods

In this QI project, a randomized list of children (n=300) aged 6 months to 18 years, seen at Phoenix Children’s Primary and Complex Care practice, was evenly divided into control and intervention groups. The intervention group received a phone call from a team member during November of the 2018-2019 influenza season. The call discussed the importance of the vaccine and reminded parents to schedule a visit for administration. If the call was not answered, a scripted message was left including scheduling information. An intervention and control group among a rural population was also included (n = 50). These numbers were chosen to meet 80% power. The Arizona State Immunization System was used to determine if patients received the influenza vaccine. Wilcoxon Rank Sum compared continuous variables and Chi squared / Fisher’s Exact compared categorical variables. Logistic regression was used to adjust for all other variables. As a quality improvement project, the study was exempt from IRB review.

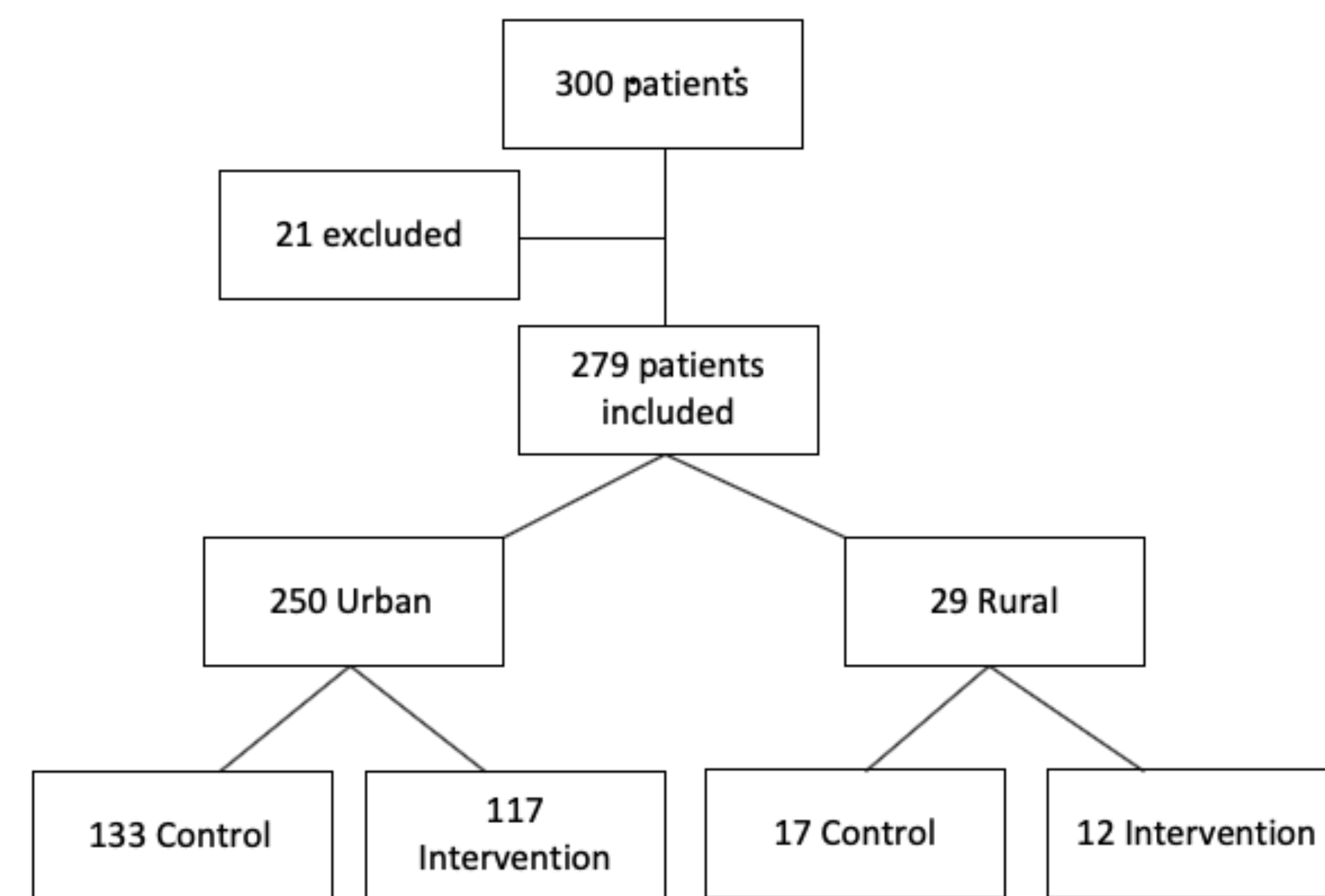


Figure 1: Patient Flow Diagram to report the numbers of patients in groups and subgroups

Results

279 patients were included (250 in the urban set and 29 in the rural group). Within the urban set, 117 were phoned and 133 served as the control. Of the calls made to urban families, 52% were answered and 48% were messaged. Of the urban children who received the vaccine at the end of the 2018-2019 flu season, there was no difference whether they received the call (p= 0.13). However, in the urban group, live-answer calls had higher flu vaccine rates than those who had messages left (49.3% vs 22.4%, p=0.005, OR 0.32 [0.15, 0.71]) (Table 2). In the rural population, 12 patient families were phoned and 17 served as the control group. When comparing the urban and rural groups, there was no statistically significant difference between the vaccination rates in the control or intervention groups (p= 0.28 overall, p = 0.22 intervention). However, numbers in the rural group were small given the population served by the PCH clinic.

Conclusion

Phone call reminders may be effective at increasing influenza vaccination rates, but the current QI project argues this is only the case if guardians answer the calls and speak directly with a team member. The power and influence of open conversation and human interaction should not be underestimated. More research is needed to determine generalizability of findings.

Variables	Overall N=279	Control N=150	Intervention N=129	p-value
Age, years (mean, SD)	8.04 (5.00)	8.00 (4.93)	8.08 (5.10)	0.96
Language Answered (Spanish, %)	N/A	N/A	6 (4.65)	
Setting (Rural, %)	29 (10.4)	17 (11.3)	12 (9.30)	0.58
Answered (Left Message, %)	N/A	N/A	58 (44.9)	
Vaccine (yes, %)	92 (32.9)	44 (29.3)	48 (37.2)	0.16

Table 1: Wilcoxon rank sum to compare continuous variables and Chi squared / Fischer’s exact to compare categorical variables

Variables	Yes Vaccine N (%)	Overall OR (95% CI)	p-value	Yes Vaccine among only Intervention N (%)	Among Intervention only OR (95% CI)	p-value
Intervention						
No Phone Call	44 (29.3)	REF		N/A	N/A	
Phone call	48 (37.2)	1.47 (0.88, 2.43)	0.13			
Age, years						
<14	79 (34.8)	REF		39 (37.9)	REF	
≥14	13 (25.0)	0.55 (0.27, 1.13)	0.10	9 (34.6)	0.68 (0.25, 1.89)	0.46
Language Answered (n=129)						
English	45 (36.6)	N/A		45 (36.6)	REF	
Spanish	3 (50.0)			3 (50.0)	1.29 (0.0.24, 7.12)	0.76
Setting						
Urban	81 (32.4)	REF		41 (35.0)	REF	
Rural	11 (37.9)	1.58 (0.68, 3.68)	0.28	7 (58.3)	2.30 (0.59, 8.84)	0.22
Answered						
In person	35 (49.3)	N/A		35 (49.3)	REF	
Left Message	13 (22.4)			13 (22.4)	0.32 (0.15, 0.71)	0.005

Table 2: Association between intervention and vaccination. Logistic regression adjusting for all other variables

Summary

- 279 patients were included: 52% of calls were answered and 48% were messaged.
- For children who received the vaccine in the 2018-2019 flu season, there was no difference whether parents were called (p= 0.13).
- Live-answer calls had higher flu vaccine rates than those who were messaged (49.3% vs 22.4%, p=0.005).

Acknowledgements

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Citations

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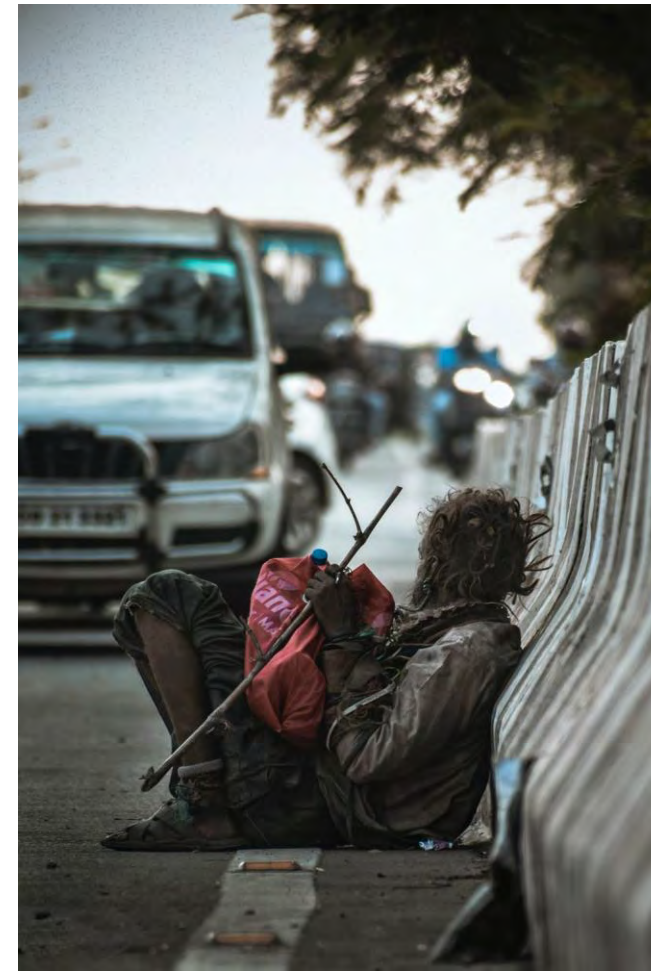


Underserved Populations and the Role of Community Health Workers

Az del Pino, BSN, RN, DNP PMHNP Candidate

Underserved Populations

- Include, but not limited to, any group of people, residing in urban or rural areas, that can include homelessness, HIV, children, women, economically disadvantaged, uninsured or underinsured, mentally ill, and migrants.
- An unmet need for mental health services increased from 4.3 million in 1997 to 7.2 million in 2010.
- Unmet need is highest among children (age 2-17), adults of working age (18-64), uninsured people, people with low incomes, people with fair or poor health, and with chronic disease.



The Gap

- Globally, a substantial gap exists between individuals requiring mental health care and those receiving it.
- An 11-year gap exists between onset and first treatment in underserved populations.
- Over 75% of individuals could benefit from care but cannot access it in low-and-middle-income countries.
- A lower likelihood of receiving mental health services is seen within racial minorities in the US in contrast to non-Hispanic white persons.
- Access to seeking care (when available) include; lack of transportation, low mental health literacy, stigma and negative experiences or perceptions with a mental health provider.

Community Health Workers

- Also known as; health promoters, lay health workers, lay providers, indigenous paraprofessionals, peer support specialists, and natural helpers.
- CHW have gained increasing recognition as valued members in the care team.
- In the United States, variable training exists for CHW from a 10-day training program to more advanced ongoing training.
- Evidence suggests that community health workers (CHWs) are involved in delivering mental health interventions to address a range of clinical disorders such as depression, anxiety, psychological trauma, and disruptive behavior disorders
- CHWs have been observed to be the sole treatment provider where they are seen delivering EBTs or interventions guided by evidence-based practice.
- Provide greater ethnic and racial diversity in comparison to the care provider.
- CHW are an inexpensive addition to a healthcare team with 70-80% of their funding from temporary funding streams.



Community Health Workers in Underserved Populations

- Given the immense challenges to meet service needs, interventions delivered by CHWs can boost care availability.
- CHWs have been incorporated into mental health interventions through the following four categories:
 1. Performing outreach serves as bridge between the community and care provider.
 2. Axillary support for mental health treatment such as case management and promotion of treatment adherence.
 3. Provide a lower level of care for patients with less intensive care requirements.
 4. Can be the sole treatment provider.
- A Cochrane review suggested that CHW are effective in improved outcomes for depression, post-traumatic stress disorder, and alcohol use disorder.





Purpose/Aims

Project Question:

Do patient portal notification reminders increase follow up HbA1C testing in diabetic patients aged 18 to 75 years old at Banner South Campus in Tucson, AZ?

- Purpose: increase follow up HbA1C Testing among diabetic patients.
- Successful diabetes management includes multiple modalities and monitoring HbA1C is one way of getting there.

Background

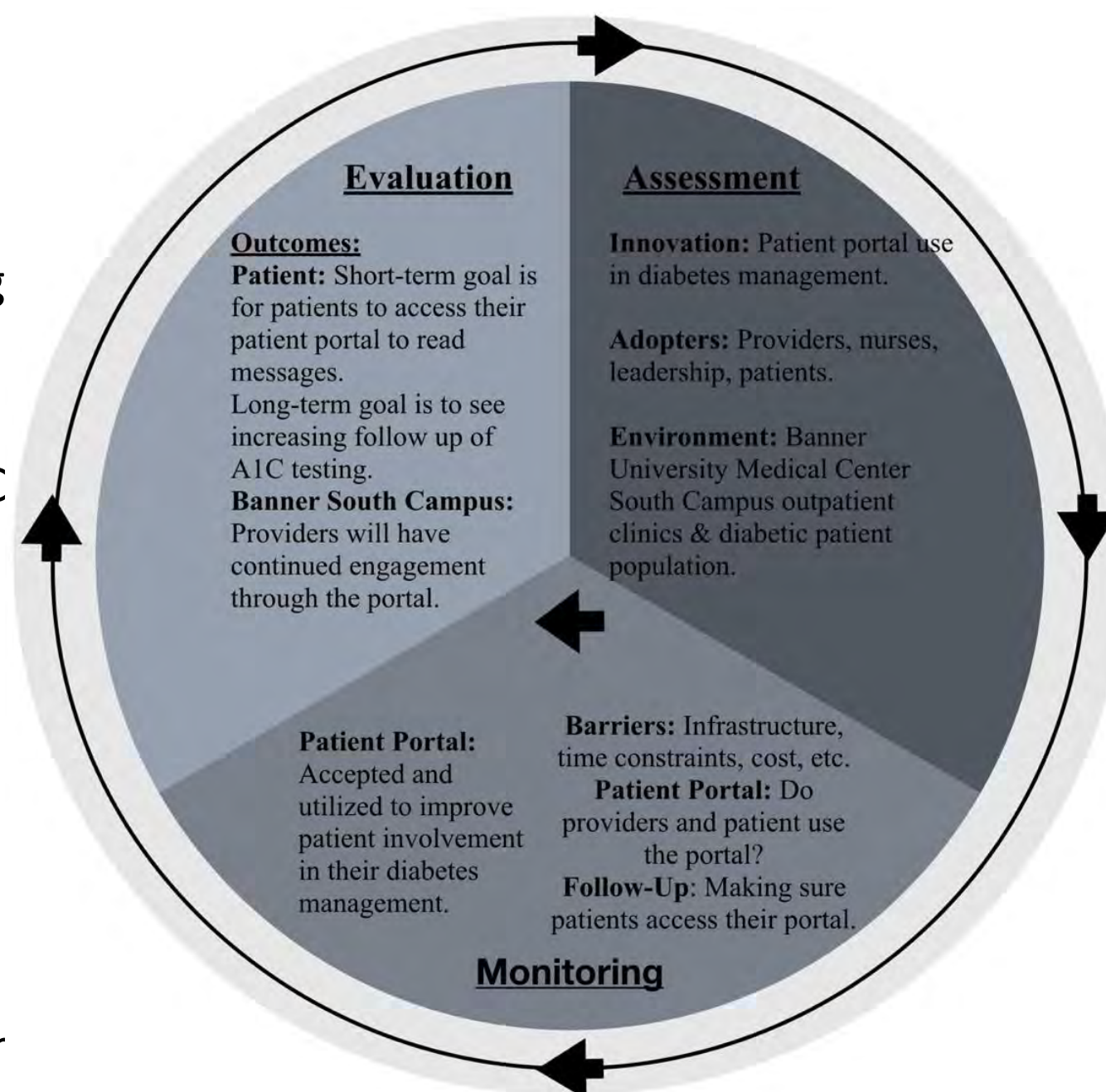
- In 2014 there were approximately 422 million people worldwide with diabetes.
- In the United States the number of those with pre-diabetes or diabetes was estimated to be 100 million in 2017.
- The US estimated the costs associated with diabetes to be 327 billion dollars.
- In 2018, the state of Arizona had an estimated 600,000 adults with diabetes.

Synthesis of Evidence

- Text messages, short messages services, and micro letter technology was used to improve diabetes management for both type 1 and 2 diabetics.
- The content of these messages varied from patient education, medication reminders, injection technique reminders.
- In a randomized control trial, SMS4BG was used for the intervention group and demonstrated a 75% decrease in their baseline HbA1C compared to the 59% for the control group (Dobson et al., 2018).
- Not only did patient reminders show some improvements in HbA1C but it increased medication adherence, reduced barriers to working on their health, and reminded pregnant mothers to take check their blood sugars.

Method

Theoretical Framework: Ottawa Model of Research Use



Setting

- Outpatient family practice clinic at Banner University Medical Center

Participants

- Uncontrolled diabetic patients between the ages of 18 to 75 with an HbA1C level of 9% or higher.

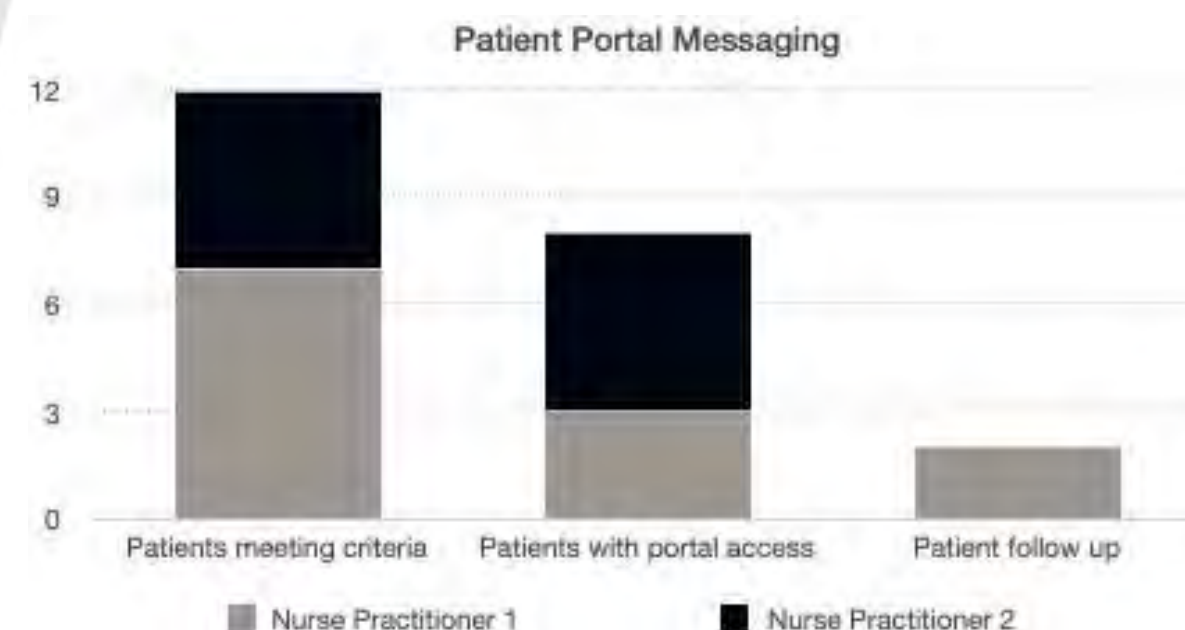
Intervention

- The FADE model was utilized to guide this quality improvement project. FADE stands for Focus, Analyze, Develop, and Evaluate
- Four nurse practitioners in the clinic were asked to select five patients each who met the criteria.
- Each patient would receive a reminder for HbA1C follow up testing. Number who responded tracked.
- The nurse practitioners involved were asked to respond to a survey developed using the technology acceptance model.

Results

Patient Portal Response

- At the final implementation of this project 3 NPs were in clinic. Two of which sent messages to patients. N=12
- NP, one had seven patients meet criteria but only three had portal access. Two of those three did make follow up appointments.
- NP two reported 5 contacts with zero responses.



Nurse Practitioner Survey

- Three NPs responded to the survey. Those who reported using the portal frequently had more favorable responses on its continued usage.

Summary/Conclusion

- Patients who are proactive in their use of the portal are more likely to use it to communicate with their provider.
- The clinic will ask the medical assistance to assist patients with activating the portal at check in.
- NPs who utilize the portal as apart of their routine could help their colleagues see its value in disease management.

References: Copy can be provided upon request.

Contact Information:

Candice Ben,
candicebrown@email.arizona.edu