

Student Scholarly Project Presentation Day

JANUARY 17, 2023



Tilman J. Fertitta Family
College of Medicine

UNIVERSITY OF HOUSTON



Program

TILMAN J. FERTITTA FAMILY
COLLEGE OF MEDICINE - ALC 1200
UNIVERSITY OF HOUSTON
JANUARY 17, 2023

OPENING REMARKS

1:00 P.M. - 1:05 P.M.

POSTER SESSION 1

1:05 P.M. - 1:55 P.M.

- POSTER 1: The Effects of Deep Fibular Nerve Stimulation on the Hearts of Normal and Spontaneously Hypertensive Rats
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POSTER 18: Exploring Models to Improve Pharmacy Access in Medically Underserved
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BREAK & SCORING BY JUDGES

2:55 P.M. - 3:15 P.M.

CLOSING REMARKS & AWARDS

3:15 P.M. - 3:30 P.M.

The Effects of Deep Fibular Nerve Stimulation on the Hearts of Normal and Spontaneously Hypertensive Rats

Authors: Zaidi W, Webb H, Romero K, Gonzalez-Gonzalez MA, Lloyd D, Smith S, Vongpatanasin W, Romero-Ortega M

Background: In 2019 the CDC approximated that half of the adults (116 million) in the United States have hypertension; of those surveyed, approximately 25% have their blood pressure under control. Heart disease and stroke are the leading causes of death in the US, and individuals with uncontrolled hypertension are at an increased risk for both. For some individuals, who are not responsive to medication or lifestyle modifications, stimulation of the deep fibular nerve (DFN) may be a potential treatment option.

Objective: Obtain a deeper understanding of this treatment on the heart tissue of these rats. Looking at four different parameters of the heart, i.e., aorta thickness, heart thickness, artery thickness within the heart, and general arterial fibrosis within the heart.

Methods: Using a miniature, wireless electrode (w-mCE) implanted on the DFN on 19 different hearts, spontaneous hypertensive rats (SHR) and normal tensive rats (WKY) went through daily wireless stimulation for a month. Previously reported by the Romero lab, stimulation of the DFN lowers blood pressure in SHR rats.

Results: Experiment is ongoing definitive results are not yet known.

Conclusion: We expect the thickness of the heart and aorta to be increased in the SHR rats. If treatment is effective we will observe less fibrosis, and more uniform vessel thickness compared to standard SHR. While examining periarterial and general fibrosis it is expected to see more fibrosis within the SHR rats. With effective treatment we expect the fibrosis to revert to a state closer to the normal (non-hypertensive) rats.

Topical Probiotics Decrease the Severity of Atopic Dermatitis in Children and Adults. A Systematic Review of Double-Blind, Randomized, Placebo Control Trials

Authors: Flint E, Ahmad N, Raskin D, Rowland K

Background: Atopic Dermatitis (AD) is a chronic skin disease affecting approximately 7% of US adults. AD commonly appears during childhood but can present at any age. There is growing interest in the link between the human microbiome, the immune response, and its effect on AD severity. Several reviews have examined skin microbiome modulation effects in children, but no systematic reviews have been published that include adults.

Objective: This systematic review sought to determine the efficacy of topical probiotic treatment for AD in children and adult populations using standardized criteria.

Methods: A search was conducted with relevant terms and studies underwent a systematic exclusion and inclusion process, yielding four studies. Disease severity, as measured by a standardized scoring tool (SCORAD) was collected and compared to placebo at two-week and four-week time points.

Results: All studies showed improvement in SCORADs in the treatment groups as compared to baseline at all timepoints; two reported outcomes at two weeks and three reported outcomes at four weeks. Two showed significant decreases in SCORADs after two weeks of treatment (treatment: -56.8%, -29.7% vs placebo: +7.1%, -7.8%), and three studies showed long lasting improvement after four weeks of treatment (treatment: -15.5%, -27.7%, -51.6% vs placebo: +32.0%, -31.9%, -16.3%).

Conclusion: Using a systematic approach with rigorous criteria, we conclude that in children and adults diagnosed with eczema, application of topical probiotics improves outcomes. Short-term treatment with topical probiotics significantly improves both signs and symptoms of eczema but was not curative in any of the four studies.

Prevalence of High-Quality Operative Notes Describing Ventral Hernia Repairs

Authors: Lall J, Maldonado S, Liang M

Background: Reliable documentation of specific details in the perioperative note is considered important for clear communication among patients, providers, and other healthcare affiliated workers. It is believed that quality in documentation may be associated with improved outcomes by improving subsequent care and decreasing perioperative complications of current care. In 2020, a group of experts on ventral hernia repair (VHR), gathered to perform a Delphi consensus on key features of operative reports for VHR. No studies have sought to assess the prevalence of operative notes that contain the 15 key features of the necessary information to be included on operative reports of VHR.

Objectives: The purpose of this study is to establish the prevalence of “high-quality” operative notes among reports of VHR as defined as meeting at least 70% (11 or greater out of 15) reporting metrics by the VHR Delphi group.

Methods: This retrospective observational study of operative reports that detail VHR surgeries utilizing an open approach with mesh repair, assessed n=497 operative notes written by U.S. based surgeons, for the presence of 15 key criteria, and additional perioperative details.

Results: It was noted that 48.29% of operative notes were assessed to be of high quality, with an average score of 10.3 out of 15 (SD=2.67).

Conclusion: This study failed to reject our hypothesis that among all operative reports assessed, less than 50% would be considered high-quality, yielding that only 48.29% of notes contained the necessary details to be considered high quality.

Using Computational Pharmacology to Identify *N. fowleri* Antibiotics

Authors: Dadeboe I, Agogo Mawuli P, Siderovski D, Bosch D

Background: *Naegleria fowleri* causes rare amoebic meningoencephalitis highly resistant to therapy, resulting in >97% mortality. As many current therapeutics target G protein signal transduction, a further understanding of G protein signaling within *N. fowleri* should aid future discovery of effective treatments for *N. fowleri* infections.

Objective: Can new computational tools identify inhibitors of *Naegleria fowleri* G protein signaling to create viable treatments for this brain-eating amoeba?

Methods: A 2.8-million compound library was screened using Schrödinger (v.2022-3). The X-ray structure of the seventh *N. fowleri* G-alpha subunit (NfGa7; PDB: 6NE6) had ethylene glycol (EDO403) bound within it (Bosch et al. (2022) J.Biol.Chem); therefore, Schrödinger's GLIDE-SP was used to screen the library against a receptor-grid anchored by the EDO403-binding site. 144 top-scoring compounds were obtained from Enamine for differential scanning fluorimetry to identify compounds that alter NfGa7's thermal denaturation profile. 39 stabilizing and 25 destabilizing compounds were tested by measuring NfGa7's GTP hydrolysis using Transcreener® GDP (Bosch et al. (2012) Curr.Protoc.Pharmacol.).

Results: Two compounds (Z##5638 and Z##6119) inhibited NfGa7's GTPase activity. A third (Z##7758) destabilized NfGa7 in thermal melt assays and increased NfGa7's GTPase rate.

Conclusion: NfGa7 inhibitors and activators were identified by in vitro testing. Further refinement of the identified compounds in other assays, and establishing structural models of these compounds bound within NfGa7 are needed to resolve the specific molecular determinants underlying their GTPase modulatory actions.

Automatic Segmentation of Sinonasal Malignancies on MRI using a ResUNet Neural Network

Authors: Medrano G, Karimi F, Tehami S, Ahmed S, Mohammed A, Fuller C

Background: Accurate and standardized descriptions of organs at risk are essential in radiation therapy for treatment planning. Traditionally, physicians have contoured images manually to plan the treatment or evaluate patient progress. However, this approach is time consuming and subject to observer bias. This study aims to investigate:

- a. Whether deep learning auto segmentation could overcome the limitations of manual contouring.
- b. Compare deep learning performance against deep atlas auto segmentation method in cancers of head and neck.

Scientists have compared the performance of these two methods on CT (Computed Tomography) scans, however this project utilizes T2 MRI (Magnetic Resonance Imaging) images.

Methods: On T2 MRI image sets of 20 patients were used, and 16 structures at risk (Cochlea, Cranial nerve VIII, Hypothalamus, Inferior rectus, Superior rectus, lateral rectus, medial rectus, Lateral pterygoid, medial pterygoid, Lens, Masseter, Optic chiasm, optic nerve, pituitary gland, Retina, and vestibular system) were manually contoured by medical students as reference structures. At this time, team of computer scientists are performing Atlas and deep learning on contours provided by medical students to calculate Hausdorff distance (HD) and, dice similarity coefficient (DSC), volume overlap error (VOE), and relative volume differences (RVD) to quantitatively evaluate the two different methods in the case of the reference set of the 16 structures.

Results: This project is in-progress. The atlas-based method HD, DSC, VOE, RVD, and standard deviation (SD) will be compared to deep learning values to determine which method is superior in auto segmentation of the 16 structures.

Conclusion: In this study, we compare the accuracy and precision of deep learning auto segmentation method to atlas-based auto segmentation method based of quantitative values (Hausdorff distance (HD) and, dice similarity coefficient (DSC), volume overlap error (VOE), relative volume differences (RVD), and standard deviation (SD)) for 16 different structures.

Investigating Cellular Patterning of Breast Cancer cells with ADGRF1 Overexpression or Activation on Novel Micropatterned Substrates

Authors: Omozee S, Oberkircher I, Vu A, Abdulkareem N, Quittana M, Friguglietti J, Trivedi M, Merchant F

Background: G protein-coupled receptors (GPCRs) are known to be excellent drug targets. However, the second largest family of adhesion-GPCRs are less explored for their role in health and disease. ADGRF1 (previously known as GPR110) is an adhesion-GPCR and has an important function in neurodevelopment. High ADGRF1 expression also predicts poor survival in cancer patients. However, the downstream pathways of ADGRF1 remain largely unknown in cancer.

Objective: In this study, we aimed to use novel silicon titanium diboride (Si_TiB2) micropatterned substrates to study the cellular patterning associated with ADGRF1 overexpression in HER2+ breast cancer as well as ADGRF1 activation by agonist (Synaptamide) in triple-negative breast cancer.

Methods: First, HER2+ BC cells were cultured on (Si_TiB2) substrate to form cellular aggregates. Second, aggregates were tracked daily by taking images using stereomicroscopy and images can be used for further analysis. Third, aggregates were collected for further analysis or stained for immunofluorescence analysis.

Results: There was visible growth at a dilution of 300 cell/mm² for all cell lines regardless of ADGRF1 receptor activation by Doxycycline and Synaptamide. Our study supports the potential of the microfabricated Si_TiB2 substrate platform to be used for patterning breast cell cultures in vitro.

Conclusion: This preliminary data is the stepping-stone for future studies which include viability assays, qPCR to explore receptor biomarker activity, replicating more trials to obtain statistical analysis, and testing seeded substrates with anti-cancer drugs such as Lapatinib for BT474 and SKBR3 and Docetaxel for MDA-MB-231.

Differential Neurovascular Plexus Innervation in the Spleen

Authors: Cowan S, Semier A, Gonzalez-Gonzalez M, Lloyd D, Romero-Ortega M

The spleen is a main lymph organ that has been associated to the neuroimmune reflex. Its innervation has not been well described, and previous studies in rat demonstrated that the four splenic nerve branches (SN) present different electrophysiological activity (Gonzalez-Gonzalez et al., 2021). These findings led to the hypothesis of this work, that the four SNs have different patterns of innervation through the spleen which provide them with different functions. To explore this hypothesis, viral tract tracers tagged with soluble GFP and mCherry were injected into SN-1 and -3, respectively, then double enzymatic chromogenic staining was used to visualize the signal and revealed by bright field microscopy. The results showed differences between the innervation of SN-1 and SN-3 throughout the spleen, which may explain the different electrophysiological activity previously reported and opens perspectives for future modulation with clinical relevance.

Data Sets Used to Develop Artificial Intelligence/Machine Learning/Predictive Analytics for Skin Cancers are Not Representative of the U.S. Population

Authors: Felix-Okoroji B, Turnage D, Price L, Williams L, Huff T

Background: Artificial Intelligence (A.I.), machine learning (ML), and predictive analytics (P.A.) use is increasing in the medical field as they can potentially improve the efficacy and efficiency of diagnosis, especially in the diagnosis of skin cancers. However, A.I. algorithms used today tend not to use data from representative samples, leading to concerns that A.I. can perpetuate biases embedded within data.

Objective: This systematic review evaluated how accurate data sets are to developing A.I., M.L., and P.A. algorithms in the diagnosis of skin cancer representative of the U.S. population.

Methods: Using a systematic review, we looked at 188 articles. Out of those 188 articles, 23 of them met our inclusion criteria.

Results: We found that only 5% of the 23 articles that met our inclusion criteria described the racial and ethnic composition of the individuals in the study. None of the studies included data sets in which African-American or Hispanic people are more than 14% of the population.

Conclusion: Current data sets are not representative of the U.S. population, and further efforts must be made to use more representative data sets to train A.I. models.

The Impact Between a Medical Legal Partnership (MLP) and Patients with Health-Harming Legal Needs

Authors: Johnson S, Oloyede P, Liaw W

Background: Addressing the connection between social determinants of health and undesirable health outcomes is poorly applied to the care patients receive in primary care clinics. One model which exists to coordinate the provision of healthcare is the medical legal partnership (MLP), which embeds lawyers in clinics to address health-harming legal needs (HHLNs). This study aims to provide an in-depth understanding of the MLP's impact on the delivery of care and patient wellbeing.

Objective: The objective is to examine the impact of the MLP on patients with HHLNs and describe the experiences of the interdisciplinary healthcare team of medical providers, clinical staff and legal professionals.

Methods: This is a qualitative study that utilized semi-structured interviews to assess the implementation and adoption of the MLP. Recruitment involved screening patients for HHLNs and enrolling those patients in the MLP program. This recruitment took place in person, through email, and by phone. During interviews, participants were asked a series of open-ended questions about their perceptions of the MLP. Qualitative data from transcriptions of interviews were analyzed using a thematic content analysis approach.

Results: Thirteen individuals participated in the study. We expect the results to identify factors being (1) social needs of patients, (2) positive and negative physical, mental, and legal impacts of the MLP, and (3) structure of the MLP.

Conclusion: Patients with HHLNs, medical providers, clinical staff, and legal professionals who participated in the intervention identified numerous factors affecting the implementation and adoption of the MLP.

Relationships Between Religion, Spirituality, or Personal Beliefs on Health Outcomes

Authors: Carter I, Parker D

Background: Previous research on relationships between Religion, Spirituality, or Personal Beliefs (RSPB) on health outcomes has demonstrated positive effects on wellness, but there are few systematic reviews that are driven by an empirical analysis approach.

Objective: This study synthesizes RSPB literature through meta-analysis. The goal of this study is to address an important question on the extent of empirical support for the relationships of RSPB on health outcomes.

Methods: The methods for analysis were governed by: (1) consistent criteria and definitions for sample populations, (2) use of databases for peer-reviewed articles only, (3) studies retrieved from the period from 1981 to 2022, (4) utilization of standardized analytic plan for evaluation of data, and (5) review of health outcomes that include physical health, mental health, and health behaviors.

Results: The results show that RSPB has a statistically significant effect on health outcomes.

Conclusion: Rigorous analysis supports the assertion that RSPB has a positive impact on health outcomes. Thus, it can be used as a resource to complement biomedicine in multiple specialties.

Assessing what Factors Affect ROTC Cadets' Access to Healthcare at the University of Houston

Authors: Gil A, Akintunde D, Harkins C, Harrison L

Reserve Officers' Training Corps (ROTC) programs prepare student-civilians to become potential leaders in the military through arduous physical and leadership training. Unlike student-athletes, who have direct access to athletic training services, ROTC cadets may or may not have access to an onsite healthcare provider (e.g. athletic trainer, nurse, physician). Based on current research, cadets commonly do not have familiarity with the healthcare resources available to them. The objective of this study is to identify barriers that may be limiting ROTC cadets' access to healthcare. The study will be conducted using a qualtrics survey. The qualtrics survey will address familiarity with available healthcare providers/services, satisfaction with the care they received, how often they report illness and injuries, access to insurance/kind of insurance, and knowledge of student insurance, counseling, and student health services. The survey link will be sent to the ROTC commanders, who will distribute it to the cadets. Potential participants are Air Force and Army ROTC cadets at a tier 1 institution, average age 18-30, of all genders. Data collected from this study could determine which factors impact access to healthcare for ROTC cadets. With the identification of these factors, measures can be taken to increase the cadets' access to healthcare and benefit their health outcomes as a population. Our protocol is currently in the post-review phase of the IRB application process.

Prison Inmate Awareness of Heart Disease Status While Incarcerated in State and Federal Prisons, 2016

Authors: Powers S, King B

Background: The United States constitutionally mandates access to health care while incarcerated. Heart disease is the leading cause of death of inmates in state prisons.

Objectives: This study investigates inmate awareness of heart disease in association with healthcare seeking behaviors while incarcerated, and the impact of self-reported learning disability and homelessness on the awareness of heart disease status.

Methods: This study is a secondary analysis of the 2016 Survey of Prison Inmates (SPI) collected by the Bureau of Justice Statistics (BJS). Participants were above 18 years of age across state and federal institutions.

Results: Those reportedly experiencing homelessness 30 days prior to incarceration (37.8% vs 27.7%; $p=0.036$), homelessness before 18 years of age (40.4% vs 25.8%; $p<0.001$), those with difficulty walking/climbing stairs ($p<0.001$) and doing activities alone ($p=0.004$) were more likely to be unaware of their heart disease status. Individuals with ADD/ADHD (prevalence=23.7%) had weaker (non-significant) association between awareness of their heart disease and healthcare utilization (Mantel-Haenszel test for heterogeneity; $p=0.006$). Those not reporting ADD/ADHD diagnoses had nearly 4 times the odds of correctly reporting their heart disease status if they had seen a provider (OR=3.90, 95%CI: 2.32- 6.59), compared to those who had not.

Conclusion: Awareness was associated with utilizing/interacting with healthcare provider since incarceration, the agreement was far from perfect: 89.9% of people defined as unaware, had been seen by a health care provider since incarceration. Multiple measures of experiencing homelessness and multiple physical disability measures were associated with less awareness of heart disease status.

Transportation Barriers to Healthcare among U.S. Latino Adults

Authors: Govender G, Ferelle L, Murillo R

Background: Lack of transportation can preclude individuals from accessing healthcare and disproportionately burden underserved populations, such as Latinos. However, factors related to transportation to healthcare have not been studied in Latinos. We examined correlates of transportation as a barrier to healthcare among US Latino adults.

Methods: We used cross-sectional 2012-2018 National Health Interview Survey data on Latino participants 18+ years of age (n=1,756). To assess transportation as a barrier to healthcare, participants were asked whether they delayed getting health care in the past 12 months, and those that answered “yes” were asked if the delay had been due to lack of transportation. We used logistic regression models to estimate the association between transportation to healthcare and potential correlates (e.g., age, gender, educational attainment, insurance status, employment status, US citizenship, and nativity).

Results: In adjusted models, having less than a high school education (Odds Ratio (OR): 2.00; 95% Confidence Interval (CI): 1.03, 3.88) and being unemployed (OR: 1.66; 95% CI: 1.15, 2.39) were most strongly associated with delaying care due to transportation. Women and unmarried individuals were also more likely to report delaying care due to a lack of transportation.

Conclusion: Socioeconomically disadvantaged US Latino adults were more likely to report lack of transportation as a barrier to healthcare. These factors should be considered in future research and programs focused on improving healthcare access among Latinos. Additionally, our findings highlight the importance of clinicians understanding the reasons related to patient decisions in seeking healthcare and work with them to overcome barriers.

Use of Digital Campaign to Promote COVID-19 Vaccination and Clinical Trial Participation in Vietnamese Texans

Authors: Venturi C, Tehami S, Nguyen C, Hua J, Gilbert L, Nguyen M

Background: Digital healthcare campaigns may hold the prowess to identify optimal methods for health promotion. This is of particular importance with respect to diverse populations and those with limited English proficiency. Texas has the second largest population of Vietnamese Americans within the United States; a population with a high rate of limited English proficiency.

Objective: The objective of this project is to describe the relevance of a digital media campaign on COVID-19 vaccinations and clinical trial participation to reach the Vietnamese American community in Texas and direct a Web audience to evidence-based content.

Methods: The digital media campaign consisted of twelve static, four video, and four audio bilingual (English and Vietnamese) advertisements displayed on desktop and mobile websites from February 15, 2022 through March 16, 2022. Ads directed users to the vietcovid.org website. Video and audio ads ran on connected tv, radio, and YouTube from May 26, 2022, through June 30, 2022. Outcomes measured included reach, average views per person, number of ads displayed, number of ads clicks, website analytics (bounce rates), website session duration, page views, and pages per session.

Results: Two million static ads reached an estimated 800,00 English speakers and 670,000 Vietnamese speakers. On average each person viewed the ads 2.8 times. The ads were clicked on 2,800 times. The video and audio ads reached 105,000 people through 984,000 displayed ads with 3.06 average views per person.

Conclusion: Online outreach campaigns potentially further community-based health promotion practices. Exploration of metrics may inform and improve future public health communication.

Providers' Non-cigarette Tobacco Use Intervention Practices in Relation to Beliefs about Patients, Prioritization of and Skills for Intervention, and Referral Knowledge in Texas Healthcare Centers Providing Care to Persons with Behavioral Health Needs

Authors: Jafry M, Reuven S, Britton M, Chen T, Martinez Leal I, Rogova A, Kyburz B, Williams T, Patel M, Reitzel L

Rates of non-cigarette tobacco use is elevated among adults with behavioral health conditions. Little is known about whether behavioral health providers are using brief interventions, including the evidence-based 5As for other tobacco use, or what provider factors may be associated with use of these interventions. The current study redressed this gap. Overall, 86 providers in Texas took a survey assessing their beliefs regarding (1) patients' concerns about other tobacco use; (2) their desire to quit; (3) importance of intervening on other tobacco use with cessation counseling; (4) perceived skills to intervene; (5) knowledge of referral options for treatment. Logistic regression analyses were conducted to determine the association between each factor and use of the 5As. Results showed that 70.9% of providers asked patients about other tobacco use status, 65.1% advised them to quit, 59.3% assessed quit interest, 54.7% assisted with a quit attempt, and 31.4% arranged a follow-up. Providers who believed patients were concerned about other tobacco use, recognized the importance of offering other tobacco use cessation counseling, believed they had the necessary skills to treat other tobacco use, and possessed knowledge of referral options, respectively, were more likely to deliver the 5As ($p < 0.05$). Results add to a limited literature on provider intervention practices for other tobacco use in settings where behavioral health care is provided, highlighting the significance of provider beliefs, perceived skills, and referral knowledge to care delivery. Findings reveal opportunities to increase delivery of the 5As for other tobacco use to behavioral health patients.

The Power of Support: A Scoping Review Investigating the Impact of Perinatal Support in Improving Maternal and Fetal Outcomes

Authors: Adams H, Jackson T, Scott M, Washington J, Wodi O, Chavez A, Kent E, Gilbert L, Pilkinton K

Women in Hispanic/Latin and African American communities are more likely to experience negative outcomes in pregnancy, birth, and the post-partum period. Having support during these times lowers the incidence of complications and mortality. This project examined the sources of support in these communities, the type of support they offered, and how they impacted perinatal health outcomes. Through scoping review, we identified six common sources of support during the perinatal period, and studied interventions with either African American and/or Hispanic/Latin communities and their outcomes. We limited publications to the last 20 years and in the United States. The six sources of support examined were family, nurses, midwives, doulas, community health workers, and physicians. From the 34 included articles, we identified five types of support provided: emotional, education, advocacy and empowerment, medical care, and financial/material support. The outcomes from these interventions were then grouped into health-related and social-related. Through cross-referencing the results and outcomes there was not a single support source that was sufficient in providing all necessary types of support, and there was no single intervention that could produce the wide range of positive outcomes for women in these communities. An ideal model would provide wrap around perinatal care and integrated care teams that connected all the sources of support. In order to achieve such a model, next steps would include an intervention that provided training and education to the different forms of support and facilitated integration of care teams.

Exploring Models to Improve Pharmacy Access in Medically Underserved Communities

Authors: Adepoju L, Karunwi A, Onyeomachi I

Background: Pharmacy closures disproportionately affect those with less access to health care resources. The extra travel distance following the closure of the nearest or second nearest pharmacies is almost twice that in medically underserved areas (MUAs) compared to the non-medically underserved areas (Non-MUAs). Previous research found that the risk of pharmacy closure was significantly higher in urban areas serving low-income, uninsured, and publicly uninsured individuals. Well-characterized solutions to address such disparities, particularly within pharmacy practice, are lacking in the literature. To mitigate the impact of pharmacy closures, intra and inter-industry partnerships are essential. This study explores current efficacious efforts to address the gap in access to care in pharmacy deserts, identify co-branding models from diverse industries that can be translated to improve pharmacy access in MUAs and describes the role of specific entities in the potential partnerships.

Objectives:

1. Identify current efforts to address the gap in access to care in pharmacy deserts
2. Discuss co-branding models from diverse industries that can be translated to improve pharmacy access in MUAs
3. Provide recommendations for practices in healthcare, policy and community stakeholders that address pharmacy deserts in MUA's

Methods: A scoping review of scientific peer-reviewed literature between 2016-2022 was carried out using PubMed and Google Scholar. Existing literature on pharmacy deserts, Medicaid and Medicare policies, reimbursements and legislature were used to synthesize ideas for practical solutions that can be translated to practice.

Results: Ongoing

Conclusions: Ongoing



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