



2nd Annual

Horizons of Global Health Research Symposium

UC San Diego, May 29th, 2015

Undergraduate
Poster Session Abstracts

2015 Faculty Judging Panel:



Dr. Janis Jenkins
*Professor of Anthropology,
Adjunct Professor of Psychiatry
UC San Diego*



Dr. Anita Raj
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Professor in the Division of Global Public
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The Horizons of Global Health Undergraduate Poster Session highlights the results of students involved in Global Health related research projects and Global Health Field Experience.

The following abstracts are divided into categories and will be judged based on overall presentation, research and relevance to Global Health.

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I. Global Environmental Health

Cheyenne Rose Butcher, Muir, ('15)

Global Health / Biological Anthropology

Double Major

Title: Residential distance to flower plantations in relation to a marker of pesticide exposure.

Authors: Jose R. Suarez-Lopez, Cheyenne Rose Butcher, David R. Jacobs Jr., Bruce Alexander, John H Himes.

Abstract:

Background: Exposure to acetylcholinesterase (AChE) inhibiting pesticides (i.e. organophosphates and carbamates) has been shown to have a multitude of negative health effects in humans. Adults and children residing in agricultural communities have been found to be at increased risk of exposure due to off -target drift of pesticides from farms. In the present study, we hypothesized that greater proximity of children's residences to agricultural plantations was associated with lower AChE activity (marking greater pesticide exposure) in children.

Methods: Children of 4-9 years of age living in the agricultural county of Pedro Moncayo, Ecuador were examined. Blood AChE activity and hemoglobin concentration were measured using the EQM Test-mate system, and geographic coordinates of flower plantations and homes were obtained

using global positioning system receivers. Linear regression models adjusted for age, sex, race, income, maternal education, height-for-age, hemoglobin concentration, date of examination, and flower worker cohabitation.

Results: The mean (SD) of AChE activity was 3.14 U/ml (0.49U/ml) and distance of homes to the nearest flower plantation was 448m (343m). Home distance to plantations was positively associated with AChE activity (difference of AChE activity per SD increase of distance (β_{sd})= 0.07U/ml, 95%CI: 0.02-0.11). The association was strongest (and significant only) among participants living within 185m (1st quartile) of a plantation (β_{sd} = 0.59U/ml, 95%CI: 0.05-1.13).

Conclusions: Proximity of homes to flower plantations was positively associated with a marker of pesticide exposure especially among participants living within 185m. Added precautions to reduce pesticide exposures among children living in close proximity to plantations would be prudent.

Brianna Egan, Sixth, ('16)

Human Biology Major, Global Health Minor

Authors: Jacqueline Kerr PhD, PI, Department of Family Medicine & Public Health, CWPHS and PQ
Research Staff: Katie Crist MPH, Lindsay Dillon MPH, Melanie Epstein MPH, Kevin Moran MPH, Marta Jankowska PhD MS, Kristin Meseck MS

Title: Evaluation of Recruitment Sample Across Neighborhood Types in Community of Mine Study

Abstract: The Community of Mine Study (NCI Grant #R01CA179977) is a cross-sectional observational study which seeks to identify the relationship between one's exposure to food and physical activity environments and one's risk for cancer. Neighborhoods around San Diego County were analyzed and selected for low and high walkability and fast food density via GIS methods. The ongoing recruitment phase of the study involved packet-mailing and phone-calling strategies to residents of specific neighborhood block groups. This poster provides an initial descriptive analysis of the current pool of n>100 current participants who have met recruitment criteria and are at various stages of measurement. By defining variables and study aims, this poster evaluates current demographics of participants to reveal any gaps in the ranges of ethnicity (Hispanic vs non-Hispanic), age, and neighborhood types of the current sample population to additionally propose new recruitment strategies to address these gaps.

Joyce Sunday, ERC ('16)

Biochemistry and Cell Biology Major, Global Health Minor

Co-founder of Wastelights

Title: Wastelights

Abstract: We live in a world where science and technology are the unique powers that are changing the environment around us. As an African woman, I have always wanted to change the world around me by enhancing the way people interact with science and technology. I have always been interested in power not the physical strength but electricity. Just like any continent, Africa in the 21st century faces enormous challenges and one of its most crucial is power. Africa has been confronted with incessant electricity problems ranging from power generation to its transmission and distribution. The main sources of its electricity are gas and hydropower, but for many decades, homes, businesses and industries have faced the huge challenges when accessing electricity. The constant lack of electricity has crippled certain successes which we are supposed to be making in healthcare, education, entrepreneurship and security. The radiant light which Africans are constantly denied is the source of the stagnant educational and environmental problems that we are facing. Power should be our fundamental human right and no one should be deprived of that right.

My goal is to create a company called Wastelights. Wastelights is an environmentally conscious energy company that is designed to target a problem that most developing countries face: an abundance of waste but not enough electricity. This company aims to dispose of sewage and food waste in a sustainable manner by converting it into electricity and meeting

consumers' energy demands. This solution is better than alternative energy sources because waste is an abundant, free, and underutilized resource that will never be depleted. Wastelights has low production and installation costs and provides the option of generating compost or biochar, an excellent fertilizer, using remaining waste byproducts. In addition to this, what makes this idea unique is the fact that no other energy company is using waste on multiple scales, such as cities, suburbs, and villages. Additionally, we are primarily targeting developing countries to remove waste that is accumulating in the outskirts of villages, which are causing environmental and health issues. The mission is to make communities self-sufficient by being able to utilize their own waste to meet 100% of their energy needs.

The life expectancy of a woman living in a third country is very low and adding other factors such as inappropriate waste disposal further reduces her chances of survival. People living in places without proper waste and sewage disposal facilities often encounter diseases such as cholera, malaria, diarrhea, typhoid and other life threatening diseases. Wastelights will help eliminate this problems by using the waste and sewage to give back electricity back to the people in the third world countries.

II. Mental Health

Emma Jackson, Revelle, ('16)

Global Health Major

Title: A Fluid Reality- The Danger of Misdiagnosing a Mental Illness

Abstract: Mental illness is one of the most daunting global health issues faced today. According to the WHO World Mental Health Report of 2001, in a 14-nation study, there was a 24% prevalence rate of mental disorders in a primary care setting. As it is such a widespread occurrence, it is clear that mental illness exists in many distinct cultural settings. In the Western biomedical setting, mental illness has come to be regarded as a physical disease or chemical imbalance in the brain, which leads to symptoms of mental illness. This is a purely mechanistic and somatic view of mental illness as stemming solely from a flaw in the physical body, and does not pay notice to the impact of the human sociocultural experience in the diagnosis, treatment, experience, or healing of a mental illness.

There is no denying that mental illnesses can be attributed to differences in brain chemistry or morphology. But, while the brain is a physically functioning organ that regulates functions of the body, it is also an organ that takes in stimulus from the outside environment, processes it, and acts or reacts according to it. It is for this reason that mental illness is hard to parallel to the more easily diagnosed somatic disorders. A mental illness is much more complicated to diagnose and treat pharmaceutically because considerations of the

environment in which this individual brain/mind/person lives plays important roles in the manifestation of mental illness and the experience of it. I argue that because it is harder to identify and classify mental illness in a generalized way (although the DSM attempts to), the danger becomes the misdiagnosis and subsequently incorrect psychotropic treatment of mental illnesses. This misdiagnosis and treatment has serious implications for the patient's interpretation and experience of their sociocultural reality and a serious impact on their sense of self and mind.

III. Infectious Diseases

Marlyn Moradian, ERC, ('15)

Global Health/ Microbiology Double Major

Title: Ebola Prevention and Health Care Projects in Kpando, Ghana - A Cultural Perspective

Abstract: Over the summer of 2014, I partook in a global health assignment in Kpando, Ghana, collaborating with a local non-governmental organization, UNiTED (Unifying Neighbors Through Education and Development). My aim was to understand methodologies of health outreach and medical approaches in relation to the Ghanaian culture, contextualizing both global and international health from the Western perspective. During this time, the largest Ebola epidemic in history affected neighboring countries in West Africa, killing thousands. The virus was first discovered and identified in 1976; consequences of

infection have been deadly. The recent outbreak has resulted in a fatality rate of up to 71%. In an effort to bring awareness to local community members about the virus and disease in case of a local outbreak, pamphlets, presentations, and outreach efforts were administered. Collaboration with local translators and residents were coordinated to produce an appropriate pamphlet and presentation, using acceptable language and method of communication to be best suited for the local population.

The local St. Patrick Hospital was one of the venues where daily educational discussions were conducted. Patients were given the opportunity to learn, ask questions, and familiarize themselves with the outbreak, under the coordination of a staff health educator and myself. Additionally, I worked with staff and physicians. We discussed the situation of the outbreak, and educated myself of their outlook and attitude. Further, and importantly, I learned about diagnosing malaria and related diseases, and also took note of the methodologies followed for prescribing certain malarial medications to pediatric, adult, and elderly patients.

A group of six patients (male and female, 16 to 64 years old) living in a nearby village outside of Kpando, from, suffered from chronic diabetes and hypertension, resulting in acute ulcers. In developing my assessment of local diseases, daily rounds were made with a local translator, to change dressings, record vital signs, offer support, and advise on seeking further care at Margaret Marquart Catholic hospital. There was a need to also assist another local woman who was physically disabled

from medical condition. Daily rehabilitation exercises were performed, while also offering social support.

Further, along with another volunteer, I traveled to an island in Lake Volta to understand the needs of local residents, and helped with maintaining a newly assembled clinic. In a community with no running water, electricity, or local physicians, learning to effectively run a clinic was challenging, yet insightful. Donations of dressings, medications, and instruments from volunteers were used, while training a local resident how to successfully deliver health care. Many techniques came from the text, *Where There is No Doctor*.

My experience in Ghana was contextualized from a global and international perspective coming from a Westerner, while learning about and understanding various health care methodologies. The importance of listening to the community, patients, and understanding cultural values and perspectives has been shown to be necessary, to best suit the needs of individuals and the local population. Whether serving a local community or going abroad, it is essential to aim for personal cultural humility and local cultural competency when attending to health care needs.

IV. Vector Borne – Diseases

Soumajit Kundu, Warren, ('16)

Biochemistry and Cell Biology, Global Health and Psychology Minor

Title: Leishmaniasis in China and India: Key Factors in Disease Contraction and Strategies for Disease Control

Abstract: Non-communicable diseases comprise a great deal of the public health arenas of China and India, yet neglected tropical diseases (NTDs) are still prevalent and create an extensive burden on the populations of these two neighboring countries. One such NTD, leishmaniasis, has been observed to be growing at a progressively faster rate in both China and India, and current efforts to control its transmission have proved insufficient. The epidemiology of leishmaniasis is highly complex due to the various sandfly vectors and species of *Leishmania* protozoan parasites in varying regions of the world, and the different human behaviors each one exhibits. However, fundamental frameworks for treating leishmaniasis have been applied and some progress has been made. In this study, the major factors contributing to spread of the disease and additional strategies for disease control and prevention are presented. Bibliographic research conducted includes reviews, journals, articles, editorials, interviews, empirical reports, and annals from certified medical and public health organizations between 1940 and 2014. Upon analysis of selected literature, disease transmission was primarily seen to be rooted in malnutrition, lack of explanatory models, and poor financial investment from pharmaceutical companies and governments alike. Proposed strategies to combat these problems include supplying better nutrition, implementing explanatory models, providing affordable medical

transportation, and greater investment in drug development from pharmaceutical companies.

V. Educational Interventions

Marisol Garcia, Warren, ('15)

Human Bio/Public Health Major

Title: Triple p-positive parenting programs in domestic violence emergency shelters.

Abstract: *Background:* There are emotional, behavioral, psychological, and relational consequences of child abuse and children's exposure to domestic violence. The triple p-positive parenting program strives to prevent severe behavioral, emotional, and developmental problems in children by targeting parents' knowledge, skills and confidence. Yet, little is known whether triple p-positive parenting programs in domestic violence emergency shelters can be beneficial for children and mothers.

Aims: To create triple p-positive parenting programs in domestic violence emergency shelters to decrease the risk that the child will develop behavioral and/or emotional problems and increase mother self-efficacy.

Methods: A multilevel family based intervention will be employed in domestic violence emergency shelters. The intervention incorporates five levels of

increasing strength that are dedicated to increase parental knowledge, skills, and confidence.

Subjects and Settings: Mothers who have children (ages 3-10 years old) in domestic violence emergency shelters in the San Diego County were recruited.

Results: The studies that have been conducted concluded and support the notion that Triple P increases parental self-efficacy. In addition, studies have seen that there were improvements in observed negative behaviors after the intervention. Themes like these should be observed in the domestic violence emergency shelters.

Conclusion: Few interventions have been dedicated to seeking if whether triple-p positive parenting programs can increase parental self-efficacy and reduce the risk of that the child will develop behavioral, emotional, or psychological impairments. This initiative represents an important step in evaluating the effectiveness of triple-p positive parenting programs in domestic violence emergency shelters.

Gun Violence Intervention Group

Contributors: Talia Delamare ('15), Jarrod Ekengren ('15), Cheyenne Butcher ('15)

Abstract: There are 30,000 gun-related deaths in the United States annually, almost 85 deaths daily. Gun

violence is a social and cultural behavior, yet it behaves as if it were a pathogenic illness. The purpose of the Gun Violence Intervention Group (GVIG) is to promote meaningful dialogue about gun culture in the US. Previously, gun violence has been addressed from a political perspective, which can be both divisive and counterproductive. The average cost of acute healthcare of a gunshot wound is \$17,000 and the total cost of lifetime care for a gunshot victim is \$50,000. Our goal is to address gun violence from a public health perspective and provide tangible opportunities to help ameliorate the gun violence epidemic and all those affected. As part of our commitment to action, GVIG is working to create a curriculum that can be taught in middle schools in San Diego County promoting healthy dialogue addressing issues of gun violence. Participating in GVIG provides an opportunity for global health students at UCSD to take an active role in their community while completing their field work hours.

Ashlee Merida, Muir, ('16)

Physiology and Neuroscience Major, Global Health Minor

Title: Women Empowerment through Pregnancy Resource Centers

Abstract: According to the Centers for Disease Control and Prevention nearly half of all pregnancies in the United States are unplanned and 40.6% of all births are to unmarried women. When confronted with an unplanned pregnancy, women sometimes feel at a loss because they do not know what to do, especially if they are single and not aware of the many options they have available to them. This study focuses on pregnancy resource centers and their ability to increase women empowerment through and after pregnancy by providing free resources that target informational, physiological, and psychological needs. Since the research is still on going there are no definitive results at the moment. I hope to conclude the positive attributes that pregnancy resource centers possess by meet women's needs, thus improving women empowerment.

VI. Food Insecurity

Erica Settlecowski, Warren, ('16)

Global Health Major

Title: Universal Food Insecurity Screening and Referrals Among Low-Income Hispanic Immigrants Within Student-Run Free Clinics.

Contributors: Dr. Sunny Smith, David Malinak

Abstract: Food insecurity, defined as a socioeconomic condition of uncertain or limited access to adequate food, affects nearly 50 million Americans nationwide. 1 in 6 Americans qualify as

being food insecure and live with the constant worry of not knowing where their next meal is coming from. This insecurity leads to individuals developing poor dietary habits and choosing cheaper, less-healthy food options. In turn, this translates into serious and costly health problems for the nation's poor, including obesity, heart disease, as well as diabetes. Patients at the UCSD Student-Run Medical Clinic were given a food security screen and 168/226 (74.3%) of all patients reported food insecurity. The mean USDA Food Security six-item score for all patients was 3.01. Diabetic patients had higher food insecurity scores (mean 3.31, N=126) than non-diabetics (mean 2.71, N=100) ($p=0.02$). 76/226 (33.6%) of all patients reported very low food security, including 45/126 (35.7%) diabetics and 29/100 (29.0%) non-diabetics ($p=0.01$). The patients are primarily Latino non-english speaking individuals without social security numbers. Food insecurity rates in this setting were significantly higher than previously documented in underserved clinic settings and food insecurity among the underserved is strikingly larger than the national average. It should be made aware that food security screening should be implemented in underserved communities as part of regular patient care.

VII. Border Studies

Julius Solbes-Moran, Marshall, ('17)

Molecular Biology Major, Global Health Minor

Title: Human rights issues facing migrants and deported patients attending the HFIT clinic.

Abstract: Our research was spurred by a desire to know more about the circumstances of our patients at the HFIT binational clinic, which provides free primary care in Tijuana. We investigated what risk factors would be most significant to the health of our patients, who face many structural /challenges and have difficulty to accessing other forms of care. This information would allow us to better tailor care and provide us with ideas for expanding the range of services and resources available at the clinic. Our inquiries were guided by testimony from patients and were conducted through a review of literature available on the topic of deportee health. Our findings indicated that there were several factors that elevated deportee's risk of physical and/or mental health conditions; among the most significant of these were discrimination, particularly from the police, substance use, and deportation itself. Furthermore, the pervasiveness of substance use among deportees is tied to their ease of access to drugs, social pressure, and lack of opportunity. Many locals see deportees as a nuisance, and our research has suggested that efforts aimed at dispelling assumptions about deportees may be valuable. The results of have led us to reach out to other local organizations, such as the Padre Chava soup kitchen, that work with deportees to make more resources accessible to them. We also work with our partner organization Prevencasa, a

Mexican NGO that focuses on HIV prevention, to mitigate the harm done by substance use. Our findings will be useful in guiding future research questions and framing the results of other studies in a broader context.

Arlene Ngor, Sixth, ('15)

Human Biology Major, Global Health Minor

Title: USMEX: Cross Border Dynamics And Efforts

Abstract: In the first pilot program of the BLUM Cross-Border Initiative of July and August 2014, two communities along the United States and Mexico border, San Ysidro and Los Laureles, were looked at closely in order to develop a needs and asset analysis of the dynamics that exist because of the border. By studying and visiting the San Diego-Tijuana border region, 8 University of California, San Diego (UCSD) undergraduate students from across four different academic programs and departments investigated the discovered issues of environment, health, safety, and education that have resultantly emerged and continue to exist due to the border and its implications. To look at these border issues, the UCSD students engaged in poverty research and practice on multiple levels –locally, regionally, and internationally. With partnerships from community centers and nonprofit organizations, each border community was examined through a PIP perspective, focusing on the People, Issues, and Places. The engagement and

study of each community included interviews and outreach as well as academic lessons and papers to further understand the diverse cultural context and intersection of the struggles and achievements of each of these low socioeconomic areas. The utilization of various technology, like GIS and OptiPortables, and support from professionals of academia and leaders of the field allowed for the contextualization of these issues to be quantitative as well as qualitative –where the degree of health and the extent of environmental factors could be examined and analyzed. Through an interdisciplinary approach of research, the causes and consequences of poverty, as related to the border issues investigated, allowed for understanding of the social inequality in the United States and Mexico, where accessibility and availability to certain services and resources that can supplement, complement, and enhance everyday living and lifestyle choices are compromised. Poverty contributes to these issues, but further action and recommendations, such as continued collaboration with leaders of the communities and tele-education, can be made and implemented to minimize the discrepancies evident and prevalent in these researched areas.

VIII. Healthcare

Priscilla Soria, Revelle, ('15)

Biochemistry and Cell Biology

Title: The improvement of Healthcare in Limited English Proficiency communities through the use of Medical Interpreters.

Abstract: The 2011 US census report estimates 60.6 million people speak a language other than English in the home. This shows the great Limited English Proficiency (LEP) communities that are here in the United States. This group of people can either have a difficulty speaking, reading, writing or understanding the language. Statistics show that because of the language barrier there seems to be a greater gap in health disparity within this group of LEP patients compared to patients who are proficient in English. The language barrier affects both the ability of patients to seek appropriate healthcare, as well as adherence to treatments needed for acute and chronic illness.

The language barrier can interfere with the health care of these LEP patients in a variety of ways. The most common is the direct verbal interactions between the LEP patients and the medical staff. This barrier in verbal communication affects the patient from expressing themselves to their fullest extent. There is also the LEP who cannot understand most high-level vocabulary, which may be used by medical staff. LEP patients might also find a barrier in health care due to their inability to write or read in English, which is normally important for adherence for follow up care.

The aim of this project is to look into the necessity of medical interpreters for LEP patients. It is important to evaluate how the health care for LEP patients can be improved with the use of Medical interpreters. The method used for this project was to look into the use of Medical interpreters in Hospitals around the world (predominantly English Speaking Countries). The statistics for this project were taken from studies done in these hospitals to see how the quality of health care for LEP patients improved with the use of medical interpreters. Then each study was reviewed in depth to see what specific aspect of health care were improved for these LEP patients and why an interpreter could improve these aspects of health care. I looked into the improvement of prognosis of LEP patients. It was shown that with the use of medical interpreters for LEP patients there was a clearer outcome for the prognosis of a patient. Also, with the use of medical interpreters there was an overall better quality of care for the patient with the medical Interpreter than without one. Lastly, with the use of medical interpreters there was better adherence for the patient to follow treatment plans and return for follow up visits.

In conclusion the use of a medical interpreter is crucial for the improvement of health care within the LEP communities. The use of an interpreter can be applied to any country where there is a community of people who do not speak the primary language of that country. The medical interpreters job of can also go beyond basic translation, as they

must take into account the culture and the advocacy for that group.

Lynhea Anicete, ERC, ('15)

Global Health/ Biochemistry and Cell Biology
Double Major

Title: The Makeshift Clinic

Abstract: According to Didier Fassin, Humanitarianism intervention is a new part of our worldly experience. There are a myriad of debates surrounding medical humanitarianism and the relationship between the suffering and those that provide succor. Powerful nations, especially during the age of imperialism, did not intervene unless it was beneficial to their cause. Until the twenty first century, seldom were there efforts to provide developing nations with humanitarianism efforts and aide. An example of the relationship between suffering and succor can be drawn from a makeshift clinic found in an underserved and impoverished community called El-Ejido Chapultepec in Ensenada, Baja California Sur, Mexico. For 15 years, this makeshift clinic has been organized by the students of Flying Samaritans at UCSD. With the help of promotoras, providers, and volunteers; it continues to provide free medical health, dental health, and public health education, and other resources for the community. We focus on the social determinants of the community's health and adjust

our services to their needs. I question if this organization is still relevant to the community or if it impedes on the community and the Mexican health system. This paper reveals that the organization's presence in the community is an essential supplement to the community's healthy experience when providing medical health education, dental and medical intervention. Whilst providing food, clothes, and baby goods to supplement their needs. This paper encourages the collaboration and communication efforts between expatriate volunteers and the community in order to be compatible without interfering the community, consensual coercion, or perpetuating the savior complex.

Thank you for attending!

*We hope to see you next year at the
3rd Annual Horizons of Global Health
Research Symposium.*

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