

2014 Global Health Symposium



Center for Global Health
WHO Collaborating Center
Colorado School of Public Health
<http://globalhealth.ucdenver.edu>



Schedule

9:00 am- Welcome

Abuse, Neglect and Injury

9:05 am – “Public Health Research and Law: A Useful Framework for Addressing Child Maltreatment Internationally”

Donald Bross, PhD, JD, Associate Director, Kempe Center Program in Pediatric Law, Policy and Ethics, School of Medicine, University of Colorado Anschutz Medical Campus and Children’s Hospital Colorado

9:20 am - “Geographic Distribution and Injury Severity of Penetrating Trauma in Cape Town, South Africa”

Christina M Cutter, MSc, and **Nicholas L Berlin, MPH**, both students at the School of Medicine, University of Colorado Anschutz Medical Campus

Systems and Oral Health

9:35 am – “Demonstrating the Effectiveness of an African Emergency First Aid Responder System”

Nee-Kofi Mould-Millman, MD, Assistant Professor, Department of Emergency Medicine, University of Colorado Anschutz Medical Campus

9:50 am – “Evaluation of the Oral Health Status of Elementary Age School Children Attending the Banasa School in Trifinio, Guatemala”

Elizabeth A. Shick, DDS, MPH, Director of Global Health Initiatives, School of Dental Medicine at the University of Colorado Anschutz Medical Campus

10:05 am – Break

10:15 am – “Identifying Otolaryngology Systematic Review Research Gaps: comparing Global Burden of Disease 2010 Results with Cochrane Database of Systematic Review Content”

Hannah Pederson, student at the School of Medicine, University of Colorado Anschutz Medical Campus

November 21, 2014

9:00 am - 3:00 pm

University of Colorado

Anschutz Medical Campus

Research 1 North Building

Hensel Phelps Auditorium West

(Room 1006)

12800 East 19th Avenue

Aurora, CO 80045

Maternal Health

10:30 am – “Comparison of Prenatal Program Delivery Using Two Iterations of the Pregnancy and Neonatal Registry from the Trifinio, Southwest Guatemala”

Kimberly Insel, MD, MPH, Global Health Fellow at the Center for Global Health at the Colorado School of Public Health and the Department of Family Medicine, University of Colorado Anschutz Medical Campus

10:45 am – “A Quality Improvement Evaluation of Nepalese Women with Prior Uterine Prolapse Surgery”

Pamela Prag, CNM, MS, MPH, Senior Instructor, College of Nursing, University of Colorado Anschutz Medical Campus, **Rajiv Sharma, MPH**, Kavre District Health Officer, Kathmandu, Nepal, **Hilda Ndikum, PharmD, MPH Candidate**, and **Suzy Lewis, MPH Candidate**, both at the Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Energy and Water

11:00 am – “Sub-Saharan Africa’s Limited Access to Electricity and the United Nations Sustainable Energy for All Initiative”

Mark D Safty, Wirth Chair in Sustainable Development, School of Public Affairs at the University of Colorado Denver

11:15 am – “Drinking Water Quality and Quantity in the Trifinio: A Pilot Study”

Ian Eisenhauer, student at the School of Medicine at the University of Colorado Anschutz Medical Campus

11:30 am – Presentation of the 2014 Excellence in Global Health Awards

11:50 am – Lunch Break

Child Health and Protocol

1:05 pm – “Development of a Comprehensive Protocol for the Diagnosis and Treatment of Non-communicable Diseases in Health Centers of Northern Viet Nam”

Joshua Solomon, MD, FCCP, Assistant Professor of Medicine, Autoimmune Lung Center and Interstitial Lung Disease Program at National Jewish Health

1:20 pm – “Creciendo Sanos: An Early Childhood Health and Development Program in Southwest Guatemala”

Gretchen Domek, MD, MPhil, Assistant Professor of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus



1:35 pm – “Extended Nevirapine Prophylaxis for HIV Exposed Infants Improves HIV Testing Uptake in Kenya”

Abigail Nimz, student at the School of Medicine, University of Colorado Anschutz Medical Campus

1:50 pm - Break

2:05 pm - “Exploring Intentions to Exclusive Breastfeeding in the Hills Region of Nepal: Piloting Survey and Methodology Designs”

Geoffroy Fauchet, student at the School of Medicine, University of Colorado Anschutz Medical Campus

Climate Change and Environmental Impact

2:15 pm – “The Work of Colorado State University’s Feed the Future Innovation Lab for Adapting Livestock Systems to Climate Change”

Katie Steneroden, DVM, MPH, PHD, DAVCPM, Deputy Director, Feed the Future Innovative Lab, Colorado State University

2:30 pm – “Health Care Access and Malaria Severity in the Ngorongoro Conservation Area (NCA), Tanzania”

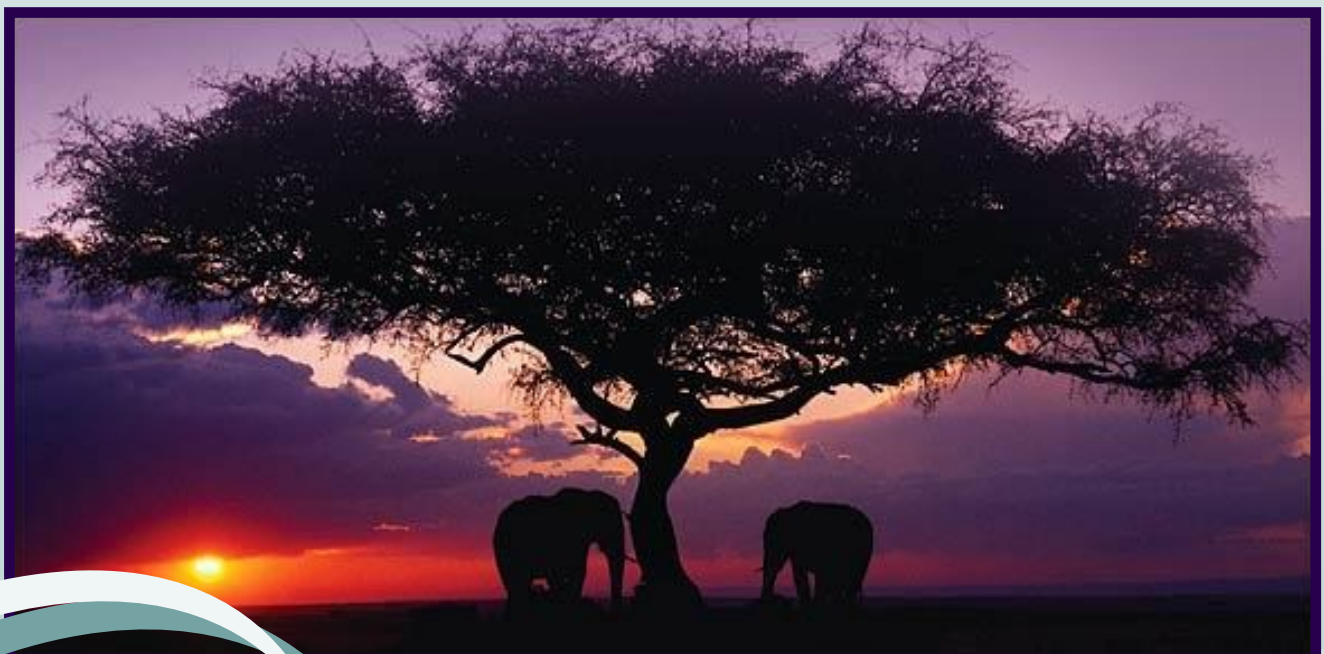
Kacy Crawford MPH, Research Associate II, OMNI Institute and **Deborah Thomas, PhD**, Associate Professor of Geography and Environmental Sciences, University of Colorado Denver

Surgery and Technology

2:45 pm - “Using GPS Satellites and Geocoding to Assess Surgical Needs in a Refugee Setting”

Yihan Lin, MD, Resident, Department of General Surgery, University of Colorado Hospital

3:00 pm - Conclusion





Abstracts

Public Health Research and Law: A Useful Framework for Addressing Child Maltreatment Internationally - Desmond Runyan, MD, DPH, Director, Kempe Center for the Prevention and Treatment of Child Abuse and Neglect and Donald Bross, PhD, JD, Associate Director for the Kempe Center Program in Pediatric Law, Policy and Ethics

There is growing recognition of the importance of child maltreatment as a health and behavioral health issue, as evidenced by the CDC website on Adverse Childhood Experiences. The impact of child maltreatment extends beyond its great harm to individuals, to population and economy level harms, including political and economic systems. International epidemiological surveys demonstrate, in detail, that child maltreatment is not an issue limited to any one country or nation state. There are variations in the forms, severity, and frequency with which children are disciplined, but no country is immune from this problem. Systems of response to child maltreatment are far from uniform among nations. While aspirations for strong child protection are found in agreements such as the UN Convention on the Rights of the Child, and General Comment 13 of the Commission on the Rights of the Child, the actual implementation of practical measures, such as mandatory child abuse reporting laws and scientifically informed responses to child abuse and neglect, are most commonly anemic or non-existent. Child maltreatment is being addressed systematically primarily in 'nations of law'. There are significant advantages in approaching the problem from a public health perspective and specifically with respect to addressing underlying policy and the concepts of host, agent, and environment; these will be presented for discussion.

Geographic Distribution and Injury Severity of Penetrating Trauma in Cape Town, South Africa - Christina M. Cutter MSc,¹ Nicholas L. Berlin MPH,¹ David B. Richards MD FACEP² - *Author Affiliations:* ¹University of Colorado School of Medicine, Aurora, CO, ²Department of Emergency Medicine, Denver Health Medical Center, Denver, CO

Background. Injury is the leading cause of mortality in the Western Cape Province of South Africa. Sharp penetrating trauma significantly contributes to the regional injury burden. This study describes the geographic distribution and injury severity patterns of sharp penetrating trauma in Cape Town, South Africa. **Methods.** A retrospective cohort study was performed assessing sharp penetrating injuries to the torso resulting in hospital admission. Geographic location of injury was aggregated and mapped to the main place level. A cluster analysis was conducted to identify injury clusters by proximity and injury rate. Univariate analyses were performed to evaluate the association between injury clusters and injury severity metrics. **Results.** The analytic cohort was comprised of 796 patients. Spatial analysis revealed three geographic clusters ($P < .001$) with high rates of violent stab injury. Across injury severity metrics, patients originating in non-clustered main place areas were more likely to receive an immediate priority cape triage score (CTS), to undergo surgery, to require blood transfusions, and to experience mortality. **Conclusions.** This study contributes to the epidemiologic understanding of sharp penetrating injury burden in Cape Town, South Africa. It identified three areas of geographic clustering of high rates of violent stab injury. These findings may serve as a resource for injury prevention targeting efforts. Additionally, this study highlighted an important inverse association between main place cluster status and injury severity metrics. The implications of this finding must be considered in the design of future trauma surveillance systems.

Abstracts cont..

Demonstrating the Effectiveness of an African Emergency First Aid Responder System - PI: Nee-Kofi Mould-Millman, MD

Background: to help address the large burden of death and disability from trauma in sub-Saharan Africa, leading international health agencies have advocated for locally-appropriate, integrated prehospital trauma care systems. A South African Emergency First Aid Responder (EFAR) program has been implemented and proposed as a model community-based, volunteer, layperson program. EFARs provide initial patient resuscitation, stabilization and activation of local ambulance system. While promising, no patient- or process-centered evidence exists. **Objectives:** Our primary objective is to assess a mortality difference due to EFAR trauma care versus non-EFAR-rendered care. Our secondary objective is to test whether EFAR presence changes key emergency care system time intervals compared to non-EFAR responses and care. **Methods:** this is a prospective, observational, database study. The study population includes all adults in Atlantis, Western Cape, South Africa who experience penetrating or blunt trauma and are transported by ambulance to a local emergency center. Comparison groups will be persons receiving EFAR versus non-EFAR care. Clinical and operational data will be collected and merged from three sources: EFAR report forms, EMS patient care forms, and hospital charts. An analytic model will facilitate testing the effect of 6 independent variables on our outcome variables. Descriptive statistics will be performed and generalized linear models will be used to model the relationship between dependent and independent variables. **Outcome measures:** the primary outcome is mortality, and the secondary outcome is key emergency care system time intervals. **Hypotheses:** EFAR-rendered prehospital trauma care will confer at least 10% mortality benefit and improve key emergency care system time intervals by 15%, compared to similarly-injured non-EFAR-treated patients. **Preliminary conclusion:** failing to reject the hypotheses will provide critical initial evidence to facilitate further research, advocacy and development of the EFAR program as a model intervention in other sub-Saharan African settings.

Evaluation of the Oral Health Status of Elementary Age School Children Attending the Banasa School in Trifinio, Guatemala - Elizabeth Shick, DDS, MPH

Purpose: The purpose of this study was to evaluate the oral health status of elementary age school children attending the Banasa School in Trifinio, Guatemala. **Methods:** The University of Colorado School of Dental Medicine (SDM) is collaborating with the Center for Global Health to provide comprehensive oral health care for the workers and family members of Banasa. In June 2014, one pediatric dentist performed oral health evaluations on 164 children attending the Banasa School. Intraoral exams were performed and clinical data was recorded. **Results:** A total of 164 Kindergarten-5th grade students were evaluated. Of these, only 15% had ever been to a dentist, all of those for extraction of infected teeth. While 79% of children reported having a toothbrush at home, 32% reported sharing it with another family member. Thirty-eight percent of children reported brushing less than twice a day and none had ever used dental floss. Of the 164 children evaluated, 72 (44%) reported having a toothache. On clinical exam, 96% had visible decay, 36% had decalcification present, 100% had visible plaque on some teeth, 60% had bleeding on brushing (used a proxy for gingivitis), and 20% had a visible dental abscess. DMFS scores ranged from 0 to 66 with an average of 19.6. **Conclusion:** The oral health of the children attending the Banasa School is extremely poor and their oral health care status is worse than US school children. Many children have urgent needs that the SDM plans to address by providing comprehensive care to the community.



Abstracts cont..

Identifying Otolaryngology Systematic Review Research Gaps: Comparing Global Burden of Disease 2010 Results With Cochrane Database of Systematic Review Content - Hannah Pederson¹, Tyler Okland¹, Lindsay N Boyers², Chante Karimkhani³, Richard M Rosenfeld⁴, Mona Nasser⁵, Sze Lin Yoong^{6,7}, Luke Wolfenden⁷, Hmwe H Kyu⁸, Peter T Serina⁸, Robert P Dellavalle^{9,10,11}

¹University of Colorado School of Medicine, Aurora, CO, USA, ²Georgetown University School of Medicine, Washington, D.C., USA, ³Columbia University College of Physicians and Surgeons, New York, NY, USA, ⁴Department of Otolaryngology, SUNY Downstate Medical Center, Brooklyn, New York, USA, ⁵Peninsula Dental School, Plymouth University, Plymouth, England, UK, ⁶Hunter New England Population Health, Wallsend NSW 2287, ⁷School of Medicine and Public Health, the University of Newcastle, NSW, Australia, ⁸Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA, USA, ⁹Department of Dermatology, University of Colorado Anschutz Medical Campus, Aurora, CO, USA, ¹⁰Department of Epidemiology, Colorado School of Public Health, Aurora, CO, USA, ¹¹Dermatology Service, U.S. Department of Veterans Affairs Medical Center, Denver, CO, USA

Background: Disease burden should help guide research prioritization. The Global Burden of Disease (GBD) 2010 Study used disability-adjusted life years (DALYs) to estimate disease burden for 291 diseases and injuries in 187 countries from 1990 to 2010. These data can be used to drive global research agendas based on the morbidity and mortality of certain diseases. **Objective:** To determine whether systematic reviews and protocols published in the Cochrane Database of Systematic Reviews (CDSR) appropriately reflect the global burden of disease. **Methods:** Two investigators independently assessed 10 otolaryngologic conditions in CDSR for systematic review and protocol representation according to subject content. For each of the 10 conditions, CDSR representation was compared with DALY metrics from GBD 2010. **Results:** A total of 116 systematic reviews and protocols represented the 10 otolaryngologic conditions. Comparing CDSR representation with disability, only one condition, mouth cancer, correlated well. Upper respiratory infections, otitis media, thyroid cancer, and cleft lip and cleft palate were over-represented in CDSR when compared to their respective DALYs. Conversely, esophageal cancer, "other hearing loss", nasopharynx cancer, larynx cancer, and "cancer of other part of pharynx and oropharynx" were under-represented. **Conclusions:** Research prioritization should be guided in part by the morbidity and mortality of diseases. This study demonstrates that systematic reviews and protocols can be mapped against the burden of disease to identify research gaps. As new data provide an unprecedented understanding of the global burden of disease, technology allows us to minimize research disparities and advance human health in the 21st century.

Comparison of prenatal program delivery using two iterations of the pregnancy and neonatal registry from the Trifinio, Southwest Guatemala—Kimberly Insel, Gretchen Heinrichs, Andrea Jimenez-Zambrano, Nnamdi Ezeanochi, Marco Celada, Hilda Alvarado, Maureen Cunningham, Ada Velasquez, Fabiola Mendez, Milly Bamaca, Sairy Lopez, Sheana Bull

Background: Due to a lack of surveillance, little is known about prenatal care adequacy and pregnancy complication detection in the Trifinio, Southwest Guatemala. The WHO recommends women receive ≥ 4 prenatal visits during pregnancy. Detection of pregnancy complications including pre-eclampsia requires frequent screening in the last weeks of pregnancy. **Methods:** This is a prospective cohort of pregnant women living in the Trifinio. All pregnant women within this cohort were registered through home visits conducted by community health workers (CHWs). For each identified pregnant woman, CHWs conducted a risk assessment survey, checked fundal height, blood pressure, fetal heart tones and urine protein and recorded this information in a pilot registry. After 18 months, a revised program approach trained CHWs to provide multiple prenatal visits per pregnancy. SPSS version 22 was used to assess the number of women who recalled receiving ≥ 4 prenatal visits and the number of women seen at ≥ 36 weeks in both registries. Groups were compared using a chi-square statistic. **Results:** A convenience sample of 171 women was included in the pilot registry and 169 in the revised registry. In the pilot registry, 69/100 (69%) of women with complete recall- data reported receiving ≥ 4 prenatal visits, whereas 66/81 (81.5%) of women in the revised registry reported receiving ≥ 4 prenatal visits (Chi-Square 3.68, $p = 0.06$). Regarding visits ≥ 36 weeks gestation for women with complete gestational age data, the pilot registry recorded 8/85 (9.4%) of women while the revised registry recorded 37/169 (22.2%) of women with visits ≥ 36 weeks gestation (Chi-square 6.04, $p = 0.01$ value) **Conclusion:** Changing the structure of the registry program improved the proportion of women who recall receiving ≥ 4 prenatal visits and significantly increased the number of women seen ≥ 36 weeks. Further process revisions including population mapping within the Trifinio may improve surveillance estimates for pregnancy complications in this population.

Abstracts cont..

A Quality Improvement Evaluation of Nepalese Women with Prior Uterine Prolapse Surgery—Pamela Prag, CNM, MS, MPH College of Nursing Senior Instructor, **Rajiv Sharma, MPH** Kavre District Health Officer, Kathmandu, Nepal, **Suzanne Lewis, BSN, MPH Candidate**, **Michelle Wilson, BSN, MS, GHC Candidate**, **Geoffrey Fauchet, MSIV**, **Hilda Ndikum, PharmD, MPH Candidate**

Introduction Uterine prolapse (UP) disproportionately affects women in Nepal. Denver's Centura Global Health Initiatives (GHI) travels twice a year to Nepal to conduct surgical treatments for UP. No follow up has been done to evaluate quality of life (QOL) improvements or the impact of surgery on patient well-being. In partnership with Scheer Memorial Hospital College of Nursing in Nepal, University of Colorado students conducted a quality improvement (QI) project to better inform future medical trips as well as strategic program planning for Kavre health district in the Kathmandu Valley. **Methods** This mixed methods approach included quantitative data, such as demographics, obstetrical history and quality of life measurements. Qualitative data was collected using 3 general faculty-developed questions about functional and relationship improvement following hysterectomy, followed by 8 questions selected from Medical Outcomes Study questionnaire and deemed to provide important QI follow up information in a culturally appropriate manner. **Results** 70 women volunteered for face-to-face interviews. 91% of women reported that their QOL was poor prior to the intervention. 80% of the women verbalized a significant improvement in their QOL following surgery. The results were presented to the Nepali stakeholders in an open forum with a request to return. **Conclusions** This preliminary data guides future surveying processes and offer important QI information to GHI as well as the Kavre District Health Office. Though the majority of the women had improved QOL following surgery, continued efforts to expand health equity through awareness and prevention of UP is necessary to improve overall women's health in Nepal.

Sub-Saharan Africa's Limited Access to Electricity and the United Nations Sustainable Energy for All Initiative—Mark D Safty is the Wirth Chair in Sustainable Development at the University of Colorado Denver, School of Public Affairs. He is a partner of the law firm Holland & Hart LLP and chairs its Energy & Infrastructure Practice Group.

In the developing world electricity access provides opportunities for improved sanitation, water purification, food storage and general economic development, all of which have measurable positive impacts on the health of a population. The lack of access to electricity negatively impacts the effective and safe delivery by health care professionals of even the most basic health services. Electricity access varies widely across Sub-Saharan Africa (SSA). About 60% of the population of Ghana has electricity service, but access rates are 11% and 3% in Mozambique and Chad, respectively.

The United Nations Sustainable Energy for All Initiative (2012) articulated three goals to be reached by 2030, one of which is "universal access to modern energy services." The other two goals of the Initiative are linked to the first: "doubling the global rate of improvement in energy efficiency" and "doubling the share of renewable energy in the global energy mix." Political support for the Initiative has been expressed by more than 60 countries. Financial commitments from donors, development banks and private institutions currently exceed \$360 billion US (a substantial amount, but small fraction of what is needed and deployment of the commitments has been challenging.)

With so many aspects of health improvement and economic development dependent on expanding access to electricity it is understandable that political support has been expressed. But what are the prospects for meeting the goals? Beyond raw data related to electricity access, what is the condition of the electric systems in SSA? What generation, transmission and distribution models will work in SSA? Will relatively low-cost and available carbon fuels (i.e. coal) be used to fire new generating facilities such that the secondary health impacts associated with coal-fired generation that we presently observe in China will be part of SSA's future? Who will provide the development expertise, financing and technology to build out SSA's electricity infrastructure and can it be done on a clean, renewable platform?

Drinking Water Quality and Quantity in the Trifinio: A Pilot Study—Ian Eisenhauer, student at the School of Medicine at the University of Colorado Anschutz Medical Campus

Fecal contamination of water has been proven to indicate diarrheal illness, which itself is a contributor to child malnutrition and developmental delay. This study attempted to quantify contamination of drinking water as part of a long term goal of improving access to safe water and sanitation in the Trifinio Region of Guatemala. Water samples from randomly selected homes in Colonia Los Dias (21/267) and Los Encuentros (40/621), were tested for *Escherichia coli*, sanitation hazards, and other determinants of contamination using WHO Rapid Assessment for Drinking Water Quality (RADWQ) standards. Current and possible future methods were also piloted including P&G Purifier of Water ($n=5$), chlorine bleach ($n=2$), and current ONIL filtration systems ($n=2$). GIS ArcMap software was utilized to display maps and bacterial distribution, and median contamination levels were found to be 90 E-Coli/ 100mL and 160 E-Coli/ 100mL in Los Encuentros and Colonia Los Dias, respectively. Water retrieval method was implicated in contamination (Mean 247 vs 871 for pumped vs. hand-drawn, respectively), as was distance from main roads. Pilot data indicated that methods such as ONIL filtration were not effective against bacterial contamination, but that the P&G "Purifier of water" was more effective in this respect, though our method was above the minimum level of detection. Understanding of current contamination levels and contributors to contamination should guide the development of permanent sustainable drinking water delivery, with clear recognition of social, financial, and political constraints.

Abstracts cont..

Development of a Comprehensive Protocol for the Diagnosis and Treatment of Noncommunicable Diseases in Health Centers of Northern Viet Nam— Josh Solomon MD, Kuon Lo, Anh Tuan, Nancy

Nguyen, Carol Nagy, Luu Phuoc An, Nguyen Thi Thu Quynh, Hayley Tristram, Le Thi Hoang Yen, Jeff Swigris DO, Jess Solomon, Lai Duc Truong MD, Brian Penti MD

BACKGROUND: Noncommunicable diseases (NCDs), especially cardiovascular disease (CVDs), are being recognized as a major cause of morbidity and mortality in developing countries and low resource settings. There are few guidelines to help in the management of this increasingly common problem. **OBJECTIVE:** To develop and implement a cost-effective, comprehensive protocol to manage NCDs in the commune health centers (CHCs) of Viet Nam. **METHODS:** This was a prospective observational study of a protocol for the diagnosis and management of selected NCDs in a CHC. It was implemented in 23 CHCs in urban and rural Phu Tho Province in northern Viet Nam. The participants were health staff of the CHC and 594 adult patients identified as having hypertension, diabetes, or evidence of CVD including prior myocardial infarction, stroke or kidney disease. **RESULTS:** Amongst hypertensive patients (n=545), systolic blood pressure was reduced by an average of 26 mmHg and diastolic blood pressure by an average of 9 mmHg. 65% of patients reached the target blood pressure at an average cost for medications of 0.06 USD per day. Among uncontrolled diabetic patients (n=157), the average fasting blood sugar reduction was 2.8 mmol/L (50.4 mg/dl) after the implementation of treatment, and 61% of diabetics reached target blood sugar (fasting blood sugar < 7 mmol/L (126 mg/dl)) by project completion. **CONCLUSION:** The diagnosis and management of NCDs in the primary care setting in developing countries can be accomplished through the development of a cost effective, culturally appropriate, comprehensive protocol and collaboration between government, international health authorities and non-government organizations (NGOs).



Creciendo Sanos: An Early Childhood Health and Development Program in Southwest Guatemala—Gretchen Domek, MD, MPhil, Assistant Professor in Pediatrics, School of Medicine at the University of Colorado Anschutz Medical Campus and Senior Investigator, Center for Global Health, Colorado School of Public Health

The importance of integrated interventions to improve early childhood development and health is widely recognized at an international level. The first three years of a child's life are a critical period for brain growth and development and have significant consequences for the long-term future functioning of that individual. Such interventions have the potential to enhance a child's physical growth, socio-emotional and cognitive development, as well as the overall economic productivity of a society. The Trifinio area is an impoverished region with a population of approximately 25,000 inhabitants in the coastal lowlands of southwestern Guatemala. As part of the Trifinio Human Development Initiative, an integrated Early Childhood Health and Development Program has been specifically designed for this population. The program combines a series of neonatal home visits, mother-child interactive care groups, and community education sessions to enhance the health and development of children from 0-3 years of age. The program starts with three neonatal home visits by community health workers (CHWs) to examine neonates and screen for maternal depression. Small group talks given by CHWs occur when the child is 6, 12, 24, and 36 months of age to promote caregiver knowledge of age-appropriate topics (including anticipatory guidance and responsive parenting techniques), perform growth monitoring/promotion, and do developmental screening. Mother-child interactive care groups start at 2 months of age and continue until the child reaches 3 years. These groups use participatory learning to promote stimulation techniques, provide peer support for mothers, reinforce caregiver knowledge of health topics, and perform growth monitoring/promotion.

Abstracts cont..

Extended Nevirapine Prophylaxis for HIV Exposed Infants Improves HIV Testing Uptake in Kenya— Nimz A¹, Akama E², Mburu M², Diouf K³, Oyaro P², Bukusi EA², Cohen CR^{2,4}, Abuogi L^{1, 2, 4}

¹University of Colorado School of Medicine, and ⁵Department of Pediatrics, Aurora, Colorado, ²Kenya Medical Research Institute, Research Care and Training Program, Family AIDS Care and Education Services (FACES), Kisumu, Kenya, ³ Department of Obstetrics, Gynecology and Reproductive Biology, Division of Global OB GYN, Brigham and Women's Hospital, Boston, MA, USA, ⁴ University of California San Francisco, Department of Obstetrics, Gynecology & Reproductive Sciences

Background: Early infant diagnosis (EID) for HIV is a critical component of the care of HIV exposed infants (HEI), yet it is estimated that <15% of HEI worldwide receive appropriate testing. Implementation of extended nevirapine (eNVP) prophylaxis for infants may allow for better engagement of HEI in care, thereby improving EID. This study evaluates the difference in uptake in EID after implementation of eNVP for infants. **Methods:** This cohort study compared HIV testing uptake between infants receiving eNVP and a historical cohort who received 6-weeks of zidovudine (AZT) at three clinics in Kenya. The primary outcome was proportion of infants returning for HIV testing per Kenyan guidelines. Bivariate analysis was done using chi square, Fisher's Exact and t-tests as appropriate to compare the two cohorts for testing uptake and timelines. **Results:** The eNVP cohort had 283 infants enrolled and the historical cohort had 362 infants enrolled with a median age at enrollment of 41 and 40 days respectively ($p=0.167$). At each testing timepoint, uptake of testing was significantly higher among infants receiving eNVP ($p<0.001$), see Table 1. However, the historical cohort had significantly more infants testing on time for the 9-12 month antibody test compared to the NVP cohort ($p=0.018$), see Table 1. There was no difference in the timeliness of testing between cohorts at 18 months ($p=0.916$), **Conclusion:** eNVP for infants is associated with significantly higher HIV-testing uptake though retention of HEI and timeliness of testing remain unsatisfactory. Further interventions are required to ensure universal testing of HEI.

Table 1. Comparison of Historical and NVP Prophylaxis Cohorts

Testing Timepoint	Historical Cohort $n=928$	NVP Cohort $n=283$	p-value
Uptake of testing			
6-week PCR uptake	330 (91.2%)	280 (98.9%)	<0.001
9-12 month antibody uptake	204 (56.4%)	209 (73.9%)	<0.001
18-month antibody uptake	150 (41.4%)	173 (61.1%)	<0.001
Timeliness of testing			
Mean age at 9-12 month test	12.6 months	10.4 months	
Mean age at 18 month test	19.4 months	19.7 months	0.436
Tested on time 9-12 months	37 (18.1%)	21 (10.1%)	0.018
Tested on time 18 months	5 (3.3%)	6 (3.6%)	0.916

Exploring Intentions to Exclusive Breastfeeding in the Hills Region of Nepal: Piloting Survey and Methodology Designs— Geoffroy Fauchet, Paul Kim, Haley Smith, Rachel Wojcik, Jennifer Bellows

Background Exclusive breastfeeding (EBF) for the first six months of a child's life has significant benefits for newborns and mothers. However, EBF is only practiced by seventy-percent of mothers in Nepal. Surveying the attitudes, knowledge, and practices of expecting mothers' intentions EBF will help inform future EBF public health interventions in Nepal. **Purpose** To pilot and create an ethically and culturally appropriate questionnaire that explores the intentions of mothers to EBF as well as develop a methodology that ensures the confidentiality, compensation, recruitment, and cultural sensitivity of future participants. **Methods** Global Health Track students traveled to Nepal between June and July 2014 and conducted semi-structured interviews and focus groups with healthcare workers and volunteers, public health officials and women in-charge. These interviews took place in Dhulikhel Hospital and rural health outposts throughout the Kavre District of Nepal. **Results** The initial questionnaire was edited until saturation was reached. Recommendations included: administering the survey at Dhulikhel Hospital and in health outposts, using a tablet to better engage participants, only using female translators, and giving baby socks as a compensation. Furthermore, the survey will be translated into Nepali via a professional translating service. Finally, Nepalese research assistants will undergo a training session on how to administer the survey. **Conclusion** A culturally appropriate questionnaire was developed to assess the determinants of mothers' intentions to EBF in Nepal. Administering this survey to the priority population will be part of next year's summer project for the Global Health Track students and Dhulikhel Hospital stakeholders.

Abstracts cont..

The Work of the Feed the Future Livestock Innovation Lab for Adapting Livestock Systems to Climate Change—Katie Steneroden, Deputy Director, Feed the Future Innovation Lab for Collaborative Research on Adapting Livestock to Climate Change, Colorado State University

The goal of the Livestock Innovation Lab is to increase resilience of livestock producers in regions where agricultural systems are changing, available resources are shrinking, and climate is having an impact. We support research that aids individuals and communities to make choices and take actions that lead to sustainable livelihoods in the face of climate change.

We currently support 14 long-term research projects in East and West Africa and Nepal. Projects are varied and include - poultry skills for improving rural livelihoods in Tanzania and Nepal, pastoralist livestock market chains in the Horn of Africa, improving nutrition and productivity of Nepali buffalos, and livestock health and pastoralist nutrition, to name a few.

We also support 30+ early career researchers in our focus countries. The Scholars program has two objectives. First is to provide experience to young scientists – experience in proposal writing, designing valid experiments, conducting research, analyzing data and preparing manuscripts and research briefs for publication. Our agenda is to provide these men and women the opportunities to become players in international livestock research. Our second goal is to obtain substantive research impacts from the Scholar projects. Each of the Scholars is affiliated with an educational or governmental organization and their contributions to institutional capacity building is substantial.

This presentation will summarize our (almost) 5-year journey to make an impact in global human and animal health in the face of climate change.

Health Care Access and Malaria Severity in the Ngorongoro Conservation Area (NCA), Tanzania—Kacy Crawford, MPH, Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Caroline Croyle, MPH candidate, Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University, Anobha Gurung, MEd and PhD Candidate, School of Forestry and Environmental Studies, Yale University, Charles Musiba, PhD, Dept. of Anthropology, University of Colorado Denver, C.C. Magori, MD, PhD, St. Francis University College of Health and Allied Sciences, Deborah Thomas, PhD, Dept. of Geography & Env. Sciences, University of Colorado Denver

In Tanzania, although clinically over-diagnosed, malaria is the leading cause of health complaints with over 30% of the disease burden attributable to malaria. The eastern coastal and western lake regions report the highest transmission rates, with much lower rates in the Northern and Southern Highlands. The Ngorongoro Conservation Area (NCA) in the Northern Highlands is home to over 70,000 people in an approximate area of 8,000 square kilometers, and Endulen Hospital is the sole hospital and one of only a few health facilities serving the region. Previous studies in Sub-Saharan Africa indicate that distance and the rainy season may delay the decision to seek health care and results in increased likelihood of severe disease diagnoses for hospital patients. In the NCA, the transportation options are very limited and distances can be more than 40 kilometers to the hospital, a situation not uncommon in many parts of Tanzania. In addition to disease seasonality, a consistently wet environment makes transport, even by foot, more challenging on unpaved roads. This study analyzed 14 years of Endulen Hospital inpatient records, along with monthly rainfall records and derived estimated distance to the village from the hospital to evaluate the relationship between severe malaria diagnoses and hospital access. Findings show that distance and wet season may contribute to increased malaria severity. Decision makers and health care providers should consider environmental and geographical barriers to care when designing appropriate community interventions.



Abstracts cont..

Using GPS satellites and geocoding to assess surgical needs in a refugee setting— David Kuwayama, MD, MPA, University of Colorado Hospital, Department of Vascular Surgery david.kuwayama@ucdenver.edu and Yihan Lin, MD, University of Colorado Hospital, Department of Surgery yihan.lin@ucdenver.edu

Health questionnaires are an important method in assessing a population's surgical needs. By providing relevant information regarding incidence and prevalence of surgical diseases, they have the ability to address a community's most pressing needs by influencing health policy and expenditures. The accuracy and thus effectiveness of health questionnaires are dependent on the ability to collect a representative sample of the population. This, however, can be a challenging task, especially in a highly insecure environment, such as disaster areas or camps for internally displaced persons (IDP) or refugees.

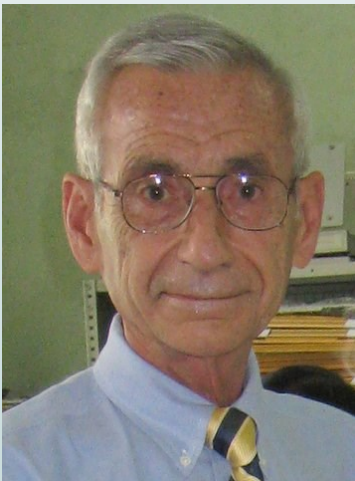
We seek to describe our experience using geographic information systems (GIS) to obtain an accurate sample of such a population. The Kerenik Camp in West Darfur is a conflict heavy environment housing approximately 2500 IDPs with unknown surgical needs. We utilized satellite technology to obtain high resolution images of the camp prior to arrival. All identifiable structures determined to be homes were then geocoded by being assigned a specific GPS coordinate and ID. A list of IDs were then selected at random to be used as our representative sample. Upon arrival to the camp site, we were able to locate these homes using mobile PDA devices and GPS technology. Questionnaires were then performed on inhabitants of these homes.

Our technique to determine a representative sample offers many advantages in obtaining information about a population. It allows one the ability to sample a population with no reliable addresses or telephone numbers. It also allows a sample frame to be determined prior to arrival, which is important in a highly insecure environment.



Excellence in Global Health Award - 2014 Recipients

Carl E Bartecchi, MD, MACP



Dr. Bartecchi is a Distinguished Clinical Professor of Medicine, School of Medicine at the University of Colorado Anschutz Medical Campus and Professor (Honorary) Hanoi Medical University

Dr. Bartecchi has served in the department of Medicine at CU for the past 40 years as Clinical Faculty and ten years as Chairman of the Clinical Faculty Program. His academic medical career involved teaching civilian, military, medical student, house-staff and post-graduate medical programs locally, nationally and internationally.

Carl founded and has volunteered for the past 9 years at a clinic for migrant workers at Avondale, Colorado, providing medical care, administration and fund raising assistance. For the past 17 years, he has been Director of the Bach Mai Hospital Project in Hanoi, Vietnam, a 2000 bed, 3000 patient Government Hospital for the poor of Vietnam. He teaches there twice yearly, providing medical symposia for Vietnamese physicians along with western style, bedside teaching rounds. Accompanying him on these visits are 4 to 9 physicians from major teaching institutions such as the U. of Colorado School of Medicine, the Mayo Clinic, National Jewish Hospital, Denver Health and Hospitals, Colorado Children's Hospital, etc. The major part of the program that he developed, however, is the one that brought young Vietnamese physicians to the U.S. (St. Anthony's Hospital, Mayo Clinic and University Hospital) to be trained, for 6 to 12 months, as teachers of various medical specialties. They return to Vietnam as medical teachers and are sent out to the province and regional hospitals as teachers, for 2 month rotations, to update the knowledge and skills of the physicians and nurses in the rural areas of Vietnam. To date, the program, widely acclaimed by the Vietnamese Government, has trained 29 such teachers. Carl's program, supported by Catholic Health Initiatives, St. Anthony's Hospitals and Foundation and numerous private donors, has also provided the Bach Mai Hospital and other Vietnamese city hospitals with millions of dollars of high-tech medical equipment, medications, medical libraries, and recently, tri-cycle motorcycle ambulances. His experience with the Project has been recorded in his recently published book – **The Bach Mai Hospital Project**. For his efforts in behalf of medical care in Vietnam, Carl was awarded the Ministry of Health Medal and recently, the Freedom Medal, by the Vietnamese Government.

Excellence in Global Health Award - 2014 Recipients (continued)

Susan Niermeyer, MD, MPH, FAAP



Dr. Niermeyer is a Professor of Pediatrics, Section of Neonatology at the University of Colorado School of Medicine and Epidemiology at the Colorado School of Public Health

Susan practices and teaches clinical neonatology at Children's Hospital Colorado, University Hospital, and community hospital nurseries in the Denver area. In 2009 she completed a Master's in Public Health with a concentration in epidemiology from the Colorado School of Public Health. Susan's clinical and educational areas of emphasis include neonatal resuscitation and cardiopulmonary physiology in infancy. She has served as co-chair of the American Academy of Pediatrics Neonatal Resuscitation Program Steering Committee and is currently editor for *Helping Babies Breathe*, the AAP global educational program for neonatal resuscitation in resource-limited settings. Her research interests center on adaptation in the neonatal period, with a focus on cardiopulmonary adaptation and low birth weight at high altitude. High-altitude research has included study of infant oxygenation in Lhasa, Tibet, studies of infant birth weight and cardiopulmonary adaptation in La Paz, Bolivia, studies of pulmonary hypertension and cardiopathies in Peruvian children, and analysis of the relationship of maternal smoking and birth weight at high altitude in Colorado. Underlying her interest in neonatal resuscitation and high-

altitude physiology in infants and children is a strong commitment to the health of children around the world, including those in isolated and less-developed regions. This is reflected in her continuing role with the American Academy of Pediatrics to help disseminate the Neonatal Resuscitation Program and Helping Babies Breathe wherever babies are born.

Calvin L Wilson, MD



Dr. Wilson is an Associate Professor of Family Medicine and the Colorado School of Public Health (retired)

Dr. Wilson has been involved in the development of Family Medicine and medical education in a variety of settings for over 35 years, and in international community and medical development projects for over 25 years. Following 10 years in private family practice, Dr. Wilson developed and directed the first university-affiliated Family Medicine program in Ecuador, while at the same time directing a community health development project on the Onzole River of northern Ecuador. He then developed and served as the first program director for the University Hospital Family Medicine residency program of the University Of Colorado School Of Medicine. He has served as a training advisor for a USAID-funded primary health care project in Jordan, in which he developed a continuing education program for the Ministry of Health physicians, nurses, midwives, health workers, and laboratory technicians. He also initiated the training of the first primary health care trainers in post-war Iraq, who continued the first phase of primary health care training across Iraq. He served as the Director of the University of Colorado Center for Global Health for 6 years, and has been active as a consultant with the Center for International Health Initiatives of the American Academy of Family Physicians. He most recently has been working in Rwanda, where he

worked with the National University of Rwanda to develop their specialty residency programs and a new Family Medicine program. Dr. Wilson has received several national awards in global health, including the Smilkstein Award in International Health of the Society of Teachers of Family Medicine, the Global Family Doctor of the Month award of the World Academy of Family Medicine, and the 2005 Humanitarian of the Year Award of the American Academy of Family Physicians.

Peter Durst, the creator of this years *Excellence in Global Health Award* is a longtime Colorado ceramist and sculptor. his work has been exhibited nationally for the past 35 years in galleries, art centers, museums, private collections, and public spaces. he received a BA from Allegheny College and a JD from NYU School of Law, as well as ceramic training at Anderson Ranch Arts Center in Snowmass, Colorado. He was instrumental in establishing the Ceramics Program at the Art Students League-Denver, and serves on the faculty there.

Peter Durst is also one of the contributors to the endowed student scholarship, the Robinson Durst International Student Scholarship (the other contributor is William Robinson, MD). This Scholarship is given to students on an annual basis to help support their travel for work in underserved areas of the world.

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~Nelson Mandela

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