

2013

Global Health Symposium



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



Schedule

November 15, 2013

8:45 a.m. - 4:25 p.m.

University of Colorado

Anschutz Medical Campus

Education Building 2 South

Room 1102, 600 Seat Auditorium

13121 East 17th Avenue

Aurora, CO 80045

8:45 am- Welcome

Education

8:50 am – “Madaktari, Africa”

Kevin Lillehei, MD, Professor and Ogsbury-Kindt Chair of Neurosurgery and Director of the Neuro-Oncology Program, School of Medicine, University of Colorado Anschutz Medical Campus

9:05 am - “Child Health Associate/Physician Assistant (CHA/PA) Program in Guatemala”

David Eckhardt, MS, PA-C, Assistant Professor and Course Director of Clinical Skills, School of Medicine – Pediatrics, University of Colorado Anschutz Medical Campus and

Claudia Luna-Asturias, LGSW, Assistant Professor, School of Medicine – Pediatrics, University of Colorado Anschutz Medical Campus

9:20 am – “Online Learning: Pediatrics in Disasters”

Steve Berman, MD, FAAP, Professor of Pediatrics, School of Medicine, University of Colorado Anschutz Medical Campus and holds an endowed chair in Academic General Pediatrics at Children’s Hospital Colorado

9:35 am – “Improving Breastfeeding Initiation and Exclusivity in La Paz, Bolivia”

Heather Hageman, RN, BSN, CPH, Masters in Nursing candidate, i-Leads (Leadership and Health Systems) College of Nursing, University of Colorado Anschutz Medical Campus

9:50 am – “Saving Vaccines in the Americas: A framework for Vaccine Safety Training”

Elizabeth Lutz, MPH candidate, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

10:05 am - Break

Maternal and Child Health

10:20 am – “Maternal Health and Self-help Group: Improving health communication for better health”

Yizhe Xu, MA in Global Finance, Trade & Economic Integration and Certificate in Global Health Affairs candidate, Josef Korbel School of International Studies, University of Denver

10:35 am - “Urban Poverty and Dietary Protein in Costa Rica: Results from a Pilot Study”

Traci Bekelman, MA, MPH, PhD candidate, Department of Anthropology, University of Colorado Boulder

10:50 am - “Gender, Power, and Perinatal HIV in Zambia”

Karen M Hampanda, PhD in Health and Behavioral Sciences candidate, University of Colorado Denver

11:05 am - “An Approach to Teaching Pediatric Physical Therapy in Addis Ababa, Ethiopia”

Mary Jane Rapport, PT, DPT, PhD, FAPTA, Professor, School of Medicine – PT, University of Colorado Anschutz Medical Campus and

Lisa Dannemiller, PT, DSc, PCS, Assistant Professor, School of Medicine – PT, University of Colorado Anschutz Medical Campus

11:20 am – Presentation of the 2013 Excellence in Global Health Awards

11:45 am – Lunch Break



Community Engagement and Planning

12:45 pm—“Developing Educational Materials for an Early Childhood Development Program in Southwest Guatemala”

Brittney Macdonald, MD candidate, School of Medicine, University of Colorado Anschutz Medical Campus

1:00 pm – “Village Health Workers are a Key Component to Improving Nutrition”

Steve Ducey and Nick Brunger, MD candidates in the School of Medicine, University of Colorado Anschutz Medical Campus and

Sue Hammerton, NP, Denver Health

1:15 pm - “Reducing Health Risk from Mercury and Arsenic through Health Promotion Education and Training in Geita District, Tanzania”

Denise Hartsock, MPH candidate, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

1:30 pm - “A Geographic Analysis of Knowledge, Awareness and Attitudes of Rabies in Kasula and Kibondo Districts, Tanzania”

Levi Bonnell, MPH candidate, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

1:45 pm - “Involving Men and Families in Reducing Cardiovascular Disease Risk in Chiapas, Mexico”

Meredith Fort, PhD, MPH, Fogarty Post-doctoral Fellow, Institute of Nutrition of Central American and Panama

2:00 pm - "A Family Medical Home for Denver's Refugees"

P J Parmar, MD, Ardas Family Medicine, Denver



2:15 pm - "Cuba's Public Health Surveillance System: A response to a crisis"

Gisele Coutin Marie, MD, MSc, Assistant Professor, Cuban National School of Public Health and former lead statistician in the Department of Health Strategies and Analysis in the Cuban Ministry of Public Health

2:30 pm - "Strengthening Health Systems: The Case of China"

Blair Gifford, PhD, Professor of International Health Management in the Business School, University of Colorado Denver

2:45 pm - "Common Denominators within Global Health: A Comparison of 3 Rapid Health Needs Assessments from Across the Globe"

Brooke Bredbeck, MD candidate, School of Medicine, University of Colorado Anschutz Medical Campus

3:00 pm - Break

Infectious and Non-communicable Diseases

3:10 pm- "Global Burden of Skin Disease"

Robert Dellavalle, MD, PhD, MSPH, Associate Professor in Dermatology, School of Medicine, University of Colorado Anschutz Medical Campus

3:25 pm - "Efficacy of Inactivated Trivalent Influenza Vaccine among Children in Rural India During 2009-2010"

Wayne Sullender, MD, Professor of Pediatrics, Section of Pediatric Infectious Disease, School of Medicine, University of Colorado Anschutz Medical Campus

3:40 pm- "Mortality in a Cohort of Rural Ugandans Screened for Tuberculosis and Cryptococcal Antigenemia Prior to Initiating ART"

Lincoln Pac, Fulbright-Fogarty Fellow in Public Health (2012-2013), MD candidate, School of Medicine, University of Colorado Anschutz Medical Campus

3:55 pm - "Haemophilus Influenzae Type B (Hib) Immunity in HIV-Exposed but Uninfected (HEU) Infants"

James Gaensbauer, MD, MScPH, Fellow in Pediatric Infectious Diseases, School of Medicine, University of Colorado Anschutz Medical Campus

Nutrition

4:10 pm - "Breast milk, infant growth and intestinal health in rural Gambia"

Robin Bernstein, PhD, Associate Professor of Anthropology, University of Colorado Boulder

4:25 pm - Conclusion



Abstracts

Madaktari, Africa—Kevin Lillehei, MD

Since 2007 the University of Colorado Neurosurgery Department has worked with Madaktari Africa to help establish a physician training program in Tanzania. The goal of this organization is not to

provide medical service, but rather to invest in the training of physicians within the country who in time will go on to train others. This organization is unique because by understanding the shortage of doctors in Tanzania they started by training existing capable personnel in basic neurosurgical care. This training has now expanded to doctors in rural areas who want to be able to care for neurosurgical issues in remote areas, neurosurgeons at Muhimbili Orthopedic Institute, the only neurosurgical center located in Dar es Salaam, and ancillary personnel.

Neurosurgery has supported over a dozen expeditions of neurosurgery and ancillary personnel to work with their counterparts in Tanzania to train in basic neurosurgery, teach basic NeuroICU patient care and help to establish a histopathology laboratory in Haydom, Tanzania. A recent visit to Muhimbili Institute in Dar es Salaam established a relationship that brought the first Tanzanian neurosurgeon to the University of Colorado Hospital to learn.

This presentation will talk about the benefits to both the recipients of this training as well as those received by the people participating in this type of volunteer work. We will also look at the obstacles encountered when undertaking this type of expedition and solutions.

Child Health Associate/Physician Associate/Physician Assistant (CHA/PA) program in Guatemala—David Eckhart, MS, PA-C & Claudia Luna-Asturias, LGSW

In June of 2013 the Physician Assistant/ Child Health Associate Program sent 20 students to Guatemala to complete a month of clinical course work. Second year students had one-on-one medical Spanish instruction, as well as home stay and clinical experiences. Third year students participated in a clinical rotation at one of two sites as part of our partnership with the University of Francisco Marroquín Medical School.

Clínica Bárbara is a rural underserved clinic run by the medical school, and the National Unit of Pediatric Oncology (UNOP), specializes in pediatric oncology for underserved patients. David Eckhardt PA-C and Claudia Luna-Asturias LGSW created the curriculum for this program and lead it both here in Colorado as well as on the ground in Guatemala. They accompanied the students to Guatemala to supervise the clinical activities and manage the logistics of teaching, transporting and providing accommodations for this group.

This project is a part of the University's larger vision, the creation of the signature site at Guatemala. Additionally it is part of a larger longitudinal medical Spanish curriculum, and is serving to expand clinical opportunities for our students.

We will describe both the second and third year courses along with a brief summary of the preparation that was required to implement this project. We will also reflect on feedback received, and future direction and development of these courses. Our presentation will include a slideshow of the students engaged in the three main objectives of the rotation: medical Spanish, cultural awareness and clinical practice.

Online Learning: Pediatrics in Disasters—Steve Berman, MD, FAAP

Objective: "Pediatrics in Disasters" (PEDS) is a course designed by the American Academy of Pediatrics to provide disaster preparedness and response training to pediatricians worldwide. China has managed to sustain the course and adapt its content for local needs. China has also experienced several natural disasters since the course's inception, providing an opportunity to evaluate the impact of courses that took place in Beijing and Sichuan, in 2008-2010.

Methods: We used pretesting/post-testing, participant surveys, and in-depth interviews to evaluate whether the course imparted cognitive knowledge, was perceived as useful, and fostered participation in relief efforts and disaster preparedness planning. Results: In Beijing and Sichuan, post-test scores were 16 percent higher than pretest scores. On immediate post course surveys, 86 percent of Beijing and Sichuan respondents rated the course as very good or excellent. On 6-month surveys, participants identified emotional impact of disasters, planning/triage, and nutrition as the three most useful course modules. Twelve of 75 (16 percent) of Beijing respondents reported direct involvement in disaster response activities following the course; eight of 12 were first-time responders. Participant interviews revealed a need for more training in providing nutritional and psychological support to disaster victims and to train a more diverse group of individuals in disaster response.

Conclusions: PEDS imparts cognitive knowledge and is highly valued by course participants. Emotional impact of disasters, planning/triage, and nutrition modules were perceived as the most relevant modules. Future versions of the course should include additional emphasis on emotional care for disaster victims and should be extended to a broader audience.

Key words: PEDS in disaster, pediatric disaster education, evaluation, efficacy, outcomes, disaster response training, disaster planning training, American Academy of Pediatrics, China DOI:10.5055/ajdm.2012.0098

Abstracts cont..

Improving Breastfeeding Initiation and Exclusivity in LaPaz, Bolivia—Heather Hageman RN, BSN, CPH

From June 17, 2013 to July 29, 2013, I was in La Paz, Bolivia to train the OB/NICU nursing staff and clinic staff of the Hospital Arco Iris in lactation support. The purpose was to improve breastfeeding initiation and exclusivity in the first four months of life and thereby reduce infant mortality through improved infant nutrition. The World Health Organization's, Breastfeeding Counseling Course was the training guide. It covers breastfeeding physiology, assessment, breastfeeding difficulties, and assessment of breastfeed status of the population. I measured outcomes through patient follow-up and nurse's knowledge acquisition by pre and post testing.

Preliminary results of maternal surveys illustrated the baseline status of breastfeeding initiation and exclusivity. Of 76 maternal surveys done, the average time to breastfeeding was 3.2 hours and only 38 percent breastfed within one hour. At four months, no infants of mothers interviewed were exclusively breastfed. The resource nurse will continue collecting the maternal surveys until October 2013.

The pre and posttest from the nurses demonstrated a ten percent increase in Lactation Knowledge. However only seven nurses of the 24 nurses who started the course completed all six classes. Obstacles identified by the investigator included schedule conflicts, no compensation for class time, and lack of accountability for providing lactation education to mothers.

This project identified obstacles to effective lactation support in the Hospital Arco Iris. Perhaps these lessons learned could help to develop lactation support programs in other hospitals in developing countries.

Saving Vaccines in the Americas: A framework for Vaccine Safety Training—Elizabeth Lutz

The substantial increase in the global use of vaccines, expansion of immunization programs, and associated advancements in science and technology have demonstrated significant benefits in public health in recent years. In response to these trends, a global consensus exists regarding the need to enhance vaccine safety efforts, especially in low and middle income countries.

In 2011, the Global Vaccine Safety Blueprint was developed by the World Health Organization and international partners as a strategy to ensure minimal vaccine safety capacity in all countries. Countries of particular importance are those that introduce new vaccines, introduce vaccines into new settings, or that manufacture and use prequalified vaccines. One of the goals of the recently established Pan American Vaccine Safety Network is to increase health worker training capacity in response to the increased immunization demands in Latin America.

The Center for Global Health, designated a WHO-Collaborating Center, has partnered with the Pan American Health Organization to develop a basic, intermediate, and advanced-level online training course for vaccine safety. A landscape analysis was carried out to analyze existing training options and gaps in vaccine safety training for the Region of the Americas. A framework was proposed for curriculum development structured around the natural history of an adverse event following immunization (AEFI). As a result, a new curriculum is currently in development to address gaps in training needs to be delivered as an effective, accessible, and cutting edge online training course for immunization workers in the Americas.

Maternal Health and Self-Help Group: Improving health communication for better health—Yizhe Xu

Background: To improve the maternal health status for New Delhi urban slum population, the government endorsed many free health care services such as antenatal checkup, vaccination, tablet supplement, and hospital delivery. However, the lack of adequate publicity among the low-educated community led to under-utilization of these resources. Pregnant women and women in reproductive age in the community rely on mouth-to-mouth health care information exchange with each other. In most of the cases, they end of not receiving adequate health care during pregnancy or paying more than needed.

Project: Aiming at serving more people with limited outreach capacity, the Gender Resource Center (GRC) at Jasola initiated the project endorsing Self-Help Groups (SHGs) as its community extensions. The SHGs used a pictorial card as an agent indirectly connected the pregnant women with the GRC for services and hospital referral. The pictorial card also includes a list of free resources and points of contacts as well as a checklist of basic pregnant action items for each trimester.

Results: During the first pretesting, 10 copies of the card were distributed to 10 pregnant women linked to 4 SHGs. Feedbacks was consolidated during a focus group discussion. In average, there will be 8 cards distributed in the following month.

Conclusion: The project extended the GRC's outreaching capacity by involving SHGs to do collaborative work. The community involvement and individual health ownership were improved, thus behavior change towards better maternal health practices was encouraged.

Abstracts cont..

Urban Poverty and Dietary Protein in Costa Rica: Results for a Pilot Study—Traci Bekelman, MA, MPH¹; Carolina Santamaría-Ulloa, PhD, MS²; Darna Dufour, PhD¹; Ana Laura Dengo Flores, PhD, MS³

¹ Department of Anthropology, University of Colorado, Boulder

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³ EARTH University, Costa Rica

Background: Obesity is increasingly concentrated among women of low socioeconomic status (SES) in Latin America, although the dietary factors driving larger body size are not well understood. This pilot study examined socioeconomic variation in energy and protein intake to test the Protein Leverage Hypothesis, which predicts that a lower proportion of protein in the diet will be associated with higher energy intake and hence overweight and obesity.

Methods: Quantitative 24-hour dietary recalls (n=30) and qualitative interviews (n=16) were conducted in March 2013 in non-pregnant, non-lactating women between 25 and 50 years in a low-SES and a high-SES neighborhood in San José, Costa Rica. The Human Development Index for each neighborhood was used as a proxy for neighborhood SES. Reported food intake was converted into estimates of the amount of energy (kcal) and nutrients consumed using ValorNut, an online platform developed by the University of Costa Rica. Interviews were analyzed using the constant comparative method.

Results: Low-SES women reported lower protein intake as a proportion of total energy intake ($12.9\% \pm 3.0$ vs. $16.5\% \pm 4.8$, $p = 0.02$) than high-SES women. There was a trend toward higher energy intake ($2,007 \text{ kcal} \pm 1,076$ vs. $1,552 \text{ kcal} \pm 584$, $p = 0.16$) in low-SES women. Low-SES women reported that access to their ideal meal, which included foods such as fish and chicken, was limited due to food costs.

Conclusion: Results from the pilot study are consistent with the predictions of the Protein Leverage Hypothesis.

Gender, Power, and Perinatal HIV in Zambia—Karen M Hampanda

For the past 2 years, in preparation for my PhD dissertation, I have been conducting research on mother-to-child transmission of HIV in Zambia. I am specifically interested in the relationship between intimate partner violence and non-adherence to prevention of mother-to-child transmission (PMTCT) protocols. PMTCT protocols are a set of recommendations for HIV-positive mothers that can dramatically reduce risk of vertical transmission of HIV to the infant, including medication and specific infant feeding guidelines. The level of adherence to certain protocols is currently unknown in settings such as Zambia. In addition, the effect of a violent or controlling male partner on a mother's ability to adhere to protocols has not been established. I have conducted substantial literature reviews on PMTCT adherence in sub-Saharan Africa and have travelled to Zambia twice to conduct key informant interviews with clinicians involved in PMTCT and professionals in the field of domestic violence prevention. The World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) have committed to the goal of global elimination of mother-to-child transmission by 2015. However, the lack of research examining social factors related to PMTCT adherence is limiting progress towards this goal. My research seeks to address this gap; improving health care professionals ability to create more effective interventions aimed at recognizing and addressing abusive relationships through the health care system, eliminating some of the barriers to PMTCT adherence, and increasing HIV-positive women's quality of life.

An Approach to Teaching Pediatrics Physical Therapy in Addis Ababa, Ethiopia—Mary Jane Rapport, PT, DPT, PhD, FAPTA and Lisa Dannemiller, PT, DSc, PCS

This presentation will describe a two week teaching experience with physical therapists in Addis Ababa, Ethiopia. Two faculty members from the University of CO Physical Therapy Program, volunteering through Health Volunteers Overseas, provided didactic and clinical educational experiences in the area of pediatric physical therapy (PT) for a group of PT's at Black Lion Hospital. This educational experience was a component of a larger PT professional education curriculum designed to upgrade the skills of PT's employed by the only teaching hospital in Ethiopia.

The Ethiopian physical therapists reported little educational exposure to prepare them for PT with young children. The PTs relied primarily on using interventions with no evidence or that have been found to be ineffective, including passive techniques, such as range of motion. In addition, documentation of therapy sessions, patient histories, or outcomes did not occur.

Using an educational method that was primarily a hands-on model with children with disabilities and their families, Ethiopian PT's had the opportunity to observe, assist and then provide PT sessions that focused on a family centered approach and functional activities using mentored clinical teaching. We modeled family involvement in sessions, and attention to the child's interests and cues, emphasis on daily routines, along with making time for parent education and documentation at the conclusion of each treatment session. Our short term success was measured subjectively through observation of fewer children crying during PT and family engagement in PT sessions.

Abstracts cont.,

Developing Educational Materials for an Early Childhood Development Program in SW Guatemala—Brittney Macdonald & Cassy Cooper

Purpose: International organizations have recognized the importance of the first two years of life for children's physical and mental growth. Many deficits arise from problems with malnutrition, hygiene, and development in these early years. The purpose of our research was to pilot test education materials for mothers in the Trifinio region of Guatemala regarding child development topics like nutrition, health, hygiene, development, and injury prevention.

Methods: Guatemalan community health workers (técnicas) presented the information to groups of 5-10 mothers. The information was organized in the form of two "flip-charts" (age-appropriate material for 0-6 month and 6-12 month infants). The format of the presentation was in the form of a "charla" (chat) with the intention of providing an interactive education environment via the use of games, activities, and open-ended questions. We gave learning assessments to the mothers before the charla, to see their baseline knowledge, immediately after the charla, to see what they could recall, and then another 1-2 weeks after the intervention to see what they retained over time. After the presentation, we conducted focus groups (13 total) with the mothers to elicit qualitative feedback about the flip-charts and charlas.

Results: We piloted the educational materials with 76 women in the community (38 women in both flip-chart groups). Mothers improved their scores from the pre- to immediate post-test by an average of 10.1% (0-6 month flipchart) and 11.4% (6-12 month flipchart). They continued to increase their knowledge of the materials from the immediate post-test to the 1-2 week post-test by an additional 3.6% (0-6 month) and 2.6% (6-12 month).

Conclusion: Mothers in this community could benefit from our education materials and our materials could potentially influence the early childhood development of their children.

Village Health Workers are a Key Component to Improving Nutrition— Steve Ducey, Nick Brunger and Sue Hammerton, NP

The San Benito Parish Health Team serves rural communities in northeastern Guatemala. They make outreach visits providing primary care health, including weighing children under five. The team has collected four years of data, which we are analyzing for patterns of malnutrition. The leader of the baby weighing program, whose dedication has helped identify children at risk, has hypothesized that during the months in between the two local harvests, the incidence of underweight children increases. Using WHO Z-scores, we will verify if this is the trend.

When a child is identified as malnourished, the San Benito team has food supplements to give to the mother. This, however, may not be sufficient. This past June, we did house visits with a community health promoter. This gave us the opportunity to talk with mothers in a quieter setting and verify what she feeds her child and how she will use the supplements. This seemed to be the moment of change.

Training health workers to conduct this work, the assessment and intervention, is key to building a nutrition program. Using the Guatemalan nutrition model of the "three trees" and using cheap local ingredients, we taught the health workers about protein and how to incorporate it in the diet of children six months and older. They also elaborated a plan of teaching this in their communities to the mothers of children less than two years old. Before we left, we were able to accompany two communities as they implemented their nutrition session with the mothers.

Reducing Health Risk from Mercury & Arsenic through Health Promotion Education & Training in Geita District, Tanzania— Denise Hartsock, Elias Charles, MPH, School of Public Health, Catholic University of Health & Allied Sciences, Levi Bonnell, MPH Candidate, Colorado School of Public Health, University of Colorado Anschutz Medical Campus & Deborah Thomas, PhD, Dept. of Geography & Env. Sciences, University of Colorado Denver

According to a recent report by the United Nations Environmental Program (UNEP), mercury (Hg) emissions from small-scale gold mining, particularly in developing countries, pose a significant and increasing environmental health risk. In January 2013, a UNEP meeting identified artisanal and small-scale gold mining (ASGM) as the largest anthropogenic contributor to the global emissions of Hg (37%). Significantly, an estimated 10-15 million people participate in ASGM worldwide in more than 55 countries. These activities consistently lack capital, technical and management skills, and proper equipment. In Tanzania alone, there are an estimated 0.5 to 1.5 million informal miners, of whom 30-50% are women. Further, the number of artisanal mining sites is expanding in many regions of Tanzania, particularly in the Lake Victoria gold belt region. Working within the framework of a 5-year collaboration between the Catholic University of Health and Allied Sciences (CUHAS) and the University of Colorado Denver (UCD) and building on previous work conducted by members of the CUHAS/UCD team, this project addresses the identified need for community-based education in an artisanal mining setting. This presentation describes: a) the mining conditions at one site in Geita District, Tanzania, b) an exchange with village leaders, and c) the development and key elements of draft educational materials.

Abstracts cont..

A Geographic Analysis of Knowledge, Awareness & Attitudes of Rabies in Kasulu & Kibondo Districts, Tanzania— Levi Bonnell, Elias Charles, MPH, School of Public Health, Catholic University of Health & Allied Sciences, Caroline Croyle, MPH Candidate, Mailman School of Public Health, Columbia University, Sospatro E. Ngallaba, MD, School of Public Health, Catholic University of Health and Allied Sciences, Daniel Makerere, MSc, School of Public Health, Catholic University of Health and Allied Sciences, Denise Hartsock, MPH Candidate, Colorado School of Public Health, University of Colorado Anschutz Medical Campus & Deborah Thomas, PhD, Dept. of Geography & Env. Sciences, University of Colorado Denver

Rabies, a neglected tropical disease, is a highly virulent, zoonotic infectious disease generally transmitted to humans in the saliva from the bite of a rabid animal. Prompt and proper treatment can prevent 100% of deaths with timely administration of post-exposure prophylaxis (PEP), comprised of proper wound management immediately at time of bite, administration of rabies immunoglobulin, and four doses of rabies vaccine given at proper intervals. Additionally, transmission to humans can be prevented through vaccination of animals. Unfortunately, once symptoms appear, rabies is nearly 100% fatal. Every year, approximately 55,000 deaths occur globally from rabies, with a vast majority of these (99%) in developing countries, often in rural areas, and most commonly children (5-14 years), making rabies control and eventual eradication a priority. In fact, global estimates of rabies rates are grossly underestimated due to unreported cases, lack of surveillance, and misdiagnosis at death. Rural Tanzania is no exception to experiencing a burden of this neglected tropical disease along with a lack of systematic documentation of the rabies challenge. In summer 2012, a cross-sectional survey was administered to 726 people in the Kasulu and Kibondo Districts located in northwestern Tanzania to assess knowledge, awareness, and attitudes about rabies risk, including PEP and animal vaccination. Working within the framework of a 5-year collaboration between the Catholic University of Health and Allied Sciences (CUHAS) and the University of Colorado Denver (UCD), we analyzed these data using geographic information systems (GIS) and traditional statistical approaches to examine patterns across the two districts.

Involving Men and Families in Reducing Cardiovascular Disease Risk in Chiapas, Mexico—Meredith Fort, PhD, MPH¹, Maricruz Castro, MS^{1,2}, Liz Peña, MS^{1,2}, Manuel Ramirez-Zea, MD, PhD¹ & Homero Martínez, MD, PhD^{1,3}

1. INCAP Comprehensive Center for the Prevention of Chronic Diseases (CIIPEC), Guatemala City, Guatemala
2. School of Nutrition, University of Arts and Sciences of Chiapas, Mexico
3. RAND Corporation, Santa Monica, CA

Introduction: Chronic, non-communicable diseases represent an increasing disease burden in Mesoamerica. The INCAP Comprehensive Center for the Prevention of Chronic Diseases (CIIPEC) has implemented a health education intervention in public health centers since late 2011 to reduce cardiovascular disease (CVD) risk for patients with type 2 diabetes and/or hypertension in urban parts of Tuxtla Gutiérrez, Chiapas and San José, Costa Rica. During the intervention new research questions have emerged. Few men participate in health education sessions, and there is an opportunity to increase the reach health promotion and disease management efforts through strategies that involve family members.

Methods: A new complementary study underway in Chiapas aims to: 1) understand why there is limited participation from men, 2) investigate how family members are affected by and engaged in disease management, and 3) characterize providers' recommendations for involving men and family members in disease management and CVD risk reduction. This qualitative study employs interviews with: 8-10 men receiving care at health centers, 6-8 families, and 8-10 Secretary of Health providers. Genograms and eco-maps are also being used to diagram family relationships, composition, and resources.

Planned Analysis and Results: A content analysis approach will be used to identify themes related to: men's limited participation, family support and barriers to disease management, and health care providers' recommendations for incorporating men and family members into care and prevention. Analysis of genograms and eco-maps will focus on gender and caretaker roles, and resources for and barriers to disease management. Preliminary results will be presented at the Global Health Symposium.

A Family Medical Home for Denver's Refugees—P J Parmar, MD

Ardas Family Medicine is an established family practice in Denver, the largest practice focusing on Denver's refugees. At a time when other practices struggle to provide care to Medicaid or uninsured patients, Ardas is succeeding at doing so as a for-profit, without donations, and without the usual indigent care circus of rotating inaccessible providers. Although this might be labeled social entrepreneurship, it is really nothing more than returning to a naturally patient centered, highly efficient model seen in traditional community family practices for years. In this manner, Ardas has become the most trusted, accessible practice where leaders from Denver's refugee communities and the three local refugee agencies refer their urgent, complicated, or most personal cases. Think global, act local: with the resurgence of primary care, it is again possible for health profession students to keep their dream of working in indigent primary care locally, while making a good living doing so.

Ardas Family Medicine sees about 100 visits each week, 90 percent of which are Medicaid or uninsured patients, from Bhutan, Burma, Somali, Eritrea, Iraq, DRC, and all other countries from where Denver is receiving new immigrants. This informal presentation will demonstrate the simple Ardas concept and discuss working within the Affordable Care Act, the Medicaid Accountable Care Collaborative, and other aspects of providing a medical home for refugees in Denver. We will also give tips on where to find the best local Somali, Eritrean, west African, and Burmese food!

Abstracts cont..

Cuba's Public Health Surveillance System: A response to a crisis—Gisele Coutin Marie, MD, MSc

By 1990, Cuba's public health system included a strong primary health care network and a number of well-established medical institutions that provided secondary and tertiary medical services. Life expectancy at birth was high, and birth and mortality rates were low. In general, the main causes of death were non-communicable diseases. The collapse of the socialist countries block was a major blow to the Cuban economy, and particularly to the health care system. As a result there was a shift in the morbidity and mortality patterns and the outbreak of emerging diseases such as epidemic neuropathy. In spite of the existence of a surveillance system that monitored more than 30 different health programs (e.g., communicable diseases, water and air quality, nutritional status, infant mortality), there was a need to transform the country's public health surveillance system. By the end of 1993, a new public health surveillance system model was developed. The Cuban Ministry of Public Health established the Department of Health Strategies and Analysis. The new surveillance system was based on the existing structure of the country health care units (e.g., family doctor offices, polyclinics, hospitals) and the epidemiology centers located at each level of the health system (e.g., municipalities, provinces, national). Data collection was initiated from information obtained during family doctor visits. Over the past 20 years, this transformation permitted health authorities and governmental organizations to promptly detect and address the most serious health problems.

Key words: Public Health Surveillance, Surveillance System, Cuba's Public Health System

Strengthening Health Systems: The case of China—Blair Gifford, PhD

Strengthening health systems and health infrastructure has become an international priority. This is primarily due to 1) governments' need to provide healthcare services for their populations, and 2) the globalization of health services through medical tourism. This session will discuss these trends and consider whether they are complementary, at cross-purposes or whether a middle ground can be found that will lead to health-based economic growth and universal coverage of health services at the same time. The case of China will be explored in this discussion. China has recently developed a social insurance model to provide Insurance coverage for both rural and urban populations. At the same time, China is investing in health infrastructure and emphasizing research and development in health related industries.

Common Denominators with Global Health: A Comparison of 3 Rapid Health Needs Assessment from Across the Globe— Brooke Bredbeck and Brittney MacDonald

Purpose: Rapid Health Needs Assessments were conducted in Guatemala, Pakistan, and Peru to inform the implementation of child health interventions. Results were compared to explore differences between cultures and resources, and to highlight shared vulnerabilities.

Methods: Convenience samples were used in Pakistan (N= 200); Peru (N=551); and Guatemala (N=287). The written surveys, in English or Spanish, were similar (67 or 87 questions) and identified a sample of mothers with young children. Chi-square, t-tests & ANOVA were used for the statistical analysis. Additionally, odds ratios from logistic regression models, adjusted for maternal variables, were calculated.

Results: The mean age of mothers was 29.1 years (SD= ±8) with a mean number of 3.2 children (SD=±2). The literacy rate across all regions was 81%. Approximately 60% of women reported skipping meals in the past 3 months, and ~40% had a child <5 years old who had diarrhea. Water source was associated with childhood diarrhea in Peru (OR 1.62, p 0.02) and Pakistan (OR 2.29, p 0.03), and high parity was associated with diarrhea in Guatemala (OR 1.24, p 0.001). Use of oral rehydration (ORS) in Guatemala, Peru, and Pakistan was 26.65%, 10.86%, and 1%, respectively.

Conclusion: Childhood diarrhea and food insecurity were both very prevalent, and were related to factors that tend to define marginalized, low-income populations worldwide. A striking difference between regions is the lack of ORS use in Pakistan. From this information, interventions can be targeted to focus around family planning and IMCI education, especially the use of ORS.

Global Burden of Skin Disease—Robert Dellavalle, MD, PhD, MSPH

The Global Burden of Disease (GBD) project is an open source collaborative project of more than 500 scientists funded by the Bill and Melinda Gates Foundation and run out of the University of Washington under the leadership of Dr Chris Murray (<http://www.tedmed.com/talks/show?id=17751>).

The project systematically summarizes epidemiological data in the literature to estimate the global burden of diseases (<http://www.thelancet.com/themed/global-burden-of-disease>).

I will introduce the project and dive into the project's global dermatologic disability data to demonstrate the power and perils of this resource for measuring public health and prioritizing health care resources.

Abstracts cont..

Efficacy of Inactivated Trivalent Influenza Vaccine among Children in Rural India during 2009-2010— Wayne Sullender, MD, K Fowler², V Gupta³, A Krishnan⁴, K Lafond⁵, S Saha⁵, F Palomeque⁵, P Gargiullo⁵, R Lal⁵, M-A Widdowson⁵, and S Broor^{3,4}

²University of Alabama at Birmingham, Birmingham, AL, USA; ³International Clinical Epidemiology Network, Delhi, India; ⁴All India Institute of Medical Sciences, Delhi, India; ⁵Centers for Disease Control and Prevention, Atlanta, GA, USA.

The burden of influenza disease and influenza vaccine efficacy are not well characterized for children in resource-constrained countries. In November 2009 a three-year randomized controlled study was initiated in 3 rural villages in northern India to measure vaccine efficacy (VE) of trivalent inactivated influenza vaccine (IIV). We report here the assessment of VE among children in these communities during November 2009–October 2010. Children 6 months through 10 years were administered either one (9-10 years) or two (6 months-8 years) age-appropriate doses of IIV or a control, inactivated poliovirus vaccine (IPV). Surveillance was conducted via weekly home visits to identify febrile acute respiratory illness (FARI). Swabs were collected for influenza detection by real-time reverse transcription polymerase chain reaction assay. A proportional hazards model was constructed to calculate the VE of full vaccination of children with IIV as compared to IPV. Among those fully vaccinated, the IPV group experienced 132 Influenza B FARI episodes compared to 80 in the IIV group (all ages VE 38%, CI 16, 54, p=0.002). In the first year of a multi-year VE study, A (H1N1)pdm09 emerged and the only vaccine-matched influenza virus that circulated in the study community was influenza B. Full vaccination with IIV among children resulted in a vaccine efficacy of 38% against antigenically matched influenza B strains. Further work is needed to understand the efficacy of influenza vaccines in this population, future analyses will include additional years and assessment of indirect protection (herd immunity).



Mortality in a Cohort of rural Ugandans Screened for Tuberculosis and Cryptococcal Antigenemia Prior to Initiating ART—Lincoln Pac, Horwitz M, Semeere A, Auerbach B, Namutebi AM, Nakanjako D, Meya D, Manabe Y

Background: In sub-Saharan Africa, high levels of mortality (8-26%) during the first 3 months on antiretroviral therapy (ART) are largely due to opportunistic infections (OIs) caused by tuberculosis (TB) and *Cryptococcus neoformans*. These pathogens each cause 20% of deaths in patients starting ART.

Methods: We followed a cohort of HIV-infected, ART-naïve adults at Kiboga District Hospital in rural Uganda with CD4 counts ≤ 250 cells/ μ L. All subjects underwent TB screening, and those with CD4 ≤ 100 also had cryptococcal antigen (CrAg) screening. Treatment for detected TB (RHZE x 8 months) or CrAg (fluconazole 800 mg x 4 weeks) was initiated, followed by ART two weeks later. We compared incidence of TB, cryptococcal meningitis (CM), and mortality to a historical cohort who initiated ART at the same hospital in the prior year.

Results: Of 540 participants enrolled, pre-ART screening detected 56 (10.4%) with prevalent TB, 12 (6.8% of those screened) with positive serum CrAg, and 13 (2.4%) with Kaposi's sarcoma. There were 39 deaths in this cohort (7.2%) during 6.5 months of follow-up occurring at a rate of 15.1 deaths (95% CI, 11.0-20.8)/100 PYAR. Post-ART, 14 (2.6%) patients were diagnosed with TB and only one patient died of CM. By comparison, the historical cohort (n=282) had 21 cases of post-ART TB (7.3%) and 23 deaths (8.2%, 16.9 deaths/100 PYAR).

Conclusion: Pre-ART screening for OIs detects many prevalent cases. Due to the quality of the data in the pre-intervention historical cohort, we did not show a mortality benefit to screening. The rate of incident TB after ART decreased significantly with screening. CrAg screening and prophylactic treatment with fluconazole is effective at reducing post-ART deaths from cryptococcal meningitis in resource limited settings.

Abstracts cont..

Haemophilus Influenzae Type B (Hib) Immunity in HIV-Exposed but Uninfected (HEU) Infants—

James Gaensbauer, MD, MScPH, Rakhola J, Onyango C, Mubiru M, Zhang W, Fowler MG, Asturias EJ and Janoff EN

Background: To determine whether immune function is impaired among the ≈1.5 million HIV-exposed but uninfected (HEU) infants born to HIV-infected mothers each year, we characterized mother-to-infant trans-placental passage of *Haemophilus influenzae* type b (Hib)-specific IgG, primary vaccine responses, and the evolution of Hib IgG avidity in a cohort of Ugandan HEU and U.S. unexposed infants.

Methods: We measured Hib-specific IgG by ELISA in 57 HIV-infected mothers prenatally and their breastfed HEU infants in Kampala, Uganda and from 12 unexposed infants in the U.S. at birth, 12, 24 and 48 weeks. Antibody avidity (strength of binding) was determined in 27 HEU infants using 1M ammonium thiocyanate. Geometric mean titers and avidity results between time points and populations were compared using t-tests.

Results: Only half of maternal Hib-specific IgG was transferred trans-placentally (mean 56%; range 11-143%) to HEU infants. At birth, 81% of HEU and 100% of US infants had protective levels of Hib-specific IgG (>1.0 µg/mL). IgG responses to primary Hib vaccination were robust in both groups (100% with protective levels by 6 months). Hib IgG declined from 6-12 months in 78% of HEU, though 98% remained >1.0 µg/ml at 1 year. Levels of Hib IgG were higher among US infants at birth compared to HEU (p<0.001) but lower at 48 weeks (p=0.002). In both populations antibody avidity was higher at birth than at 48 weeks (mean decrement of 34% in HEU and 41% in US infants at 1 year).

Discussion: HIV-exposed but seronegative infants had low levels of Hib IgG at birth but mounted robust and sustained responses to Hib vaccine. Low levels of Hib IgG at birth with subsequent decay of maternal antibody may result in vulnerability to disease from birth until primary vaccination, supporting use of the early WHO EPI vaccine schedule in the HEU population. Furthermore, lower antibody avidity and declining levels of Hib IgG as HEU infants approach their second year suggests the potential need for booster vaccination at 1 year, which is not current practice in much of the developing world.

Breast milk, infant growth and intestinal health in rural Gambia—Robin Bernstein, PhD, Sophie Moore and Andrew Prentice (MRC International Nutrition Group, London School of Hygiene and Tropical Medicine; MRC Keneba)

Growth patterns of infants in rural Gambia involve low birth weight followed by modest catch-up against Western standards in the first few months of life, and a subsequent precipitous growth failure in the last half of the first year of life. Infant growth in these populations is also modulated by season of the year, with extremely poor growth during the wet, or 'hungry' season when diarrheal and other infections are more prevalent. We ask what proportion of positive and negative growth deviance, and differences in gut inflammation, can be explained by natural variation in breast milk bioactive factors. Additionally, we consider whether variation in infant growth and/or milk bioactives might in part also be explained by maternal early life environment or maternal energy balance. We collected milk from 200 mothers whose infants were born across both wet and dry seasons. Milks, infant anthropometry, and infant stool samples were collected monthly from birth through the first year of life; maternal anthropometry was collected during pregnancy and at weeks one and 12 postpartum. We measured several factors in milk that exert significant biological effects on infant physiology and quantified calprotectin in infant stool as a marker of intestinal inflammation, in order to assess the covariation among milk bioactives, infant growth, and intestinal health. We explore how these variables are in turn influenced by seasonality of both infant's and mother's birth, to inform a detailed consideration of how local ecology affects growth across generations.

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Excellence in Global Health Award - 2013 Recipients

Thomas Campbell, MD



Dr. Campbell conducts research to improve the treatment of HIV infection and AIDS-related complications. As Principal Investigator of the Colorado AIDS Clinical Trials Unit he conducts research to optimize the clinical management of HIV-1 infection including the development of improved strategies for administration of antiretroviral therapy, improved management of treatment-related toxicities, and better treatment of multi-drug resistant HIV-1 infection. He is the lead investigator of the first comparative study of antiretroviral efficacy and safety in resource-limited settings around the world. He is also Director of the Colorado HIV Research Training Program, which provides support for postdoctoral training in AIDS research at UCD and affiliated institutions. He is the Director of the Colorado Center for AIDS Research Virology Core Laboratory, which makes virology tools and services available to University of Colorado investigators for research in AIDS pathogenesis and treatment. And, he is the Associate Program Director of the Colorado Adult General Clinical Research Center, a state-of-the-art facility available to Colorado medical investigators to conduct safe, controlled, inpatient and outpatient studies of humans.

Michaleen (Dr. Mickey) Richer, MD, DTMH



Dr. Richer retired in August 2012 after 25 years of working overseas in providing humanitarian assistance mostly in east Africa. Humanitarian work included approximately 10 years working with non-governmental agencies (NGOs) providing direct patient care, 10 years working with the United Nations including UNICEF and WHO (World Health Organization) working with governments on developing health care policies and the last 5 years working with the US-government (USAID/OFDA) where guidance and oversight was provided to Washington on funding of humanitarian assistance programs. Experience included management, policy development and research on Onchocerciasis, Trypanosomiasis, Leishmaniasis, Lymphatic Filariasis, Guinea Worm, cholera and Nodding Disease among other infectious diseases. Before going overseas Dr. Richer was in private practice of Pediatrics in Denver for approximately 18 years.,

Peter Durst, the creator of this years *Excellence in Global Health Award* is a long-time 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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