

Primary Presenter: **Travis Barlock**

Project Title: *Epidemiology of burns in rural and urban Western Cape, South Africa: June-December 2015*

Primary Mentor: Lee Wallis

Thematic Area: Global Health

Abstract:

The townships of South Africa are among the most injury laden regions of the world. There is little published data on the epidemiology of burns presenting to emergency departments in the Western Cape. A retrospective review of patients in rural and urban emergency departments throughout the Western Cape was undertaken, looking at all burn patients seen from June-December 2015. This study discusses the characteristics and dispositions of the patients. Over this 7-month period, 1026 patients were seen for burns. The pediatric population was disproportionately affected with 48.9% of burn patients under 9 years of age, while 33.38% were between ages 20-54. The predominant mechanism of injury was a hot water burn (58.5%) with the legs (29.0%) and arms (30.2%) being the most common sites of injury. The average total body surface area (TBSA) of the burns was 4.62% with 44.2% of burns being superficial and 23% being partial thickness. Approximately 81.3% of patients met referral criteria and 9.4% of patients were referred. Reasons for this are explored. Recommendations are aimed at increasing prevention, which include promoting fire safety among schoolchildren in the community, parental education on pediatric risk, and legislation promoting safer stove design and water delivery systems. Further research is still needed to determine the impact of strict referral criteria adherence on patient outcomes.

Primary Presenter: **Kyle Buchwalder**

Project Title: *Needs Assessment of a Pediatric HIV Clinic in Guatemala City, Guatemala*

Primary Mentor: Lisa Abuogi

Thematic Area: Global Health

Abstract:

HIV-infected children in Guatemala are a vulnerable group whose care and treatment have not been extensively evaluated. Our team utilized 2016 World Health Organization HIV treatment guidelines and a Kenyan Ministry of Health antiretroviral therapy (ART) decentralization guideline to create a needs assessment survey for use in low and middle-income Latin American countries such as Guatemala. The needs assessment survey created by our team was piloted with the multidisciplinary staff of the Pediatric Infectious Disease Clinic at Hospital Roosevelt in Guatemala City, Guatemala in July of 2016. Responses were compiled to provide an overview of HIV care at the clinic. At the time of survey completion, the Pediatric Infectious Disease Clinic at Hospital Roosevelt served 334 HIV-infected children as well as 147 uninfected children with perinatal exposure. The clinic demonstrated great execution and capacity in areas of Policy (4/5), Human Resource Capability (4/4), Psychosocial Support (4/4), Laboratory and Clinical Monitoring (6/6), Treatment Retention (4/4), and Supply Management (4/4). Areas for improvement included Pediatric ART and Decentralization (9/13), Financial Support (0/2), Data Storage and Analysis (0/3), and Community Involvement (0/3). Based on our results, an adapted needs assessment survey can successfully evaluate the capacity for pediatric HIV care in low and middle-income Latin American countries. In the future, similar needs assessments should be conducted at decentralized clinics to determine additional areas for improvement and collaborative support.

Primary Presenter: **sierra crowe**

Project Title: *A Meta-Analysis of the Effects of Female Genital Mutilation of Sexual Function Using the Female Sexual Function Index*

Primary Mentor: gretchen heinrichs

Thematic Area: Global Health

Abstract:

Background: Female genital mutilation/cutting is a cultural practice prevalent in many countries that causes numerous adverse health effects. However, its effects on sexual function are not fully understood. The purpose of this paper is to determine how sexual function is affected by FGM/C.

Design: A meta-analysis to determine if sexual function is impacted by FGM/C.

Methods: Articles were found on PubMed, EMBASE, Google Scholar, MEDLINE, Cochrane, Scotus, PsychINFO, and CINAHL. Data was extracted and imported to Excel from all articles reporting FSFI scores for cut and uncut women. Statistical analysis and modeling was performed using RStudio v1.1.453.

Results: Total FSFI score for cut women score is 5.61 points lower than uncut women, and scores for all subdomains are significantly lower for cut women. Type 1, 2, and 3 women score 4.36, 9.39, and 7.74 points lower than cut, respectively.

Conclusion: This meta-analysis provides evidence that sexual function is diminished by FGM/C. Sexual health is a critical component of overall health and well-being, and a multi-faceted approach including social, cultural, and governmental action must be taken in order to address FGM/C.

Primary Presenter: **Matthew Fioravanti**

Project Title: *An examination of humanitarian Aid coordination in Nicaragua among members of a novel online networking platform*

Primary Mentor: Jennifer Bellows

Thematic Area: Global Health

Abstract:

Within the realm of humanitarian organizations, it has been largely described that the path towards more effective and efficient aid programming lies not in proliferation of programming itself, but rather in increased collaboration between aid entities. Additionally, it has been observed that poorly coordinated humanitarian efforts within the same recipient market can cause measurable harm to the societies that they aim to serve. However, despite multiple well-organized global calls-to-action for increased collaboration within the international development community, relatively little change has been observed over time. Etiologies for the lack of coordination efforts range from political, to financial, to a general lack of awareness of other organizations, and much more. The utilization of internet-based networking platforms within the international development community is a relatively novel concept as internet access across the globe, though expanding rapidly, is far from comprehensive. In the past decade, however, access to high-speed internet within the country of Nicaragua, one of the largest per-capita recipients of aid in the Western hemisphere, has expanded measurably. This increased internet access prompted the development and launch in 2015 of the Nicaragua Non-Profit Network (NNN) website, which is a Nicaragua-specific internet-based networking platform serving the Nicaraguan nongovernmental organization (NGO) community with the aim of improving the overall coordination of aid programming. In an effort to assess the effects of such an online networking platform on NGO collaboration in Nicaragua, we conducted an annual survey of website member-NGOs. The survey was distributed annually over three years from 2016-2018. The 91 completed surveys show a strong belief ( $P < 0.001$ ) that an online networking platform such as the NNN is needed in Nicaragua among respondent members. Additionally, there is a statistically significant trend towards organizations with an annual budget larger than \$500,000 and organizations that have operated in Nicaragua longer than 10 years having more frequent communication habits suggesting that easy accessibility to online networking may preferentially benefit smaller and newer organizations. While data was not significant, there was a trend towards respondents who operate in Nicaraguan healthcare delivery observing overlap of health care services between the various providers of healthcare programming. An observation that has serious biological, ethical, and general safety implications.

Primary Presenter: **Nicholas Fling**

Project Title: *Emergency Medicine Rapid Needs Assessment in El Salvador*

Primary Mentor: Jennifer Bellows

Thematic Area: Global Health

Abstract:

**Background:** El Salvador suffers a striking burden of trauma with the world's highest homicide rate and rates of motor vehicle accident deaths 2.5 times greater than those of the developed world. Despite this, dedicated emergency care training and standardizations-of-care and equipment in public hospitals remains scarce.

**Objective:** The aim of this study is to establish a baseline measure of current capacities and practices in public San Salvador emergency departments as they pertain to the care of the critically injured.

**Methods/Design:** In June and July of 2016, a team of two interviewers conducted in-person interviews of nine key emergency department operations personnel at each of the eight public emergency departments in the metropolitan San Salvador area using the sidHARTE needs-assessment tool which comprises 329 distinct questions.

**Results:** Of the 72 individuals sought, 70 participated. Of the 8 hospitals, 100% report consistent electricity. 37.5% report inconsistent access to running water, 100% report 24-hour access to all vital laboratory studies as well as reliable access to supplies of blood. Half of the EDs surveyed report access to an ultrasound machine and 37.5% report the ability to perform emergency sonography after-hours. EDs had, on-average, 60% (31.9/53) of Essential Emergency Medicines, 81% (52/64) of Essential Emergency Supplies, and 90% of Essential Emergency Equipment (5.4/6). None of the hospitals (including 2 non-responders) had held mass-casualty incident training in the last year. As well, no hospital reported regular facility-sponsored opportunities for continuing medical education.

**Conclusions:** This study characterized the resources and emergency care capacity of San Salvador's public emergency departments. A high degree of variability was observed among emergency department resources and staffing. Additional efforts should be made to characterize the populations arriving in each emergency department in order to assure resources identified in this study are best matched to the needs of those populations and that the referring practices of local EMS providers match the capabilities of the hospitals.

Primary Presenter: **Bijan Ghaffari**

Project Title: *A cross-sectional analysis comparing knowledge, attitudes, and intentions surrounding exclusive breastfeeding between primiparous and multiparous pregnant women at Dhulikhel Hospital, Nepal*

Primary Mentor: Jennifer Bellows

Thematic Area: Global Health

Abstract:

Nepali children have high rates of stunting and wasting. The World Health Organization recommends exclusive breastfeeding (EBF) for the first 6 months of life as a means of promoting good nutrition and decreasing infant/child mortality and morbidity. While breastfeeding is common in Nepal, awareness about EBF and its benefits are lacking. This study was conducted to compare knowledge, attitudes, intentions, and perceived barriers to EBF in a population of pregnant Nepali women receiving antenatal care at Dhulikhel Hospital. A cross-sectional questionnaire, administered between July and August 2016, was completed by 300 participants aged 18 to 38 years-old. 193 participants were expecting their first child (primiparous), with the remaining 107 previously had at least one child (multiparous). While 188 (63%) of those surveyed intend to feed their child only breastmilk for the first six months, only 89 (30%) were familiar with the term "Exclusive Breastfeeding." There were statistically significant differences between primiparous and multiparous participants' knowledge about exclusive breastfeeding, as well as several attitudes and beliefs surrounding infant nutrition. Despite high rates of breastfeeding, the lack of knowledge surrounding exclusive breastfeeding introduces the risk for breastfeeding rates to decrease, and for other risky feeding behaviors to become more prevalent. As the practice of EBF is crucial to addressing stunting and infant mortality, implementing a formal EBF intervention tailored to the Dhulikhel community is recommended. This secondary analysis demonstrates that families may be more easily influenced during the primiparous period.

Primary Presenter: Leah Kellogg

Project Title: *An examination of humanitarian Aid coordination in Nicaragua among members of a novel online networking platform.*

Primary Mentor: Jennifer Bellows

Thematic Area: Global Health

Abstract:

Within the realm of humanitarian organizations, it has been largely described that the path towards more effective and efficient aid programming lies not in proliferation of programming itself, but rather in increased collaboration between aid entities. Additionally, it has been observed that poorly coordinated humanitarian efforts within the same recipient market can cause measurable harm to the societies that they aim to serve. However, despite multiple well-organized global calls-to-action for increased collaboration within the international development community, relatively little change has been observed over time. Etiologies for the lack of coordination efforts range from political, to financial, to a general lack of awareness of other organizations, and much more. The utilization of internet-based networking platforms within the international development community is a relatively novel concept as internet access across the globe, though expanding rapidly, is far from comprehensive. In the past decade, however, access to high-speed internet within the country of Nicaragua, one of the largest per-capita recipients of aid in the Western hemisphere, has expanded measurably. This increased internet access prompted the development and launch in 2015 of the Nicaragua Non-Profit Network (NNN) website, which is a Nicaragua-specific internet-based networking platform serving the Nicaraguan nongovernmental organization (NGO) community with the aim of improving the overall coordination of aid programming. In an effort to assess the effects of such an online networking platform on NGO collaboration in Nicaragua, we conducted an annual survey of website member-NGOs. The survey was distributed annually over three years from 2016-2018. The 91 completed surveys show a strong belief ( $P < 0.001$ ) that an online networking platform such as the NNN is needed in Nicaragua among respondent members. Additionally, there is a statistically significant trend towards organizations with an annual budget larger than \$500,000 and organizations that have operated in Nicaragua longer than 10 years having more frequent communication habits suggesting that easy accessibility to online networking may preferentially benefit smaller and newer organizations. While data was not significant, there was a trend towards respondents who operate in Nicaraguan healthcare delivery observing overlap of health care services between the various providers of healthcare programming. An observation that has serious biological, ethical, and general safety implications.

Primary Presenter: **Taylor Lynch**

Project Title: *The Importance of Clinical Experience in the Preclinical Years of Medical School and Curriculum Reform; a Case Based study*

Primary Mentor: Dave Richards

Thematic Area: Global Health

Abstract:

Abstract:

Introduction: The purpose of this work was to perform a literature review, analyze a case, and finally propose curriculum reform to better prepare University of Colorado School of Medicine (CUSOM) medical students both clinically and ethically for their third- and fourth-year clinical clerkships as well as for international rotations for Global Health Track (GHT) students.

Case Presentation: The case analyzes a 37-year-old male polypharmacy overdose in Cape Town, South Africa. A medical student doing an international rotation was placed in a difficult ethical position where he was asked by a local physician to place a central line with little prior training.

Management and Outcome: The resident walked the student through the placement of the femoral central line and the patient ultimately survived and was discharged several days later.

Discussion: This paper argues for a curriculum reform including a basic and advanced skills course required for first and second year medical students. Additionally, the paper will also discuss several ethical and cultural cases designed to better prepare students for international rotation through the South African Emergency Medicine Foundation (SAEMF).

Conclusions: Early clinical skills exposure as well as case-based ethical scenarios better prepare students for the demands of the second half of medical school as well as international rotations



Primary Presenter: **Allison Strauss**

Project Title: *A cross-sectional analysis comparing knowledge, attitudes, and intentions surrounding exclusive breastfeeding between primiparous and multiparous pregnant women at Dhulikhel Hospital, Nepal*

Primary Mentor: Jennifer Bellows

Thematic Area: Global Health

Abstract:

Nepali children have high rates of stunting and wasting. The World Health Organization recommends exclusive breastfeeding (EBF) for the first 6 months of life as a means of promoting good nutrition and decreasing infant/child mortality and morbidity. While breastfeeding is common in Nepal, awareness about EBF and its benefits are lacking. This study was conducted to compare knowledge, attitudes, intentions, and perceived barriers to EBF in a population of pregnant Nepali women receiving antenatal care at Dhulikhel Hospital. A cross-sectional questionnaire, administered between July and August 2016, was completed by 300 participants aged 18 to 38 years-old. 193 participants were expecting their first child (primiparous), with the remaining 107 previously had at least one child (multiparous). While 188 (63%) of those surveyed intend to feed their child only breastmilk for the first six months, only 89 (43%) were familiar with the term "Exclusive Breastfeeding." There were statistically significant differences between primiparous and multiparous participants' knowledge about exclusive breastfeeding, as well as several attitudes and beliefs surrounding infant nutrition. Despite high rates of breastfeeding, the lack of knowledge surrounding exclusive breastfeeding introduces the risk for breastfeeding rates to decrease, and for other risky feeding behaviors to become more prevalent. As the practice of EBF is crucial to addressing stunting and infant mortality, implementing a formal EBF intervention tailored to the Dhulikhel community is recommended. This secondary analysis demonstrates that families may be more easily influenced during the primiparous period.