

**University of Dayton & Miami Valley Hospital**  
**Sixth Annual Healthcare Symposium**  
**Poster Session Abstracts**  
**March 28, 2015**

**Category: Biomedical**

**BM-1**

Author(s): Neil Glenn

Title: *Amyloid Beta 42 mediated Cell Death in Alzheimer's Disease*

Alzheimer's Disease (AD) is a neurodegenerative disease caused by a number of factors. One of the leading factors behind the onset of AD is the accumulation of amyloid plaques in the brains of affected individuals. These plaques are formed with amyloid precursor protein (APP) is processed incorrectly and cleaved to be 42 amino acids long (A $\beta$ 42) instead of 40 (A $\beta$ 40) which are found within healthy individuals. These two extra amino acids cause the protein to become hydrophobic in nature and form plaques which aggregate around neurons in the brain. This aggregation induces oxidative stress on the neurons which then leads to cell death. Due to the conserved genetic properties of the *Drosophila melanogaster*, fruit fly, visual system with that of humans we have developed a *Drosophila* eye model. In this model the A $\beta$ 42 protein is misexpressed in the developing photoreceptors of the fly eye which results in extensive cell death of the photoreceptor neurons and produces a highly reduced eye field in the adult fly. My research focus is to understand the function of a soy protein called Lunasin in Alzheimer's disease. It has been shown that Lunasin acts as an anti-inflammatory within the somatic cells. Inflammation of the brain is an observed characteristic of AD. Therefore, we investigated the effects of Lunasin on A $\beta$ 42 accumulation mediated neurodegeneration. Here we present the findings of our studies thus far.

**BM-2**

Author(s): Madison Irwin, Meghana Tare, Michael Moran, Madhuri Kango-Singh, Amit Singh

Title: *Drosophila eye model to understand role of signaling pathways in A $\beta$ 42 mediated neurodegeneration*

Alzheimer's disease (AD) is a progressive neurodegenerative disorder with no effective cure. The clinical manifestation of AD involves gradual decline in cognitive functions of learning and memory due to selective atrophy of the brain. The neurodegeneration associated with AD also coincides with accumulation of amyloid beta 42 (A $\beta$ 42) plaques. Understanding the fundamental mechanisms and the pathways that regulate amyloid accumulation can provide important insights into the pathobiology of AD. The fruit fly *Drosophila melanogaster* is an excellent model for human diseases, including AD, because of its large repository of mutants and similar genetic makeup to humans. We have developed a *Drosophila* model of AD by over-expressing the human A $\beta$ 42 peptide in the fly retina. Using this model we have shown that cell death pathways are activated in neurons leading to their death, identified a neuroprotective role for the Hippo pathway, and elucidated the nature of its interaction with JNK signaling. The goal of this research is to provide targets for therapeutic treatments for AD.

**BM-3**

Author(s): Nate Lundy, Jamie Allen, Mengyu Wang, Shawn Swavey

Title: *Solvent-free reactions leading to new organic chromophores: spectroscopic, DNA binding, and DNA photocleavage studies*

Photodynamic therapy (PDT) is a common treatment for such conditions as skin cancer, psoriasis, and acne. It works through the excitation of organic light absorbing molecules, called photosensitizers, that are activated by

light, and transfer energy causing the formation of reactive oxygen species (ROS). These ROS then react with surrounding malignant cellular tissue, causing cellular lysis. The optimal window of absorption for PDT photosensitizers is between 600-850nm. The issue with these chromophoric molecules is that they usually have very complex syntheses that require many steps and large amounts of potent chemical solvents. This study examines the synthesis of 4 chromophores, IsoQ4F, IsoQVan, 6Q4F, and 6QVan, that were formed through a simple one step reaction of aldehyde and pyrrole using only negligible amounts of solvent and gentle heat. The spectrochemical properties of these products were analyzed through UV/Vis spectroscopy as well as fluorescence/luminescence studies and demonstrate absorption within the PDT window. Furthermore, DNA binding and photocleavage studies demonstrate solid activity against DNA, suggesting ability to function as a photosensitizer.

#### **BM-4**

Author(s): Eric Newton, Ashley Zani

Title: *Differential Effects of Commercially Available Probiotics on Listeria Monocytogenes Virulence*

*Listeria monocytogenes* is a foodborne pathogen which can cause lethal infections in immunocompromised individuals. These infections involve meningitis in the elderly or spontaneous abortions of neonates--both scenarios result from *Listeria* crossing the intestinal barrier. However, the conditions that promote *Listeria* invasion during the intestinal phase of infection are not clearly defined. Therefore, the overarching goal of our research program is to establish how the chemical determinants in the intestines contribute to *Listeria* pathogenesis. We have two on-going projects at the moment. Our first project focuses on determining both the effect of anaerobicity on *Listeria* virulence and the underlying molecular mechanism of virulence regulation. Our second project focuses on determining the effect of fermentation acids on *Listeria* fitness and virulence. More specifically, we are investigating how *Listeria* survival and virulence are modulated by commercially available probiotic supplements with different fermentation capacities. Using molecular, genetic, and different host infection models, we aim to achieve a comprehensive understanding of the complexities involved during *Listeria*-host interactions. Our research will also address the functional role of the intestinal environment in controlling an opportunistic bacterial pathogen. Because our intestinal environment is shaped by the resident microbiota, our research will ultimately enrich our current knowledge of the critical contribution of the microbiota to our health. Furthermore, based on our practical approach with probiotics, we will also be able to generate meaningful recommendations for potential application of probiotics as a preventative or treatment strategies for enteric infections.

#### **BM-5**

Author(s): William Porter

Title: *Assessing the Clinical Treatment Criteria for Chlamydia trachomatis at Public Health – Dayton & Montgomery County*

Chlamydia (CT) is the most commonly reported sexually transmitted infection in the United States. Between 2002 and 2011, Public Health – Dayton & Montgomery County (PHDMC) recorded more than 3,000 CT cases per year. When patients present to the PHDMC STD Clinic with CT-like symptoms, a DNA amplification test is ordered. However, the results can take several days to return, so treatment decisions must be made based on clinical findings. This study compared the effectiveness of current criteria to possible alternatives. This study used data from patients tested for chlamydia at PHDMC from February-April 2014. There were 638 participants (366 men and 272 women) in the sample. Microsoft Excel PivotTables were utilized to compare clinical findings and formulate clinical treatment criteria. Overall, 18.0% of men and 8.8% of women in the sample tested positive for chlamydia. For men, the most effective criteria were white blood cells (WBC) >10 per HPF, or a partner treated for CT, or penile discharge, or age less than

22 (sensitivity = 90.9%, specificity = 45.3%). For females, significant predictors of positive results were a partner treated for CT, or cervical discharge and WBC >10, or age less than 20 (sensitivity = 79.2%, specificity = 48.0%). Recommendations were made based on the analysis and PHDMC's clinical treatment criteria were updated. Patients screened at the STD Clinic are now treated according to the updated criteria. Further monitoring and analysis of trends will allow for criteria to be adjusted and optimized.

## **BM-6**

Author(s): Austin Roebke

Title: *A Drosophila Brain Tumor Model to Study Interclonal Interactions*

The current standard of care for Glioblastoma (GBM), the most common form of primary brain tumors, involves surgery followed by radiation/chemotherapy; however, analyses of patient samples reveal a difference in the composition of the tumor that could account for differences in response to the current standard of care. Therefore, there is a need to model these brain tumors. We have created a simple glioma in *Drosophila melanogaster* (fruit fly) to study these tumors. We have identified three cell death causing genes shown to have a role in these brain tumors in *Drosophila* and humans. Thus, we tested if these three genes are required for tumor growth in two different glioma models in *Drosophila*. Furthermore, we tested if *Drosophila* glioma cells can initiate tumor repopulation following radiation treatment, a common issue with glioma patients. Our progress with these models will be discussed.

## **BM-7**

Author(s): Jonathon Sens, Eric Schneider, Evan Birmingham, Joseph Mauch, Anthony Franceschelli, Connor Thelen, & Pothitos M. Pitychoutis

Title: *Lipopolysaccharide administration elicits sex-dependent neurochemical alterations in the mouse brain: Gaining insights into sickness behavior*

The innate immune response is an important component of the immune system that serves to isolate and prevent further infection from pathogenic organisms. Part of the response involves complex immune-to-brain communication pathways that lead to proinflammatory cytokine production within the brain that manifests into sickness symptoms (decreased locomotor activity, anorexia) and depressive-like neurobehavioral outcomes (anhedonia, social withdrawal, alterations in monoaminergic neurotransmission). Interestingly, administration of the proinflammatory agent lipopolysaccharide (LPS) in rodents has been shown to induce sickness and depressive-like behaviors. However, the role of sex in this model of depression remains elusive. Herein, we investigated whether acute immune stimulation with LPS induces sex-dependent neurochemical responses in the prefrontal cortex (PFC) and the hippocampus (HIP), two brain regions implicated in the neurobiology of depression. Mice were injected with LPS (1 mg/kg) or saline (0.9% NaCl), and were sacrificed at different time-points, at 6h (when sickness symptoms reach their plateau) and at 24h post-LPS administration (when sickness symptoms are alleviated but depressive-like symptoms are still evident). Ex vivo neurochemical responses in the PFC and HIP were assayed with high performance liquid chromatography (HPLC) with coulometric detection. Our data showed that LPS administration induced sex-dependent serotonergic neurochemical effects at both time-points. Our efforts now focus on how these neurobiological alterations play out on basic behavior. Taking into account the higher prevalence of affective disorders in women, a focus of sex differences underlying this inflammatory model of depression is imperative to delineate the neuroimmunological substrate in the appearance, course and outcome of these conditions.

**BM-8**

Author(s): Connor Thelen, Jonathon Sens, Anthony Franceschelli, Pothitos Pitychoutis

Title: *The rapid-acting antidepressant drug ketamine affects mouse brain neurochemistry in a sex-selective manner*

One of the most exciting discoveries in the field of modern neuropsychopharmacology is the finding that a single sub-anesthetic dose of the N-methyl-D-aspartate receptor antagonist ketamine can induce both rapid and sustained antidepressant-like effects in treatment-resistant depressed patients and in animal models of depression. Despite the progress made in the identification of the behavioral and neurobiological mechanisms underlying the antidepressant-like effects of ketamine, knowledge regarding its effects in the female sex is limited. In the present study C57BL/6J mice were administered increasing doses of ketamine (i.e. 3 mg/kg, 5 mg/kg, 10 mg/kg) or saline (0.9% NaCl). The rapid and the sustained antidepressant-like effects of ketamine were assessed in the forced swim test (FST) at 30 min or at 24 h post-administration, respectively. Our data showed that female mice responded to lower doses of ketamine than males in the FST, at both time-points. In order to investigate the impact of ketamine on brain's neurotransmission, mice of both sexes were administered ketamine (10 mg/kg) or saline and were sacrificed at 30 min or at 24 h post-injection. Neurochemical analysis of serotonin, 5-hydroxyindole acetic acid and excitatory amino acids (glutamate and aspartate) was conducted with high performance liquid chromatography (HPLC) in the prefrontal cortex and the hippocampus. Tissue levels of glutamate and aspartate, as well as serotonergic activity, were altered in a sex- and time-dependent manner in these two limbic brain regions. Taken together, present data revealed that ketamine treatment induces sex-differentiated rapid and sustained neurochemical and behavioral antidepressant-like effects in C57BL6/J mice.

## **Category: Community Initiatives**

### **CI-1**

Author(s): Alexandra Amend

Title: *Reach Out Montgomery County Community Partner Internship*

In August 2014, The Fitz Center at the University of Dayton funded its first community partner internship specifically to facilitate collaborative projects with Reach Out Montgomery County. This internship will be discussed specifically describing several projects including the UDI 270 mini-course, volunteer training at Reach Out, Jefferson Township EMS transport, and the “Healthy Cooking on a Budget” program at Mound Street Academy.

### **CI-2**

Author(s): Nicholas Racchi, Sarah Schockling, Tara Degnan, Sreepranavi Brahmamdam

Title: *Nutrition and Wellness in the Dayton Community*

Within the Dayton area there is the problem of being a food desert, meaning that people do not have great access to fresh and organic food. Many of the local high schools also have little to no curriculum that promotes healthy living and eating. In response to this problem, a group of University of Dayton students developed a program which focuses on helping high school students learn about healthy eating. To plan this program, students consulted with Jaimee Ryan, an MPH (Masters in Public Health) with a focus on Health Education. Ms. Ryan provided curriculum suggestions as well as some vital resources. After developing the curriculum, approval was obtained from Mound Street Academy to implement the program. Students were polled to determine any allergies to consider for food preparation purposes. The program was implemented in February 2015 with our first class session with six high school students from Mound Street Academy. Assessment materials were developed and included in the class implementation.

### **CI-3**

Author(s): Maggie Rechel, Nick Christian, Juanita Draime, RJ Sontag

Title: *STEPS Towards Better Health Care Delivery: A Student-Led Multidisciplinary Approach*

Medical students at Wright State University helped launch an interdisciplinary health initiative in fall of 2012 to promote healthy behaviors and assist in the management of chronic illnesses in vulnerable homeless populations in the Dayton area. This research investigates the role of forming interdisciplinary teams and their relative success in growing and expanding the organization via surveys of participating students. We also attempt to analyze the specific needs of our at risk population and examine how we can do better to meet their needs. This research is applicable to those hoping to build successful interdisciplinary teams as well as those who want to understand more about the health needs of the homeless population in Dayton.

### **CI-4**

Author(s): Kiera Wheeler

Title: *Complete Health and Community Assessment of Jefferson Township*

Accessibility to adequate health care is an issue that is of great debate across the world. Even right here in Dayton, Ohio many people are without health care or access to basic health needs. Jefferson Township is a small community of about 6,700 people that is located west of Dayton. The township is part rural and part urban with a lack of access to health care services. There are no primary care physicians in the township and with the lack of no public transport, the closest hospital is 12-15 minutes away by car. The project focuses on a complete health and community assessment of Jefferson Township. The intent of this project is to implement a not for profit health

clinic within the township, so that the community has access to health care services, case management and mental health counseling. To show that there is a significant need for a health clinic, a series of meetings were conducted with people within the township to survey them about their access to health care. Hands on research was also conducted such as EMS ride alongs and interviewing groups of people in the community at various events. All of the data that is collected will be used to request funding and determine the best place to put the clinic. In order to get funding, 600 surveys will be needed to prove that the community feels that they have a health care access issue.

#### **CI-5**

Author(s): William Wilbanks, Kellie Niehaus, Erica Watson

Title: *Jefferson Township Healthcare Evaluation*

This research project studies the healthcare needs of a small community outside of Dayton. The small community of Jefferson Township has lived for many years without any local health care resources besides township paramedics and an almost 15 minute drive to the nearest hospital. With a high number of residents living in poverty, access to healthcare is not currently possible for many people in Jefferson. Recently community members from Jefferson have asked a local free clinic in Dayton called Reach Out Montgomery County for help in providing residents of the area with more health care options. Over the last couple of months volunteers from Reach Out have answered by taking part in a healthcare evaluation of the Township with the end goal of helping to bring some sort of health care provider to the area. One of the first steps in the health care evaluation has been to collect individual healthcare surveys from 10% of the area's residents. Also, interviews with individuals such as the local fire chief and ride a longs with EMT's all help to show what kind of issues the residents in Jefferson are facing in terms of access to health care. All of this data collected will help to prove a need for a healthcare provider in Jefferson Township.

## **Category: Health Communications**

### **HC-1**

Author(s): Nick Bargione

Title: *Can your Literacy Make you Sick?*

One of the main challenges in healthcare today is to effectively communicate health information about diseases and complex emergencies. The low health literacy prevalent in the United States today affects people's ability to adopt healthy behaviors, use health information correctly, and act on important public health alerts. This project looks at the literacy and readability associated with an informational health webpage on the Chikungunya virus created by the Centers for Disease Control and Prevention. The goal of this project is to show how this text is written at too high a readability level for a general audience. Using the Flesch-Kincaid readability test, it was found that the webpage was written at a 9th grade reading level, while the average reading level in the United States is 7th grade. The second goal of this project is to show how the webpage can be revised to make it more accessible and understandable for a 7th-grade level reader. Such changes include simple vocabulary, simple sentences, repetition of key phrases, and definitions of terms. Specifically, the four main areas of health literacy (civic, scientific, fundamental, and cultural literacy) were focused on, and the effect they have on the readability of health related documents. Making health texts more readable can greatly impact a wide variety of people, and can make all the difference between being healthy and sick for many individuals.

### **HC-2**

Author(s): Abigail Carr, Lexie Wiegel

Title: *¿Me entiendes? Can you understand me? How language barriers affect quality of patient care*

In January of 2015, the University of Dayton Global Brigades chapter traveled to Estelí, Nicaragua for a weeklong Medical and Public Health Brigade. During this brigade, students and physicians worked side by side to provide health care to impoverished communities in the country. Two mobile clinics were established, where patients went through consultations and received medications. Due to the existing language barriers between patient and physician, it was often necessary to use an interpreter for the consultation step. After evaluating these interactions, we found there to be a number of communication problems that arise as a direct result of the use of an interpreter. Upon returning home and reviewing the literature on the effect of interpreters on patient care, we found this to be a common concern in America as well. While difficulties may arise, we believe the best solution to these problems would be to hire a professional interpreter. By doing so, patient quality of care could greatly be improved when a language barrier exists. In addition to being fluent in multiple languages, the professional interpreter would be trained in medical terminology, modes of interpretation, and interpreter etiquette/ ethics. We will use our poster as a means of displaying the difficulties that we encountered and how the use of a trained professional can decrease or eliminate these problems altogether."

### **HC-3**

Author(s): Blaise Eby

Title: *Reaching Out to Face Low Literacy*

Certain materials in the healthcare system often confuse low literate patients. My research was geared toward identifying areas of difficult reading in a Patient Education handout about the drug Acyclovir. The question my research focused upon was whether the document's readability surpassed the understanding for its audience. Also, I focused on how I could improve the document's ability to effectively communicate necessary information to patients.

My project utilized two calculations to measure the readability of the text. The first measurement was a prose assessment tool called SMOG. The SMOG test evaluated the handout's word and sentence sizes, and syllables. The

resulting grade-level was the tenth grade, meaning it would be difficult for someone with literacy under the tenth grade to comprehend the document's message. The second measurement was a tool, the Flesch-Kincaid test. For this test, each paragraph was analyzed with a computerized algorithm and the results equaled those of the SMOG test.

The audience of the original handout was college students who use the University of Dayton's Medical Center. A tenth grade reading level is adequate for college students. To apply my research, I tried to decrease the reading level of the document to match low literate patients who use a free-clinic in Dayton called ReachOut. In order to reach this audience, the original document was changed from a dense paragraph format to an open bulleted list, which lowered the reading level to a 6.4.

#### **HC-4**

Author(s): Kamarin Hubbard

Title: *Health Literacy and Diabetes*

Low health literacy has been associated with a range of adverse health outcomes including decreased use of preventive health services, poor management of chronic conditions and increased risk of hospitalization, and loss of life. This poster analyzes a health education webpage by the Centers for Disease Control and Prevention on the basics of and preventative measures for diabetes. The audience of this webpage is those at risk for developing any type of diabetes and those who have been diagnosed with diabetes. Although almost half of the U.S. population reads below the eighth grade level, according to the Flesch-Kincaid and the SMOG reading level tests this webpage is written at the thirteenth grade reading level. I also conducted a Health Literacy Load Analysis to assess the challenges of this document in each of the four domains of health literacy: fundamental literacy, scientific literacy, civic literacy, and cultural literacy. To better convey the message to low health literate individuals, I created a revised version of the document that addresses the challenges posed by the domains of health literacy, using plain language, simplifying the sentence structure, and changing the format of the document. After creating the revised version, the reading level was at the ninth grade, making it much easier for the audience to understand.

#### **HC-5**

Author(s): Jack Raisch

Title: *Moms-to-Be and Health Literacy*

This poster will explore the theme of health literacy - the accessibility and readability of health documents - through the scope of a webpage factsheet pertaining to prenatal health and development. The factsheet, by the University of California, San Francisco, outlines prenatal precautions, tests, and implications for pregnant women. The poster looks at multiple dimensions of the factsheet, including the academic reading level, tone, and whether it successfully reaches the targeted reader. Moreover, it examines the different domains of health literacy, such as civic and cultural subtleties, that play into the role of the factsheet's readability. My analysis found that this text and many like it are written at a much higher level than the demographic can fully understand. Although the targeted reader would most likely be reading at less than an eighth grade level, this factsheet is written at a twelfth grade level. Drenched with unnecessary medical terminology and complicated wording, this text creates more of a divide than understanding. I reworked the document, however, to make it more comforting and informational to mothers of all literacy levels. Lower level diction, editing of the information, and an easier-to-digest fluidity of the document all contribute to make the new document more cohesive and understandable. The implications are as sociological as they are medical; it empowers a group subset that may not always have the tools to make the most medically efficient and financially sound decisions.

#### **HC-6**

Author(s): Sarah Sercu

Title: *Revising a Salmonellosis Factsheet to Increase Patient Comprehension*



The average American reads at an 8th grade level, though the majority of health texts are written at a much higher level, usually one appropriate for graduate school and above. Even people with average fundamental literacy may struggle with health literacy, thus making it harder for them to take proper care of themselves. An online factsheet produced by the World Health Organization about salmonellosis aims to explain what salmonellosis is, how it is contracted and treated, and how to prevent it. The intended audience is people searching the internet to learn more about the illness. Using the Flesch-Kincaid readability test, I determined that the document is written at a college reading level (13.0), which means much, if not all, of the information will be misunderstood or confusing to low literacy readers. By conducting an analysis of the document in regards to the four different aspects of health literacy (fundamental, cultural, civic, and scientific), issues in the original text were identified. I created a revised factsheet to expand the reach of the message to a more diverse, lower-literacy audience. The revised document is written at a 5th grade level and reduces the cultural, scientific, and civic literacy problems that would hinder a patient from accurately understanding what salmonellosis is and how it is contracted, treated, and prevented.

## **HC-7**

Author(s): Joseph Spieles

Title: *Improving Youth Health through Readability Improvements to Complex Documents: Concussions*

Is it necessary for health care documents that are the first source of information available to the public to be convoluted, complex, and written at a high reading level? The average American reads at below an 8th grade reading level; however, most healthcare documents are written at a minimum of a high school reading level. Through the analysis of a Web MD webpage about Concussions, I seek to show that proper health care information can be provided to the public at a low literacy level without losing the important facts or message. A health literacy “load analysis” as well as Microsoft and SMOG readability tests were performed on the webpage to determine its readability. The “load analysis” showed multiple word choices requiring a high scientific literacy while the Microsoft and SMOG tests found the original document was written a 9th grade reading level. These findings were used to break down the original document and revise it for a low literacy health audience with all key information still intact. The revised document was analyzed using the same techniques to determine that a document originally written at a 9th grade level could be brought down to a 4th grade level, vastly improving readability. My conclusion is that this same process can be applied to a majority of health care documents to provide more concise and clear information to the general public at a level they can understand.

## **Category: International Health**

### **IH-1**

Author(s): Janan Bati

Title: *Global Brigade Medical Trip to Panama*

Panama has a poor healthcare system. Some communities suffer from the lack of medical resources from buildings, medicine, health providers to doctors and nurses. In the community of Las Minas, Global Brigade's provider opened a free clinic where more than 51 Virginia Tech's student and doctors volunteer. Global Brigade has collected important data on under-resourced regions. From that data we were able to assess the common diseases in the region, the necessary medications to fight those diseases, age and education. This clinic has discovered the necessity from the Ministry of Health in Panama to establish a primary care provider in this community. The most affected people from the absence of the medicine are the children and the elderly. The impact of this free clinic is crucial in the community. The volunteers provided the care that the patients needed from providing checkups to giving them medicine. Besides that, some volunteers opened a class to teach children important daily things to prevent them from getting sick. The volunteers share this data with the Ministry of Health to consider opening a primary care clinic.

### **IH-2**

Author(s): Michelle Naporano

Title: *Preventing Illnesses Through Public Health Brigades in Nicaragua*

The purpose of Global Brigades is to empower volunteers and under-resourced communities to resolve global health and economic disparities and inspire all involved to collaboratively work towards an equal world. By taking a holistic and sustainable approach, Global Brigades allows university students to participate in many different programs. The University of Dayton chapter of Global Brigades volunteers for a medical and public health brigade each January. The purpose of the public health brigade is to empower rural communities in Nicaragua to prevent common illnesses through in-home infrastructural development, and health education. Key activities of the public health brigade include building latrines, showers, septic tanks, water storage units, and concrete floors. These public health brigades are vital in providing sustainable care for the communities in Nicaragua to empower them to one day be independent of the Global Brigades organization. This experience greatly broadens one's view of medicine, to foster the growth of a holistic mindset, which aims to get to the root of the problem of healthcare in global communities.

### **IH-3**

Author(s): Rebecca Polyack

Title: *Sustainable Development: the Global Brigades Model to Holistic Growth in Nicaragua*

Global Brigades is the world's largest student-led global health and sustainability initiative. It is an international non-profit organization that empowers communities of Nicaragua, Honduras, Panama, and Ghana to create and work towards health and financial goals while simultaneously empowering university students to change the world one step at a time. Global Brigades offers various programs and internships for undergraduate students to get a deeper look into the process of holistic development, and one of those is a global health internship in Nicaragua. Nicaragua is considered the second poorest country in the Western hemisphere with 85% of the rural population living on an average of \$1 per day. The economic disparities create a web of interconnected social problems, and the global health internship focuses on issues of public health in these rural populations. Throughout three weeks, interns are introduced to Global Brigades as a sustainability organization on a much deeper level, finding appropriate public health research techniques and applying them in communities to assist in

their holistic development. This three-week internship is designed to specifically address health concerns in Nicaragua while showing interns how they can personally take part in sustainable development.

#### **IH-4**

Author(s): Victoria Spradling, Olivia Smith

Title: *The University of Dayton's Medical Brigade to Nicaragua 2015*

This January, a group of 50 students and five physicians traveled to provide healthcare to two Nicaraguan communities in need through the organization Global Brigades. Upon arrival in the communities, our group set up six different stations - triage, consultation, dentistry, gynecology, pharmacy and charla. As students, we were able to work alongside medical professionals in these stations. Over the course of just a few days, we were able to provide healthcare and dental care to hundreds of patients and provide them with supplies of medications, antibiotics and vitamins to ensure continued health. Children also experienced charla where they received fluoride treatments and lessons on nutrition and hygiene in addition to some free time where they could play with brigaders. Each patient was also provided a toothbrush as well as toothpaste along with a tutorial on proper technique and how often it should be done. Before traveling to Nicaragua, our group fundraised over \$10,000 aside from our own personal cost of the trip in order to ensure all of our patients received this care free of charge. The community members who attended our brigade received this essential health care as well as our genuine love and care for them personally. As students, we were deeply touched by the gratitude of the community members. We are incredibly thankful to have been able to have this eye opening and life changing experience while seeing a new culture and deepening our passion for service and health care.

## **Category: Professional Development**

### **PD-1**

Author(s): Breonna Curren

Title: *Comforting Hospice Patients - A Transformative Premedical Experience*

Acclaim Hospice aims to care for those facing life-limiting illnesses during their end of life. Through hospice, a patient's quality of life is improved through the control of pain and symptoms, and emotional and spiritual support. Hospice strives to keep more patients in the comfort of their own home, thus reducing costly recurring hospitalization. This is the mission of Acclaim Hospice in their service to patients at approximately 3,000 locations across the United States. Hospice facilities are required by Medicare to provide patient interaction, which Acclaim accomplishes through the volunteer patient visitor program. This provides an incredible opportunity for pre-medical students to develop patient interaction skills in a clinical environment and to see health care at this juncture. Comprehensive training is provided for students interested in becoming volunteers. Volunteer training and the visitor program will be discussed in this poster.

### **PD-2**

Author(s): Drew Elson

Title: *Pre-Med Summer Internship at Miami Valley Hospital*

My poster will focus on my experience in the Pre-Med Summer Internship Program through Miami Valley Hospital. I will present the requirements for acceptance into the program and the guidelines for applying. These requirements for applying include submitting an official transcript and meeting the minimum GPA of 3.0, having the intention of applying to health professional schools, submitting a letter from a premedical advisor, and obtaining and submitting a letter from a physician at Miami Valley Hospital. Additionally, I will present the prerequisites required following acceptance into the program – receiving First-Aid/CPR/AED certification, attending the new employee seminar, and completing the on-the-job training (provided by Miami Valley Hospital). I will also focus my poster on my personal experiences in the program as a Surgical Intern. My poster will outline the duties I held in the operating rooms, which included preparing rooms with the required surgical tools, tables, and devices, transporting patients in and out of the OR, and transferring lab tests, blood work, and blood. I will provide a diagram of the section of the surgical wing I was responsible for. Finally, I will present on the types of surgeries I observed during my time as an intern and some of the memorable moments I experienced.

### **PD-3**

Author(s): Shayna Niese

Title: *Medical Scribes: Helping the Providers Help their Patients*

Medical scribes are utilized to assist medical providers with their notes and charting. Used primarily in Emergency Departments, scribes are relied on to document the patient's chief complaint and history and thus allow the provider to give the patient their undivided attention. They are then responsible for transferring radiology and lab results into the provider's final note as well as documenting the patient's progression and treatment within the department. Prospective scribes must be mature; they are relied on to document accurate information and must be sure to record the appropriate information in these official documents.

Most companies target individuals with a background in medical terminology and a strong desire to enter the health-care field. This job requires an intensive training process that involves an online learning process and quizzes to teach the prospective scribe about the charting experience. They are then trained on-site for an average of fifty hours. After this process is complete they are hired as a scribe and are considered a documentation

specialist. The creation of the medical scribe job is not only beneficial to the providers they are assisting, but is invaluable experience for the scribe as well. This hands-on experience allows the scribe to learn the inner workings of the hospital and treatments in a way that one will not get from the classroom. Holding a job as a scribe demonstrates that the individual is disciplined, driven, and able to multi-task; aspects that are needed to enter health professional schools and eventually the health field.

**PD-4**

Author(s): Maggie Rechel, Cynthia Williams, Susan Wherley, Hannah Jantzi, Christopher Fagan, Gregory Orgel

Title: *God Helps Men Who Help Themselves: An Examination of Gender and Self-Evaluation in Medical School*

Women are underrepresented in STEM fields beginning with representation in advanced placement classes during high school. Further, women generally are more likely to be overly critical of their own work while males tend to evaluate themselves more highly than is warranted. This research examines whether females in medical school, where women are numerically equally represented, are similarly overly critical of their own work or whether they represent a self-selected group that behaves more similarly to the typical male. Using data from self-evaluated medical ethics papers, written by first year medical students, we examine average scores by gender as well as comparing the differences between self-score and deserved score as evaluated by a panel of graders using the same rubric as assigned for the paper. Initial results indicate that men on average award themselves higher scores than women, that both genders award themselves higher scores than deserved, and that men have a higher positive average deviation between self-score and deserved score. It appears that women in medical school may differ from typical women by evaluating their own work more highly than deserved but in this rarefied discipline, women still do not self-evaluate as highly as their male counterparts.