

**8th Annual University of Dayton & Miami Valley Hospital
Healthcare Symposium**

“Building a Healthy Dayton: Next Steps”

March 25th, 2017

Poster Abstracts

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Category: DLH-1
Title: Protect Your Smile from Periodontal Disease
Authors: Allison Bailey & Shalom Reuben

Today, periodontal disease, more commonly known as gum disease, is one of the leading causes of tooth loss. Gum disease is when the tissue surrounding the teeth deteriorates. Unfortunately, many people do not understand how poor hygiene habits can lead to this destructive disease. According to Journal of Dental Research, “the prevalence of periodontitis increase[s] with increasing poverty levels and lower education, with about 67% of persons less than 100% of [Federal Poverty Levels] having periodontitis” (Eke et al. 918). The dental clinic at Good Neighbor House opened in 1996, and it is a non-profit organization built on the idea of serving the underserved to improve the community’s oral health. In 2016, there were 1,982 patients who visited the dental clinic. Many patients receive treatments such as extractions or dentures because of the consequences of gum disease. There needs to be an increase in education and better oral care in order to improve dental health of a low income community. To educate patients on gum disease, dental clinics should display informational posters and distribute pamphlets to patients that describe the disease, possible treatment options, and ways to prevent it. The poster will provide informational pamphlets discussing gum disease in which the intended audience will be those in poverty. Patients will then able to take the necessary steps to obtain a healthier smile.

Works Cited

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Category: DLH-2
Title: The True Cost of Dental Care
Authors: Collin Bryant & Conner Owen

Each year, more than 100 million Americans do not go to the dentist because they cannot afford it. In Dayton, the income per capita is 42% lower than the national average. This means that people in the city of Dayton have even less money than average to contribute to dental care. Medicare offers no dental coverage, and many dentists do not accept Medicaid, which would cover children below the poverty line. To address this problem, Good Neighbor House (GNH), a nonprofit dental clinic in downtown Dayton, provides dental care to patients who have modest income, but do not qualify for state assistance. GNH accepts insurance plans like CareSource, Buckeye, Melina, and Just4Me, which many dentists do not accept because the

profit margins are so low. In 2016, the GNH served 1,982 patients. We interned at the office, and our responsibilities were to make phone calls confirming patient appointments, disinfect surfaces, and sterilize dental instruments. We could better combat the high prices of dental care for the uninsured by fundraising to support non-profit care-providers like the GNH. Additionally, we could offer opportunities to volunteer at GNH through organizations such as the Dental Interest Group to gain professional experience while working towards the solution.

Category: DLH-3
Title: Short Term Solutions to Long Term Problems
Authors: Alyssa Filangeri & Jared Pope

The Good Neighbor House Dental Clinic is a clinic that only serves people in the Dayton community at or lower than 250% below the poverty line. The Good Neighbor House Dental Clinic is run by 12 paid full time staff, and then doctors and dentists who agree to work part time. Although the doctors get a decreased income than what they would make in private practice, they are paid for their work. In 2016, there was 1,982 patients that were served in the dental clinic. The services provided in the dental clinic are extractions, cleanings, fillings, sealants, and prosthodontics. Due to the lack of expendable income of the patients, the most common procedure taking place was extractions. After spending a total of 14 weeks shadowing at the clinic, we saw issues that arise from solely performing this one procedure. Extractions can cause problems later in life, both nutritionally and personally with self-esteem, when other more advanced treatments can avoid these issues. We propose that the clinic should make other more sustainable procedures, such as root canals and crowns, available and the same price as extractions. This would allow people to save their teeth, solving issues of malnutrition, that could be apparent due to extractions. Also, we believe that there should be more volunteer help, so the price of the clinic can go down, or even be free. We propose that having more volunteers and less paid positions, and having cheaper treatments options will allow for restorative practices to be used in the clinic.

Category: DLH-4
Title: The Need for Better Access to Dental Care in the U.S
Authors: Kate Galfano & Spencer Owen

A serious health concern that millions of Americans face each year is lacking the accessibility of adequate dental care. Our objective is to increase awareness and narrow the gap between underprivileged Americans and the lack of adequate dental care. In addition to the cost of dental care that many citizens cannot afford, there is a lacking number of dentists to fulfill the

need of their patients, especially in low income and minority areas. There are about 33 million Americans that live in areas that are underserved by dental health professionals. With this many Americans underserved, children and retirees have been the most affected. Many of those affected are enrolled in the Medicaid program and should be provided with dental benefits. A way to begin this goal is to have dental practices update their regulations to get rid of the restrictions that limit access to dental services, especially to publicly insured patients. States must also increase the reimbursement rates enough to cover the actual cost of providing care. To accommodate for the shortage of dentists there should be more creative ways of delivering dental care to those with limited access. A proposal of establishing mobile vans staffed by dental hygienists or practitioners to deliver dental care has yet to be approved by the ADA, but could provide people such as older citizens with transportation problems, a way of receiving basic dental care. Also encouraging more dentists to go to these underprivileged communities and giving basic dental care to those in need, can provide their respective areas with a great service as well as build the dentists' reputation which can ultimately lead to an increase in patients.

Category: DLH-5
Title: Educating the Dentist: Correcting Labial/Lingual Frenulums
Authors: Kristine Perez

Extremely tight labial and lingual frenulums, commonly known as lip and tongue ties, are congenital anomalies that severely restrict the motion of the tongue and lip. The consequences of untreated lip and tongue ties are wide ranging and can affect the structure of the face and teeth, including oral function. Most notably, babies with these impaired mobility conditions struggle to properly breastfeed, failing to securely latch onto the breast and overcompensate by increased suction. Treatments are quick and simple procedures termed frenectomies, involving snipping the frenulum with either scissors or lasers. These procedures are typically done by the child's pediatrician, who can often misdiagnose or perform incomplete frenectomies, resulting in a lip and tongue tie relapse. Frenectomies can also be performed by dentists, but there is a very small percentage in the state of Ohio who perform these procedures. Patients travel far distances to be treated by these providers, extending the duration of the babies' irritation and the mothers' pain and discomfort. This lack of experience in the dental field greatly restricts the number of patients receiving treatment for an otherwise simple procedure. There are no classes required or certifications needed in order to perform frenectomies, but many dentists lack the knowledge of treating these conditions or do not have the proper tools necessary for the corrections. The focus of this poster is to present the various methods to educate dentists about treating labial/lingual frenulums, with the primary aim of increasing the number of healthcare professionals who can perform this procedure.

Category: HPD-1
Title: Seniors and Hospital Stays: The Benefits of the Hospital Elder Life Program
Authors: Alyssa Beach, Erica Derifaj, Katherine Gross

The Hospital Elder Life Program (HELP) is a unique, interactive hospital experience for patients 70 years of age and older. The goals of this program focus around common side effects of elderly patients being hospitalized. Volunteers work to keep patients aware of their surroundings and to maintain cognitive functioning by combating the negative side effects of delirium and dementia. The mobility of the elderly patients is also emphasized because one day of being bed ridden at older ages equates to four to five days of being bed ridden at younger ages. HELP volunteers from University of Dayton's MED 220 class administer daily assessments in order to monitor any changes in mental or physical functioning. These efforts have proven to be effective in terms of prevention of physical or mental decline, shorter hospital stays, and a prevention of delirium. Additionally, the program has also proven to be cost effective by saving about \$10,000 per patient per year in healthcare costs (Results: Hospital Elder Life Program). Currently at Miami Valley Hospital, the HELP program has been active only on the pulmonary floor since May 2016 and is limited financially through grant monies. With all of these benefits, it is imperative that the program expand within Miami Valley beyond the scope of simply one ward. Increasing the number of HELP patients will not only benefit the local elderly population, but the community as well by allowing elderly patients to decrease their hospital stays and quickly readjust back to their daily lives.

Category: HPD-2
Title: From the Exam Room to Congress Floor: The Need for Healthcare Professionals in Healthcare Policy
Authors: Ada Pariser & Olivia Grondalski

Healthcare in the United States is changing rapidly, and issues of access, cost, and delivery are constantly at the forefront of many healthcare professionals' and pre-professional students' minds. While many of these professionals and students feel the situation is out of control due to the rapid and seemingly tumultuous changes occurring in Washington D.C., it is important to understand the system for presenting healthcare concerns to congress remains largely the same. This continuity greatly benefits the constituents seeking representation in policy development. The objective of this presentation is to investigate the crucial role that healthcare professionals can play in advancing healthcare policy and highlight avenues for professionals, including healthcare students, to actively participate in such a role. Personal experiences from involvement at the National Rural Health Association's D.C Headquarters and online analytical research were utilized to explain why healthcare professionals need to be involved in the healthcare policy process. A brief overview for the procedures used to introduce healthcare related policies to congressmen is also provided, followed by a discussion on the value that

membership to professional organizations offer. Additionally, during the presentation, the opportunity for individuals to actively contribute to the project is available for professionals and students to contact their Congress Representative about healthcare policies that are currently under debate by signing preaddressed letters.

Category: HPD-3
Title: HELPing the Prevention of Delirium
Authors: Sarah Feldcamp & Julia Hallack

Delirium is “a temporary but severe form of mental impairment that can lead to longer hospital stays and negative long-term outcomes” especially in geriatric patients receiving acute care (Collier). “Up to a third of patients 70 years old and above experience delirium” during their stays in the hospital (Collier). Until recently, delirium was thought to be a product of old age, and the deterioration of memory. (Collier) Little effort was channeled toward its prevention (Collier). Because delirium often leads to longer and subsequently more expensive hospital stays, research into its pathophysiology and prevention have garnered interest as health care costs continue to rise in the United States.

This poster will compare the neurotransmitter hypothesis and inflammatory hypothesis of the pathophysiology of delirium using relevant investigative research. Analysis of this research indicates that a consolidation of hypotheses is necessary to best explain the pathophysiology and etiology of delirium. Currently, no consensus exists related to delirium’s pathophysiology in part because little research related to delirium has been conducted on human models of the disease (van der Mast). Though research into the pathophysiology of delirium is limited, a more robust effort has been committed to researching the cost-effectiveness of programs designed to prevent delirium. This poster will present relevant data on the cost-saving power of the successful prevention of delirium using the Hospital Elder Life Program (HELP). Miami Valley Hospital is currently piloting a version of HELP on its pulmonary floor and hopes to expand the program after data indicating its efficacy is collected.

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Category: HPD-4

Title: Comparison of Advanced Care Providers v. Physicians in Effective Melanoma Diagnosis

Authors: Matt Odre & Sarah Patrick

Malignant Melanoma is the deadliest of skin cancers, claiming the lives of an estimated 10,000 people annually in the United States. However, “If Melanoma is recognized and treated early it is almost always curable (skincancer.org).” Melanoma is sometimes difficult to diagnose due to skin thickness and patient skin type. With every patient having different skin no one melanoma or mole looks exactly the same. Advanced Dermatology, a private practice in Baltimore, confirmed Melanoma in suspected cases by biopsy over the last six-years. A total of 655 biopsies were gathered by Physicians, Physician Assistants and Nurse Practitioners. These biopsies were all positive for Malignant Melanoma. The goal of this poster is to demonstrate that quality of care is similar when a patient is treated by Advanced Care Providers and Physicians. This poster will provide general description of melanomas, data on patient visits and overall diagnosis of Melanoma.

Category: HPD-5

Title: Free Health Clinics: Locally and Internationally

Authors: Lauren Hoody, Kayla McCarthy & Kaitlyn Stanfield

Both locally in Dayton and internationally in rural Nicaragua, there is a lack of access to health care for community members. In the Dayton area, 17.9% of the adult population is uninsured, which takes away their ability to see a primary care physician (Strategic Plan 2012). In rural Nicaragua, community members will travel up to 3 hours on foot to see a physician and even then they may not be able to afford a consultation. In both populations, the solution is to provide free clinics. Reach Out is a free clinic in Dayton that provides health care services to those that cannot afford physician visits. The mission of Reach Out is to provide access to health care services (clinic/pharmacy) for the underserved/uninsured population in Montgomery County, without restraints, utilizing the professional skills of volunteer physicians, nurses and other healthcare professionals (Reach Out Montgomery). Global Brigades is a similar program in which college students travel to Nicaragua to volunteer in various programs including medical clinics. The mission of Global Brigades is to develop sustainable health initiatives and provides relief where there is limited access to healthcare (Global Brigades). Global Brigades completes community assessment to determine where access to healthcare is limited and then schedules free medical clinics staffed by volunteer healthcare providers and students. These programs both provide physician consultations, vaccinations, medications when needed, and referrals for patients with more severe health problems. As a result, Reach Out had 3,070 clinic visits in 2016 and the 2017 brigade to Nicaragua saw 1,412 patients. The poster will describe both of these programs and present data regarding their impact on the communities they serve.

Category: HPD-6
Title: Healthcare Challenges Faced by International and Local Underserved Communities
Authors: Meghan Blank, Katherine Brown & Julie Sfiligoj

Public health conditions vary greatly worldwide and are largely influenced by available resources and community living conditions. Specifically, those in poverty live in poor conditions and struggle to receive basic health care. This is evident when comparing the public health conditions in rural communities of Nicaragua with those seen at a free clinic in Dayton, Ohio. In these rural areas of Nicaragua, there is limited access to water and healthcare. In addition, a lower financial status makes it difficult for some people to afford proper sanitation stations. For these reasons, many diseases are spread due to living conditions that are below the poverty line. In comparison, the primary public health issue in Dayton's underserved population is access to health care. These people usually live below the poverty line and are unable to obtain essentials like food and basic health needs. Often times, minor health issues go untreated and worsen, resulting in trips to the emergency room. Throughout this poster you will see the similarities and differences between public health conditions in Esteli, Nicaragua and Dayton, Ohio. We will explore how poverty is a barrier to receiving healthcare.

Category: HPD-7
Title: What Would You Do If You Could Not Understand Your Doctor?
Authors: Caroline Lynch & Haley Glaser

According to data gathered in 2009, approximately 25 million people in the U.S. (8.6% of the population) fall under the definition of Limited English Proficient (LEP). People who are LEP are characterized as speaking English less than "very well" compared to the average American (Betancourt et al., 2012). It is safe to say that the U.S. LEP population has been growing over the past few years as many people have chosen to immigrate to the U.S. from foreign countries such as India and Mexico where security is an issue (Zong and Batalova, 2016). Upon arrival to America, LEP people can run into language barriers in many aspects of their daily life, including in healthcare. As triage volunteers at Reach Out of Montgomery County, we have witnessed interactions between doctors and LEP patients, as well as interacted with LEP patients ourselves. Most commonly, we interacted with Spanish-Speaking patients who were either underinsured or uninsured. We discovered that the translators hired to be in the room with us and the techniques used to place the patient first over a familial translator were key to the overall health of the patient. Also, proper communication between patients and physicians is crucial in preventing readmissions due to a patient's inability to understand their condition. This poster will examine the techniques that have been shown to be the most effective for communicating with LEP and non-English speaking patients and recommend ways that the staff

of Reach Out of Montgomery County can implement some of these techniques to improve their ability to communicate effectively with patients.

Category: HPD-8
Title: The Unknown World of the Medical Scribe
Authors: Courtney Day

A medical scribe is an undervalued employee that plays an important role in the medical world. By definition, a scribe is a person who serves as a professional copyist, especially one who made copies of manuscripts before the intention of printing. By contrast, a medical scribe is someone who specializes in charting physician-patient encounters in real time, such as during medical examinations. Medical scribes initially began when the electronic health record started to overtake most of the doctors' time. There are many benefits that the scribe brings; not only to the scribe, but also to the doctor and the hospital. The scribe gets to experience direct patient care and build their resume for a medical career. The hospital gets satisfaction in knowing that the charts are detailed and accurate for legal purposes within the hospital. And most importantly, the doctor benefits by getting to focus on the patients more rather than working on documentation, they can see more patients per hour and the patients get a shorter wait time to see the doctor. In order to become a scribe, there are different options depending on the route you take to get hired. For me, I worked for Physassist scribes. My poster will reflect what Physassist is like, how they train their employees, where they are located out of and all of the benefits of being a scribe.

Category: HPD-9
Title: National Health Records Database
Authors: Nicholas Bargione

One of the many problems facing healthcare providers today is accessibility of patient information. Healthcare providers in emergency rooms and other venues of care often do not have access to or must take a large amount of time to access patient information managed by their primary care physician. This puts patients, especially those with extensive medical histories, at risk for poor health outcomes due to lack of necessary information on their condition. According to the Journal of Patient Safety, between 200,000-400,000 patients died in 2013 due to accidental medical errors. This number could be greatly reduced if providers had readily available access to a patient's complete medical history. In order to give healthcare practitioners access to patient information from across the country, a national health records database could be created. This database would allow providers all over the U.S. to access the most up to date patient information in order to administer the highest quality of care. The national health records database would be a government operated, Internet based system

giving providers access to electronic patient records from various sources of healthcare such as emergency departments and primary care facilities. Although there are many positive aspects of a national database, there are also some associated problems. These include threats of hacking and release of private information, as well as how such a large scale system would be funded. This poster will discuss the development of a universal health records database and how to solve the problems associated with creating and maintaining such a system.

Category: HPD-10
Title: Improving Readability and Understandability of Discharge Instructions for
 Patients with Complex Medical Needs
Authors: Julianne Haney

Health literacy is described as the ability to acquire, understand and navigate through health information and use it to make decisions¹. Patients discharged from the hospital rely on written discharge instructions for medication instructions, red flags and contacts for providers. Readability and understandability scores were used to assess discharge instructions at Cincinnati Children's Hospital Medical Center (CCHMC). Understandability is the ability to process and explain key messages in text. The PEMAT scoring system was used to assess understandability and the Fry readability calculator was used to assess grade level. The average readability of adults in the United States is 8th grade reading level. This is problematic because the average readability of discharge instructions was 10th grade level at CCHMC. Our objective was to improve the readability level of discharge instructions for patients with complex medical needs from 10th grade level to below 7th grade level and increase the percent of understandable discharge instructions from 15% to 80%. Interventions included a general template and patient specific templates in the electronic medical record and education for residents and physicians writing the discharge instructions. Within two months, the proportion of discharge instructions that were below 7th grade reading level increased from 56% to 100%. The median of understandable discharge instructions shifted to 67%. This poster will describe results of the study and present intervention methods used to increase readability and understandability of discharge instructions.

¹Unaka NI, Statile A, Haney J, Beck AF, Brady PW, Jerardi KE. J Hosp Med. 2017 Feb;12(2):98-101. doi: 10.12788/jhm.2688.

Category: HPD-11
Title: The No Veteran Dies Alone Program: Companionship at End of Life Brings Comfort to Veterans
Authors: Catherine McBride

After working as a volunteer in my local VA Hospital, I took the initiative to obtain further training to be a part of the nationwide, “No Veteran Dies Alone” program. This program specifically trains Veteran Affairs Hospitals’ volunteers in how to interact within hospice and palliative care units to provide presence, companionship and reassurance at the bedside when family and friends are unable to be with the Veteran at the end of life. By this program specifically targeting Veterans who do not have family or friends available to spend time in the hospital during their last days, it helps to ensure those who served our country are paid the respect of dying with recognition and comfortability. Volunteers are notified with the intention to provide a dying Veteran companionship most hours of the day. Through my volunteer experience, I witnessed the importance of the conduct listed above as it truly makes an impact in the ease of death for those who are terminally ill. Although those that are dying are usually in and out on consciousness, they are usually aware of their passing which can induce fear and unrest. Through speaking, touch and possibly interaction, I observed the physical and emotional discomfort of Veterans decrease. With the act of dying being a once in a lifetime experience, I observed that companionship helps one pass a more peaceful death. The “No Veteran Dies Alone” program allows volunteers to observe the dying process of the terminally ill and ensures the deaths of all veterans are recognized. The purpose of this poster is to describe the mission of the program, outline the aspects of the program, and present my personal reflections as a program participant.

Category: RSH-1
Title: The Effect of Physical Activity on Academic Achievement
Authors: Adam Schaefer & Rachel Michaud

The purpose of this poster is to present recent findings related to the correlation between exercise and academic achievement. With the rising trend of childhood obesity due to physical inactivity, the cognitive effects of PE and aerobic exercise have been an important area of study. There has been a significant decline in time spent during recess and physical activity by children, but research suggests that exercise programs can enhance mental processing during academic tasks (Tompsonowski, Davis, Miller, & Naglieri, 2007). Many studies have explored the physical, psychosocial, and cognitive benefits of exercise (Gomez-Pinilla & Hillman, 2013). It is known that being physically active results in an influx of biological responses in many areas of our bodies including organs, muscles, tissues and more. The changes in these areas then impact the structural and physiological response of the brain, including neurogenesis, increased neuronal connectivity, and increased hippocampal volume (Lees, 2013). Regular exercise increases the production of brain-derived neurotrophic factor, BDNF, causing nerve cells to branch together and improve communication. Higher production of BDNF gives the brain increased capacity for knowledge and thus increased capacity for academic achievement (Wrann, 2013). It is important to note that just a few minutes of exercise in rat studies led to increased production of BDNF, resulting in increased cognitive functioning (Stuer, 2009). Overall, examination of the literature found that several studies report positive correlations between aerobic physical activity and academic achievement (Tompsonowski, 2007).

Category: RSH-2
Title: Obesity in Ohio Children and Effects of Physical Education and Recess in Schools
Authors: Tanner Graves & Kelly Johnson

According to the Centers of Disease Control, 15.9% of adolescents in the state of Ohio were overweight and 13.0% of them were obese in 2015 (CDC, 2015). In addition, 74.1% of adolescents in Ohio were not physically active for 60 minutes each of the seven days of the week. This may be compounded by the fact that the state of Ohio does not require elementary schools to provide a minimum amount of physical education (Society of Health and Physical Educators, 2016). Physical education is on the decline recently as the Common Core Program encourages more class time to teach students. The purpose of this poster is to provide evidence for a correlation between the decline in physical education and the rise in childhood obesity in Ohio. Furthermore, this poster will discuss how increasing physical education and setting a physical activity requirement for schools could reduce childhood obesity.

Category: RSH-3
Title: The Cultural and Social Implications of the American Geriatrics Community
Authors: Brandon Kerch

Countries around the world vary in how they interpret the geriatric community; specifically those of Latin American origin and those of westernized medical practice. This study will focus on skilled nursing facilities specifically. The implications involve a comparison of U.S. and Brazilian care in nursing home settings. In 2014, it was recorded that there were around 15,600 functioning nursing homes in the United States. The total number of residents in skilled nursing facilities is just north of 1.4 million people (C.D.C., 2014). Brazilian long-term care institutions were around 3,549, according to Luiz E. Garcez-Leme and Mariana D. Leme (2014). The comparative analysis will have three parameters: cultural change, overall spending by residents, and coverage of care. The population of older adults is increasing especially as the baby boomer generation progresses beyond the age of 50 (Fry, 2016). Similarly, Brazil will have a major increase in people over 60 y.o.a in the next few decades (Leme, Leme 2014). The overall aim of the research is to compare cultural differences in family dynamics in accordance with how that influences the number of people placed in skilled nursing homes. Cultural idiosyncrasies between the U.S. and Brazil can guide observations on how to increase quality of care in the future as both populations increase.

Category: RSH-4
Title: Role of Dpp Signaling Pathway in Promoting Survival of Retinal Neurons in Ab42 mediated neurodegeneration and its relevance in future therapeutic methods of Alzheimer's Disease
Authors: Jason Kleppel

Alzheimer's disease is a progressive neurodegenerative disorder with no known cure to date. One cause of Alzheimer's neuropathy is the generation of Amyloid-beta-42 (A β 42) aggregates that trigger cell death by unknown mechanisms. In a forward genetic screen we have identified Decapentaplegic (Dpp), a morphogen, as one of the genetic modifiers of A β 42 mediated neurodegeneration. Dpp acts as the ligand for the dpp pathway, which exhibits suppression of retinal neuron's cell death. This study examines if axonal targeting from the retinal neurons to the brain in flies expressing high levels of human A β 42 polypeptide in the eye is affected by modulating levels of Dpp signaling and secondly if dpp-GFP reporter can serve as biomarker for A β 42 mediated neurodegeneration in the fly eye. The results of this study will be incorporated into a mice model and then hopeful human trials as well in order to produce therapeutic methods of Alzheimer's Disease.

Category: RSH-5

Title: Parkinsons' Disease: Etiology, Progression, Treatment, and Prevention

Authors: Hannah Peterson

Parkinson's Disease is caused by neuronal breakdown and/or death in the substantia nigra, a specific area in the midbrain. This can cause lower than normal levels of dopamine to be produced in the brain, resulting in a variety of symptoms based on the individual patient including, but not limited to, a tremor, slowed movement, rigid muscles, bad posture, and some speech and writing problems. As the disease progresses, daily life may become very difficult or even impossible for Parkinson's patients and eventually leads to death. Current treatment for Parkinson's can include various drugs and medications, physical and/or occupational therapy, and in some cases, surgery. Current prevention for Parkinson's Disease includes healthy habits like proper nutrition and exercising. However, in addition to the current practices to treat and prevent Parkinson's Disease, new research is looking into other novel ways to treat and prevent the disease. One of the main new treatments that is being looked into is transcranial magnetic stimulation (Chou, et. al 438). This noninvasive procedure uses a very strong magnet to stimulate certain neurons in the brain. It has been found in some studies that transcranial magnetic stimulation may be effective in reducing various symptoms of Parkinson's Disease, especially tremors (Siebner, et. al 93). Caffeine is also currently being researched as a drug that can potentially have preventative effects on people who have a genetic predisposition to Parkinson's Disease (Kumar, et. al 2). This poster will provide a synthesis of the current new research highlighting novel approaches to preventing and treating Parkinson's Disease.

Category: RSH-6

Title: Cryopreservation: A Potentially Beneficial Avenue of Exploration for Improvements in Human Organ Transplantation Methods

Authors: Dante Pezzutti

Organ transplantation has been one of the most significant advances in modern medicine since the mid 20th century and remains to be one of the only treatments for end-storage organ failure. Each day, roughly 80 individuals receive organ transplants. Additionally, approximately 22 individuals perish every single day waiting for an organ transplant (Organ Donation 2015). It is clear that an improvement in the preservation methods of human organs is vital to those patients in need of organ transplantation. The current therapies directed towards the preservation of human organs includes the use of gene therapy, preservation solutions, and pharmacological maneuvers. However, a method referred to as cryopreservation has recently been introduced as a novel avenue of research for the improvement of human organ transplantation methods (Pegg 2015). Cryopreservation is a process where cells, whole tissues,

or any other substances susceptible to damage caused by chemical reactivity or time are preserved by cooling to sub-zero temperatures. The use of cryopreservation offers a particularly attractive avenue of exploration for the advancements behind human organ preservation because it would allow for true long-term storage of a human organ. This research poster explores the current research being done in the field of cryopreservation and considers the potential benefits and challenges of this novel technique.

Category: GLH-1
Title: Incentivizing Women's Health in Rural Nicaraguan Communities
Authors: Olivia Bruno, Natalie Harkins, Wendy Lillystone

While in Nicaragua in January 2017 we had the opportunity to shadow a doctor that provided women's health care during the medical portion of our brigade. While patients were eager to see the primary care physician and dentists, many females were hesitant to utilize the women's health care services. It is important for these women to receive pelvic exams because "Nicaragua has the highest rate of cervical cancer mortality in the Americas both due to its inadequate health care system, with PAP screening available to less than 10% of women, and prevailing machista behaviors that propagate HPV, the cause of cervical cancer," (the Lilly project).

Our brigade set up two clinics, one clinic offered a care package as incentive to receive a pelvic exam, while the other clinic did not have an incentive. Between the two communities we were serving, we noticed a large increase in the number of patients who opted to receive the pelvic exam and in return received the care package than the community that did not have the incentive.

We believe that the solution to increasing the number of women who visit the OBGYN physician during medical brigades is to bring care packages on all medical brigades as an incentive to educate these women. There is a national nonprofit organization called Days for Girls International that puts together these care packages. The care packages contain instructions, reusable pads, soap, a washcloth and underwear. We propose that Global Brigades and Days for Girls International partner up to provide these care packages to women who attend the medical clinics.

Category: GLH-2
Title: The Role of Global Brigades in Sanitation and Public Health in Nicaragua
Authors: Nicholas Cheesman & Thomas Lawler

In Nicaragua, only 67.9% of the population uses improved sanitation facilities; that means over two million people do not have access to sanitation facilities common in America, such as a flushable toilet, an adequate shower, and even a septic tank (WHO). Additionally, over 800,000 people lack access to an improved water source, with over 100 children dying each year from diarrhea caused by unsafe water (Wateraid). These issues arise from the inadequate sanitation and poor public health throughout the country. Clearly, these statistics demonstrate a need for change. This is where Global Brigades steps in; Global Brigades is "an international non-profit that empowers communities to meet their health and economic goals through university

volunteers and local teams” (Global Brigades). It is a growing organization that added their latest destination of Nicaragua in 2012. This organization supplies well over 4,000 volunteers to each of its locations with over 300,000 beneficiaries backing their efforts (Global Brigades). One of the main focuses of this organization is public health. In Nicaragua, there are specific aspects of public health that can be addressed in order to improve quality of life, such as sanitation, waste removal, and access to clean water. The Global Brigades organization recruits volunteers from first world countries to provide valuable resources and labor that will improve the public health in the country. For example, the brigade that we went on spent time working directly with a family and a local mason to build a bathroom, complete with a septic tank and a washing station. The family was then given an educational chat known as a “charla” about how to utilize the new facilities properly. Within our specific community, 62 households received sanitary stations. Projects such as this one are carried out by Global Brigades in order to improve the public health in Nicaragua, thereby improving the overall quality of life. Global Brigades, as well as similar organizations, are working hard to improve the sanitation and public health in rural Nicaraguan communities. While additional support from the government would be also be helpful in these endeavors, it is not feasible due to instability and lack of funds. However, with the continuous efforts of organizations like Global Brigades, the country will eventually achieve higher sanitation standards.

Category: GLH-3
Title: Water Sustainability in Nicaragua
Authors: Sam Cicconetti & Jake Malkani

We use water every day to clean and hydrate ourselves without having to deal with the problems of parasites, dirt, bacteria and other contaminants harmful to our well-being. This problem, however, is confronted every day by hundreds of thousands of people living in Nicaragua. According to wateraid.org, 800,000 people in Nicaragua do not have access to safe water and this contaminated water does not only harm their bodies, but it is nowhere near as accessible as it is to us in the U.S. Those affected in Nicaragua usually have to travel by foot, sometimes up to an hour away, just to retrieve and carry the polluted water back to their families. Roughly 125 children in Nicaragua die each year from diarrhea caused by unsafe water, and without a solution that can guarantee these people clean sources of accessible water, thousands of men, women, and children will continue to live with intestinal-related illnesses along with other health problems. Water programs are currently being implemented by international volunteers working with local engineers and technicians to help solve this problem. Volunteers have been able to help dig trenches and lay down piping that carries safe spring water from mountaintops down to surrounding communities. For example, our Global Brigade volunteer team just recently joined this cause by assisting in the construction of a five-mile water trench while also building sanitation stations at the homes of community members. This water sustains countless numbers of families and helps community members rid illnesses and improve personal hygiene. Awareness regarding the positive impact resulting from these

projects is crucial for the people in Nicaragua because each volunteer that assists allows for more Nicaraguans to benefit from a sustainable water source. Last year, it was recorded that 2,000 Nicaraguans have gained access to clean drinking water and more than 1,000 now have improved sanitation. Having participated in these “water brigades,” a true appreciation for this cause is understood -- however, an increase in action must be taken.

Category: GLH-4
Title: Good Habits, Good Health
Authors: Blaise Eby & Colin McMahon

To Americans, basic hygiene is an innate aspect of our daily routine; the same cannot be said in regards to most people living in Nicaragua. Specifically in the rural regions of the country, the people lack the necessary tools, and resources in order to maintain a low-level of hygiene such as brushing teeth, washing hands or even simply using clean water. According to WaterAid America, roughly one third of the country does not have access to clean water or a proper toilet. This equates to be 2 million people who are affected by this epidemic. Over 200 children die each year from diarrhea caused by unsafe water, a lack of toilets, and poor hygiene. In relationship to dental hygiene, children under the age of 20 have five times the prevalence of dental decay than those in the United States. The Global Brigades program seeks to improve the lives of each family. Brigadiers help aid the foreman in constructing a proper sanitation station that includes a shower, toilet, and a stove all equipped with proper plumbing that leads to a septic tank that also needed to be built. As participants of the January 2017 brigade, we were able to address the problem of poor hygienic practices through construction of a sanitation station, and the education of both children and adults to hygienic practices. By curtailing exposure to parasitic diseases related to poor hygienic conditions, the community should begin to see improvement in health outcomes.

Category: GLH-5
Title: Are We Just Putting a Bandaid on the Problem?
Authors: Libby Jobe & Kylie Kroeger

Global Brigades is a student-led, nonprofit organization that travels to remote and under resourced communities to provide different types of care through their sustainable transition plan. A seven part holistic model is used to assess which communities need what type of care. The brigades we participated in included three days of a medical, two days of a public health, and one day of water. Student and doctor volunteers on these health brigades spend 7-10 days in a community working in clinics to provide members of the community with access to doctors, dentists, and medications. Along with being able to see a healthcare professional, members of the community participated in small educational chats, known as charlas, about dental and personal hygiene. The experiences we had while working in the communities in Nicaragua

opened our eyes to the drastic differences in access to health care around the world. Initially we thought that we were helping to put a bandaid on the situation but after spending several days interacting with the community members, we realized that the holistic model of Global Brigades provides a long-term solution. Although the materials may run scarce between different brigades, the education instilled in the community members through charla and the advice from healthcare professionals gives them the resources to sustain basic health care between brigades.

Category: GLH-6
Title: Improving Communication between Locals and Brigadiers for Health Brigades in Rural Nicaragua
Authors: Angel Pagan & Benjamin Schmeusser

In January of 2017, students at the University of Dayton paired with Global Brigades and ventured on a medical, dental, public health, and water brigade to rural Nicaragua. The primary goal of the brigades is to promote and provide sustainable health practices to underserved populations. As a volunteer, one will be working side-by-side locals for various projects, educating both children and adults within brigade communities, shadowing and assisting medical professionals, and triaging patients. Triage patients has demonstrated a complication within the brigades, for most of the volunteers triaging are non-Spanish speakers. Even with the help of some bilingual volunteers and translators, there is a need for an improvement in the communication between non-Spanish speaking brigadiers and the locals of the Rural Nicaraguan communities to ensure the best quality of care and improve efficiency for future brigades. Aside from being less than fluent in Spanish, one of the major contributors to the miscommunication is the improper word choice due to lack of knowledge of the local dialect. As a solution to the problem at hand, it is recommended that a new script for conducting triage with language that is more realistic to what is spoken in rural Nicaragua be created in conjunction with native Spanish speakers and Nicaraguans. In addition to the new script, a better understanding of medical Spanish, emphasizing body language, and conveying ones lack of Spanish speaking ability is necessary for improved communication. Meeting these improvements will improve quality of care and strengthen volunteer-community relations due to better communication. The poster will provide specific recommendations for the revised script as well as other verbal and non-verbal communication strategies for improved communication.

Category: GLH-7
Title: The Consequences of Insufficient Access to Obstetrical and Gynecological Resources in Nicaragua
Authors: McKenzie Anderson & Julie Cowan

In January of 2016 and 2017, students from the University of Dayton traveled to Nicaragua in order to provide aid to those in rural communities. During this trip, we assisted in free clinics where volunteer physicians consulted patients, performed gynecological exams and provided medications. Among these supplies were prenatal vitamins for the women of the local communities.

The topic of women's health and resources is important to address because women in rural Nicaragua have more difficulties finding adequate health care services compared to health care services in more developed countries. For example, the maternal mortality ratio in 2012 was 62.7% (UNICEF, 2017). According to the Foundation for Sustainable Development, maternal mortality remains high in disadvantaged groups, such as rural and indigenous populations and the poor, and some 55% of women give birth at home, without medical assistance (FSD, 2017). Additionally, high rates of adolescent pregnancy and cervical cancer are a concern for women's health (WHO, 2013). Many women have never received a pap smear and frequently go their entire pregnancies without prenatal care. One obstacle standing in the way of many women receiving pap smears and/or preventative pelvic exams is the long distance of medical clinics from their homes. It is important to recognize the need for increased access to obstetrical and gynecological resources as well as to establish preventative methods (such as pap smears, pelvic exams, prenatal vitamins, Gardasil vaccinations, and routine checkups) as way a to improve women's health. The purpose of this poster is to summarize the current state of women's health in Nicaragua and identify barriers affecting these health measures.

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Category: GLH-8
Title: Nicaragua's Soda Consumption: Contributions to an Epidemic of Hypertension in Youth
Authors: Parker Griff & Allison Harmon

Studies on hypertension in Nicaraguan adults aged 20-60 years indicate a 22% prevalence of hypertension in the population surveyed (n=1,355) (Laux et al., 2012). Our experiences on the Global Brigades trip in Nicaragua reflect this finding with younger adults often presenting with hypertension. The individuals in the rural Nicaraguan communities that we visited consumed high amounts of sugary drinks such as soda, without the knowledge about the potentially harmful consequences, which contributes to poor nutritional balance. Studies found that 42% of 6-month olds and 32% of 8-month olds in the rural Nicaraguan population studied had consumed sugary drinks (Contreras et al., 2016), while the Cleveland Clinic reports a positive linear association with soda intake and high blood pressure (Wellness Team). We propose modifications to the educational charla portion of the brigade to include information about the risks associated with high levels of soda consumption. We suggest getting donations of refillable water bottles with information sheets in them to distribute throughout the brigade with hopes to decrease soda consumption, especially in youth. While multiple factors contribute to hypertension, our goal is to educate and present resources about the benefits of purchasing water to drink over purchasing soda to decrease the incidence of hypertension. This poster will describe the components of the brigade, the topics currently presented in the educational charla, and the proposed information about the benefits of water over soda to be distributed to the Nicaraguan communities.

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Category: GLH-9
Title: Reducing Transmission of Communicable Diseases in Nicaragua
Authors: Nathan Helfferich & Joe Mauch

As of 2015, one third of the population in Nicaragua does not have access to clean water or proper toilets (WaterAid Inc). Without access to basic sanitation measures such as toilets, showers, or clean water, people are more susceptible to common infectious diseases such as Dengue Fever, Malaria, and Chikungunya. Communicable diseases are the primary reason for disparities in life expectancies between rich and poor countries. In order to support those 33% who do not have access, Global Brigades of one of numerous organizations have aimed to solve the lack of infrastructure that contributes to lack of clean water. Global Brigades' 8-initiative holistic model resolves medical, economic, and social disparities. As one of their eight initiatives, Public Health brigades serve the community by building eco-stoves, latrines, concrete floors, showers, and water storage units. In addition to providing these infrastructural needs, Global Brigades provides health education workshops and follow-ups to the projects through local stonemasons. A group of sixty University of Dayton students went to Nicaragua through Global Brigades to provide access to clean water and sanitation to those in rural Nicaragua. The UD group partnered with community members to provide six families with a shower, latrine, septic tank, and dishwashing station. Consequently, these projects can empower communities to use their own clean drinking water and eliminate the transmission of communicable diseases. Cheap yet well-developed infrastructure offers a relatively easy and effective preventative measure to restrict infectious disease in other developing countries.

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Category: GLH-10
Title: Fighting Enteric Infections -- Septic Safety in Nicaragua
Authors: Anthony Rose

Within the past 10 years World Health Organization (WHO), performed a *rapid assessment of drinking-water quality* in Nicaragua and concluded that 90% of their drinking water was contaminated. Much of the fecal waste is placed in a hole dug in the ground, rather than in a closed storage filtration system, like a septic tank. This causes issues with the soil leading to water reservoir contamination of the surrounding area and communities. This is why people in Nicaragua have suffered greatly from enteric infections. Roughly two-million people do not have access to proper disposal of fecal waste, this is roughly one-third of the country's

population. Unfortunately this causes over 200 children each year to die of enteric infection due to unclean water, poor hygiene and lack of a proper toilets and sewage management ("WaterAid America", 1). To combat this issue Global Brigades, the world's largest student-led *global* health and sustainable development organization, has formed a symbiotic relationship with the locals in Nicaragua to improve public health by helping them build septic systems to minimize water borne enteric infections. This poster will describe this project and present outcomes including changes in incidence of enteric infection in the communities served.

Category: GLH-11
Title: Helping Patients Differentiate Between Urinary Tract Infections and Back Pain on a Medical Brigade
Authors: Ashley Trent

This past January I participated in a medical brigade to Nicaragua. The purpose of this trip was to provide medical assistance to the community of La Corneta, in order to help them become empowered and sustain the health of their own community members. During my time on the brigade, I spent several afternoons shadowing in the medical clinic, where I observed many patients mistakenly attribute their symptom of lower back pain to a urinary tract infection. This is a common misconception because urinary tract infections can progress in certain situation into kidney infections, also known as acute pyelonephritis, in which common symptoms include upper back and flank pain. However, the kidneys are much higher up than most patients realize, and the diagnosis that is eventually reached is lower back pain, usually due to working and strenuous life styles typical of someone living in a developing country. In this poster, I will make recommendations for helping patients understand these diagnoses. This involves illustrating the difference between the two conditions, discussing the etiology, progression, treatment, and prevention of a lower urinary tract infection and how it differs from acute pyelonephritis. I will then propose a method to verify the diagnosis of urinary tract infections versus back pain. A simple dipstick urinalysis is a quick, and relatively inexpensive diagnostic method that should be utilized. The use of this method would provide physicians with objective data, enabling them to make a diagnosis within minutes and allow patients to have confidence in the physician's diagnosis.

Category: GLH-12
Title: Addressing Inequalities in HIV/AIDS Prevention Programs in Africa
Authors: Emily Kegel

The HIV/AIDS crisis has had a debilitating effect on the developing nations in Africa, and has created a massive health crisis across the continent. The spread of the disease often comes from a lack of proper medical infrastructure, education prevention, and cultural barriers, which all concurrently leave the African people at a major disadvantage to receiving proper medical

treatment. Throughout the 21st century there have been various humanitarian efforts made to improve conditions through non-profit organizations; however, the problem stems from an underlying issue in the African healthcare system. The government's inability to properly fund the healthcare sector results in poor infrastructure of medical facilities. These infrastructure issues then affect the efficacy of programs to have a positive outcome since there is insufficient treatment of HIV/AIDS and scarce amount of medically accurate resources available. This lack of resources leads to the inability of Africans to properly educate themselves to prevent the spread of HIV/AIDS, which allows for the perpetuation of HIV/AIDS in Africa today as Africa has a rate of death from communicable diseases that is 37.5% higher than the rest of the world (KPMG International). In order to lessen this gap, there must be an instillation of more organized and well-funded top-down programs that address the systemic issues of HIV/AIDS as well as larger dissemination of prophylactic materials in order to help stop the spread of the disease on a personal and community level. This poster will provide information on the incidence rate of HIV/AIDS in Africa as well as a comparison of prevention programs in African countries and the United States in order to outline the gross inequalities found within African programs, and it will also outline a breakdown of the various issues in African HIV/AIDS prevention programs.

Category: GLH-13

Title: Health Care in in Guatemala: Encompass the Culture to Deliver Effective Care

Authors: Victoria Singleton

In May 2015, I spent a month in Guatemala, working in Timmy Global Health's Medical Clinic in Xela. It was my time in Guatemala that taught me the importance of understanding one's culture in order to care for patients in a meaningful way. With a wide variety of Mayan cultures in Guatemala, providers took the time to personalize care by getting to know their patients. The experience I had in Guatemala represents the importance of the biopsychosocial approach in creating a plan of care for patients. This poster will analyze how Timmy Global Health was able to build an effective health care clinic that provides for rural communities in Guatemala. This poster will discuss different programs the clinic utilizes and the effectiveness of these programs in the clinics patient care outcomes. This project will include a description of its mother and child program and its nutritional program. Furthermore, the poster will discuss how the delivery of high-quality care for individual patients is linked to efforts that redress some of the structural barriers to good health (including social and economic barriers). This analysis of the clinic will include a historical background of its patient population and its use of a mobile clinic to be more geographically available. Overall, it will address the clinics motivation to understand its patients and the progress the clinic has made in the overall development of its patient's health.

Category: GLH-14
Title: Hazardous Metal Exposure to Rural Residents Living Near the Akaki River in Ethiopia
Authors: Nicholas Smith

Background. Ethiopia is a country that is located in East Africa. One of Ethiopia's main rivers is the Akaki River, which flows from north to south. The Akaki River runs through Addis Ababa, which is the capital of Ethiopia and has been found to contain elevated levels of several metals. *Methods.* Due to the river running through the densely populated commercial, residential, and industrial sites, we considered a cross sectional research study done by Ellen Yard and her colleagues. The goal of this study is to provide sufficient evidence through biomonitoring techniques, such as blood and urine samples of the urban/rural population, and geo-monitoring techniques, or soil sampling, of multiple towns surrounding the Akaki River. Furthermore, we reflected on past projects that have been done to assist on the crisis; while also, investigated local and regional laws regarding their waste management procedure. Likewise, we compared those with national laws to see if there were any discrepancies or conflicts with each other to make sure it is being properly enforced. *Results.* This investigation will help uncover the pollutants affecting the Akaki River and the impact it is having on surrounding populations. *Conclusion.* These tests will help public health professionals identify unique risks to specific toxic water exposures and assist the Ethiopian Federal Ministry of Health in making more frequent testing and monitoring of discharge in required areas. In addition, we hope this information will raise awareness to the importance of this waste management in this area and hope to raise money to help assist the people in these areas.

Category: GLH-15
Title: Empowering Communities through Global Brigades
Authors: Stephanie Fadayel

Global Brigades is a movement for global health and holistic growth in developing countries such as Nicaragua. In Nicaragua access to healthcare is limited especially for those living in the rural areas. Regarding clean water, about one third of the country does not have access to clean water or proper toilets, which is a major factor in the high prevalence of parasitic diseases. Through collaborative volunteer work and programs focusing on the holistic model, Global Brigades creates sustainable transitions for communities and empowers them for the future.

The public health brigade from Global Brigades creates latrines and provides families with health education workshops to ensure proper use of projects and educate on proper sanitation practices. The medical and dental brigades give healthcare to under resourced communities who would otherwise have limited to no access to care. The water brigade addresses the

problem of the lack of clean water and the high prevalence of parasitic diseases by giving communities access to properly treated water to live healthier lives. Each year the University of Dayton takes students and doctors to a developing country for 9 days to participate in the public health, medical/dental, and water brigades. Money contributed is essential for going on the trip and is obtained by various fundraisers. Medical supplies donated from numerous doctors likewise is crucial for the brigades. Basic medical knowledge learned in class is also vital for the students in order to complete triage portion of the medical and dental brigades.

Since 2004 Global Brigades has had 57,355 volunteers all over the world participating in 168 medical brigade chapters. About 850,000 patients have been treated along with 11 communities sustainably transitioned. From this year's University of Dayton medical and dental brigade alone, 1,521 patients were attended to with 135 from dental alone and 109 from both the medical and dental portions. The Global Brigade trips are rewarding for both the community and the volunteers, creating a more sustainable future for all the members of the communities.

Category: PCH-1

Title: Growing Rise in Obesity in Montgomery County

Authors: Marissa Spoltman & Grace Legan

In 2012, more than one third of children and adolescents were overweight or obese in the United States (Childhood Obesity Facts). This statistic is concerning because data suggests obese children have a greater chance of becoming obese adults. Obesity is a disease that has serious health effects on any person, and can be extremely dangerous for a child. Obesity heightens the chances of getting chronic diseases such as type 2 diabetes, coronary heart disease, hypertension, high cholesterol, stroke, and respiratory problems (Community Health Assessment 2014). Furthermore, both obese children and obese adults are more susceptible to depression, eating disorders, and low self-esteem. Dayton, Ohio is one of many areas in the United States with an alarming rate of childhood obesity. In Montgomery County, 14.2% of children were overweight and 26.9% of children were obese in the year 2014. Making people more aware of the growing rise of childhood obesity could ultimately help lower these alarming statistics. Thus, paving the way for a healthier happier future. The focus of this poster is to present data on child obesity and related health conditions in Montgomery County and to outline the information that should be included in an awareness campaign.

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Category: PCH-2

Title: Tools to Conquer Obesity in Underserved Populations

Authors: Chris Cimperman & Patrick Price

Obesity is a major threat to individuals living in underserved populations. An underserved population, regarding healthcare, is considered to be a population that has illnesses or disabilities and are not able to afford necessary healthcare or a population that resides in an isolated area where medical care is limited. The economic disadvantage that these individuals face increases the likelihood that they will consume inexpensive food that tends to be low in nutritional value. According to a study conducted by the National Center for Biotechnology Information (NCBI), counties in the U.S. with poverty rates greater than 35% have obesity rates 145% greater than wealthy counties. Furthermore, underserved populations do not have the economic stability to afford gym memberships, and some individuals have hectic work schedules, which makes physical activity difficult to fit into a day. This lifestyle promotes the development of major diseases such as heart disease, stroke, high blood pressure, and diabetes, all of which are preventable. Education is an important part of tackling the issue of obesity. Delivering information about eating a healthy diet and getting an adequate amount of exercise, while on a low budget, can help to reduce medical costs while also increasing the

standard of living. Our poster presents different ways that underserved populations can be educated and the types of education that should be provided.

Category: PCH-3
Title: Reducing the Risks of Chronic Traumatic Encephalopathy through Education and Equipment
Authors: Elizabeth Leedom & Dudley Campbell

Chronic traumatic encephalopathy (CTE) is a progressive and degenerative disease found in people who have experienced repeated, severe blows to the head resulting in concussions. This disease causes numerous structural and physiological changes to the brain which can lead to memory loss, depression, impaired judgement, and other symptoms. CTE has a large impact in the athletic community, especially in high contact sports like football, boxing, soccer, and wrestling. Since there is no known way to halt or reverse the damage, prevention is vital. Minimizing the amount of concussions lowers the risk of developing CTE. This study will focus on developing awareness programs and improving equipment to lower the risk of concussions and CTE.

Category: PCH-4
Title: Public Health Community Assessment of Riverside
Authors: Lisa Laurenzana

The city of Riverside in Montgomery County has been described by locals as multiple “islands” of town mixing between the city of Dayton and Riverside. With a total population of 25,040, Riverside mimics the characteristics of typical Dayton suburbs. Being on the outskirts of a metropolitan city, Riverside offers diverse employment opportunities, healthcare access and shopping. Riverside also celebrates its quiet community atmosphere with lower crime rates and less overpopulation in housing compared to the city of Dayton. When compared to the city of Dayton, Riverside is above median income threshold and home values and slightly above high school education attainment (Onboard Informatics, 2017). Riverside also celebrates a lower unemployment rate than the average unemployment rate of the state of Ohio. Living next to a larger city, Riverside mirrors the core city it surrounds, yet has enough advantages to some of the social determinants of health that generally lends for a healthier and safer environment. Although the overall assessment of Riverside is generally positive, numerous nurses working in elementary, middle, and high school settings have noted crucial needs of students not currently being met. These needs include proper hygiene education, adequate medical emergency equipment in all schools, and community incentives for impoverished students to consistently attend classes. In addition, the aging population, complains of a lack of recreational and social spaces for the elderly. In order to properly address these concerns, the Department of Public Health should install washers and dryers, particularly in elementary schools, provide adequate medical equipment such as AED’s in all schools, establish incentive programs such as free and

reduced lunches for impoverished students, and establish social programs such as elderly recreation in common town spaces.

Category: PCH-5

Title: Addressing Diabetic Patients with Low Health Literacy

Authors: Gregory Moellering

In the diabetic community, health complications are often a result of low health literate patients not fully understanding the directions given by their physicians. This lack of understanding frequently leads to patients misusing prescribed medications or not using medications at all. The research at hand is the synthesis of multiple studies on the effects of health literacy on the health outcomes. A study by Al Sayah (2016) that initial health literacy generally does not directly affect the health outcomes of diabetes patients; however, this result stems from a lurking variable- health literate patients intentionally not adhering to medical instructions. Furthermore, a study showing the relationship between health literacy and unintentional medical nonadherence suggests that low literate diabetic patients are twice as likely to not adhere to medical instruction due to a lack of understanding of medical concepts (Fan, 2011). A proven counter for this problem is the use of a communication technique that is called the Communication Feedback Loop- a technique which calls for the physician first to explain a concept, then to examine the patients understanding of the concept, then to tailor the explanation of the concept to the patient's understanding, and, finally, to repeat the process until the patient demonstrates an understanding of the concept (Schillinger, 2016). In one study, Schillinger and his colleagues found that physicians who incorporated this technique had 92% of their patients demonstrate an ability to manage their diabetes effectively compared to the 55% success rate of physicians who did not incorporate this technique.

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Category: PCH-6
Title: Oral Cancer: Early Detection, Treatment and Prevention
Authors: Lauren Williams

Oral cancer is the one of the ten most common causes of death (Atena and Shahin 138). While cancer is a worldwide problem that is caused by a number of different factors over a number of years, the chances of getting oral cancer can be lessened by lifestyle changes. In order to improve the detection and prevention, one must know the triggers of oral cancer like tobacco, alcohol, diet, and physical activity. Smoking and smokeless tobacco are two main factors but coupled with alcohol, the development of the cancer cells is increased. Other high risk factors like the presence of viruses such as Human Papillomavirus have an effect on the development of oral cancer. The most common histological subtype of oral cancer is oral squamous cell carcinoma (OSCC). While men aged 65 and older are the most typical patients, an increasing number of young females are also being diagnosed. A lack in well-defined criteria to detect the early stages, from pre-cancer to malignant tumors, leads to patients being diagnosed at an advanced stage, which is associated with a poor prognosis. Treatment options range from surgery, radiation therapy, chemotherapy targeted drug therapy, and alternative medicine routes. Greater emphasis on the primary and secondary prevention programs would lead to an overall higher survival rate. The greater downtown Dayton area and other inner cities need increased emphasis on prevention and early detection screening to compensate for the higher use of tobacco products and alcohol associated with a higher prevalence of oral cancer. The focus of this poster is to describe the factors associated with increased risk of oral cancer, the components of prevention programs, and types of early detection screening methods.

Category: PCH-7
Title: Antibiotic Resistant *N. gonorrhoeae* in Local Dayton Area
Authors: Peter Greene

In the United States, over the past decade strains of gonorrhea have gradually developed resistance to the antibiotics used to treat it. Based on national antibiotic susceptibility testing results the antibiotic resistance observed nationwide in the years leading up to 2016, was not seen in the Dayton and Montgomery County Health Clinic (PHDMC). The purpose of this poster is to present the results leading to this conclusion and to propose possible explanations as to why this pattern of antibiotic resistance occurred.

Category: PCH-8 (HPAC)
Title: Health Professionals Affinity Community Program (HPAC)
Authors: Kiera Wheeler & Christina Cherry

New to the Dayton region this year is the Health Professions Affinity Community (HPAC) program. HPAC is an Americorps and Northeast Ohio Medical University grant-funded program

that aims to get high school and college students to look at health disparities within their community, and create projects centered on those issues. Christina Cherry and Kiera Wheeler are serving as this year's HPAC coaches and are helping the students through the process of completing their projects. The schools that they are serving include: Stebbins High School, Dayton Regional STEM Academy, Kiser Pre-K-6, Global Impact STEM Academy, Belmont High School, University of Dayton and Sinclair Community College. The students at the sites are completing projects addressing various health disparities within the Dayton community. Some topics include teen homelessness, mental health, diabetes, nutrition, immigrant inclusion, and much more! The goal of HPAC is to not only give these students an opportunity to make a change in their community, but for them to think about choosing a career in healthcare.

Category: PCH -9 (HPAC)
Title: Homelessness in Dayton: "It's In the Bag!"
Authors: Megan Bias, Annie Bayer, Maddie Conway, Becca Kaiser

Homelessness is a large issue in Dayton, but we chose to focus on the younger population. Some University of Dayton students may not be aware of how many teens are in poor health because of unfortunate living conditions. The goal of this project is to educate students at UD about this issue. In addition, we plan collect hygiene products and small, portable snacks to put in bags that will be donated to Daybreak, a local teen homeless shelter. Donations will be collected from community partners such as businesses and local schools. We hope that this project will bring awareness to the homelessness issue that affects the Dayton community.

Category: PCH -10 (Wright State University Boonshoft School of Medicine)
Title: Student Opioid Coalition
Authors: Student Opioid Coalition

Are you a health professional student in the Dayton area? You can help end the opioid epidemic! The Student Opioid Coalition is a team of students that organizes projects to reduce the number of opioid related deaths in Dayton. Managed by the Dayton IHI Open School, the group recruits students from local health professional institutions, and funnels them into projects that support the Community Overdose Action Team in Montgomery County. Students from any health background located at any institution in the Miami Valley are encouraged to participate. Current projects include education outreach, providing resources for children impacted by the epidemic, health professional student empowerment, and promoting treatment & recovery options.

Category: CMH-1
Title: Restoring Trust between the Healthcare System and Minorities
Authors: Sveva Monacelli & Annalyn Penkala

The goal of Reach Out Clinic is to provide immediate primary care to those who are underserved and uninsured. Patients are seen without discrimination of age, gender, ethnicity, and disease conditions. Anyone who is uninsured with an income at or below 200 percent the poverty level is eligible for clinic visits at zero cost.

We know that there has been a mistrust by minority groups towards the health care system, this mistrust has deep roots that go way back to the Tuskegee study (Armstrong et al, 2007). Studies have shown a lingering feeling of racial discrimination and mistreatment by health care professionals, coupled with negative healthcare experiences reported by African American individuals (Hammond, 2010). During our personal experience at Reach Out, often times people from minority groups appeared to be slower to open up or less willing to share personal information. This alienation leads to a difficulty in trusting the physician, which results in an inability to openly share health concerns, in turn leading to a failure to follow the treatment prescribed (Hammond, 2010).

Studies show that the application of caring and interested verbal and nonverbal communication is fundamental in setting the tone that establishes the relationship between provider and patient (DuPre,2005). Moreover, avoiding a paternalistic approach, listening attentively to the patient's medical history, empathizing with the patient and validating the patient's feelings have all been proven to make the patient feel at ease to share the details of their medical conditions, resulting in a successful interaction between the health care provider and the patient (DuPre, 2005). Based on our research, we feel that exposing healthcare providers to these studies and the recommendations that they outline would help to drastically improve the relationship between healthcare providers and the patients that they serve.

Category: CMH-2
Title: Incorporating Mental Health into Reach Out
Authors: Taylor Sim & Lindsay Drake

Mental illness is a major issue in Montgomery County as there is a total of 35.3% of adults who are diagnosed with a depressive disorder and are without insurance. There are also 32.4% of adults that are diagnosed with anxiety issues that also lack insurance (MCOHIO 1). Reach Out's mission is "to provide access to healthcare services for the underserved and/or uninsured population in Montgomery County". Reach Out acts as an alternative to the emergency room,

providing care for minor illnesses and chronic conditions that require immediate attention at no cost to the patient. The clinic serves all ages so long as they meet the requirement of being 200% below the poverty level guidelines. Depression and anxiety are the most prevalent mental health illnesses diagnosed in the clinic. A psychologist from Wright State University provides behavioral assessments for Reach Out on Thursdays from five to nine. That being said, with the prevalence of anxiety and depression in the greater Dayton area we recommend that more mental health providers are on site more frequently during the week. Such as counselors throughout the week to provide emotional and mental support as well as more psychologists to diagnose and treat patients. This poster will provide our suggestions on improving the treatment of mental health in Reach Out.

Works Cited:

"Montgomery County Indicators." *Encyclopedia of Quality of Life and Well-Being Research* (2014): 4115. Oct. 2013. Web. 10 Mar. 2017.

Category: CMH-3
Title: Improving Patient Satisfaction and Efficiency at Reach Out of Montgomery County
Authors: Kenan Bakri & Joseph Roehrkasse

Reach Out is a free clinic that utilizes volunteer students and healthcare professionals to provide medical services to underserved residents of Montgomery County, specifically those uninsured or with an income below 200 percent of the federal poverty level. After volunteering at Reach Out last fall, we feel that the training and triage procedures could be improved. Currently, undergraduate students are trained via a combination of PowerPoints, handouts, and on-site training, but information is not always easy to locate for reference. There are also variations in how patients are triaged in terms of which rooms patients are taken to and whether they return to the waiting area before ultimately seeing a physician. These multiple variations can lead to confusion amongst staff. When combining these factors with high patient volumes and a high turnover rate of staff, the clinic can become a less efficient, and more stressful, environment where volunteers are unclear on their responsibilities. These issues can carry over to the care that patients receive and their ultimate satisfaction. To ameliorate this problem, we propose a single order in which all patients will be triaged and recommend that an all-inclusive information packet be created for training undergraduates. Finally, we propose that a whiteboard be used at the clinic to indicate the names and roles of each person volunteering at the clinic each night.