OCTOBER 2014

Global Health Fellows
NORTHERN PACIFIC GLOBAL HEALTH RESEARCH FELLOWS TRAINING CONSORTIUM

NPGH Fogarty Global Health Fellows Newsletter

Injury Prevention: A Global Team Approach to a Major Public Health Problem in Developing Countries

On my recent trip to Ghana this past August, much of the country's concern, and rightfully so, was focused on the Ebola crisis raging within its neighboring countries. However, the day before I returned to the US, the pernicious problem of death and disability from traumatic injuries, a problem that is my particular research interest and that of my mentees, came to the fore. There was a tragic road accident involving three mini-vans outside of Kumasi on the Kumasi to Accra Highway. Twenty-three people died and 11 others were injured. Twenty-one of those people were dead at the scene and two died in hospital. The dead and injured consisted primarily of young adults and children.

Death and disability from traumatic injuries, particularly road accident related injuries, have become a leading cause of death and disability in the developing world, and continue to be a major cause of death and disability within industrialized countries. The overwhelming majority of its victims are those that are in the early years of their productive adult life. As an emergency physician, a large portion of my training and practice focused on the evaluation and treatment of patients with traumatic injuries. My early research also focused on this area, but I eventually realized an important fact that the above described accident illustrates: most of the people that die from traumatic injuries, particularly road accidents, die immediately from catastrophic injuries. Most notably these are severe brain, cervical spinal cord and thoracic aorta injuries.

Continued on page 2

Ronald Maio, DO, MS, FACEP founded and directed the University of Michigan Injury Research Center, and was PI for the Great Lakes Node of the Pediatric Emergency Care Applies Research Network. He is currently Professor Emeritus in Emergency Medicine at the University of Michigan Medical School.

Ronald Maio article, continued from page 1

While I knew the importance of timely and high quality medical care for the injured patient, it became clear to me that I wasn't doing enough. I needed to include prevention activities in my practice and in my research. My thinking was strongly influenced by the concepts of primary, secondary and tertiary prevention and the Haddon Matrix for injury control. This matrix can be applied to all injury events but was initially used for road accidents. It helps organize factors leading to an accident, and by filling the cells of the matrix one can develop both general and specific strategies for intervention.

Phase	Human Factors	Vehicles and Equipment Factors	Environmental Factors
Pre-Crash	-Information -Attitudes -Impairment -Police Enforcement	-Roadworthiness -Lighting -Braking -Speed Management	-Road design and layout -Speed Limits -Pedestrian facilities
Crash	-Use of restraints -Impairments	-Occupant restraints -Crash-protective design	-Crash-protective roadside objects
Post-Crash	-First-aid Skills -Access to Medics	-Ease of Access -Fire Risk	-Rescue Facilities

At the time my perspective was broadening there were still many silos in the US addressing injuries from road accidents: it's an engineering problem; it's a policy problem; it's a regulation problem; it's a law enforcement problem; it's a health behavior/ health education problem; and of course, it's a medical problem. Thanks to the CDC's National Center for Injury Prevention and Control and my early mentors and colleagues, I came to realize that death and disability from traumatic injuries is best addressed as a public health problem that requires coordinated multifaceted solutions. I began to collaborate with other Departments within the University of Michigan Medical School (UMMS) as well as the UM School of Public Health, the University of Michigan Transportation Research Institute, and the School of Pharmacy.

Although my research in acute trauma care continued, I also began conducting research on using computer technology to identify alcohol problems and intervene among the complete range of injured adults and adolescents presenting to the Emergency Department. An underlying concept was our perspective that a visit to the Emergency Department for an injury was a "teachable moment" to address risky behavior that could result in future injuries. Subsequently, my colleagues have expanded our work on alcohol problems to include addressing risk factors for inter-personal violence and seatbelt use. In the US, during the last 20 years, there has been a dismantling of the aforementioned "silos" and the growth of inter-disciplinary collaboration: essentially a team approach to the public health problem of traumatic injuries from road accidents.

As we help fellow global citizens in developing countries address the problem of traumatic injury in a sustainable fashion, we need to take a similar team approach. A great example of such an approach is the work that Dr. Charles Mock, a trauma surgeon from the University of Washington (UW), and his colleagues at the UW and in Ghana have been doing in the area of traumatic injury. Their work not only addresses acute clinical care issues, but also behavioral and environmental risk factors and is inter-disciplinary in nature.

We are fortunate to have the work of Dr. Mock and his colleagues on which to build and be informed, as well as his assistance with studies on quality of trauma care and also development of a trauma registry at Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana. These projects were headed and recently completed by Dr. Rocky Oteng , faculty in the UMMS Department of Emergency Medicine, during his Fogarty Research Fellowship. We are also conducting a project to determine the frequency of alcohol use and risky drinking among trauma patients presenting to KATH. This work is being conducted by a current Fogarty Fellow, Andrew Garner, an M-3 at UMMS. We are also very fortunate to have the collaboration and co- leadership on these projects from the Director of Accident and Emergency (A and E) at KATH, Dr. George Oduro, and A and E faculty member Dr. Paa Kobina Forson. We think our work will have implications not only for acute clinical care but also for policy and prevention activities. We also think it will serve as a platform on which to further develop a sustainable research enterprise to reduce death and disability from traumatic injury in Ghana as well as the rest of Sub-Sahara Africa—and beyond!

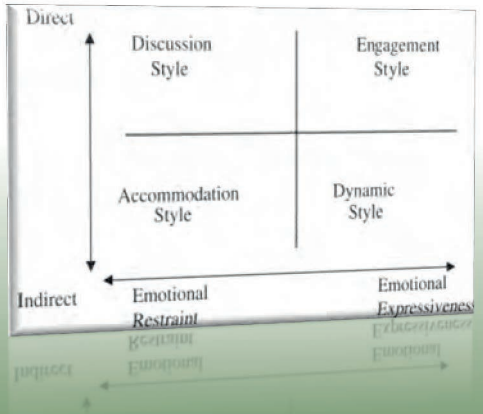
My colleagues at the University of Michigan and our Ghanaian colleagues at KATH are very excited about our work and also very excited and proud to be part of the Global Team to reduce death and disability from traumatic injuries.

In case you missed it...

Trainee Anya Romanoff was featured on a local news program in Cusco, Peru to encourage women to get screened for breast cancer and engage in healthy lifestyles as part of her research project. View the video (in Spanish) on our website.
http://bit.ly/anyanews

Living abroad can be tough, but you aren't alone. Elie Calhoun runs www.expatbackup.com with good articles and tips on caring for yourself physically, mentally, and spiritually. Aimed specifically at aid workers, check out her article on the recent Ebola outbreak.
http://bit.ly/expatebola

Take a look at a special issue of Science Magazine on conflict. There are articles on everything from the evolutionary origins of racism, to violence stemming from climate change today.
http://bit.ly/sciconflict



"I see you had rice for breakfast" is how you tell someone in Nepal that there's food stuck in their teeth. Indirect communication styles are valued in some cultures, but not in others, which can lead to confusion and conflict. This figure from the International Journal of Intercultural Relations sums up basic communication styles, and the article lays out a framework for categorizing cultural responses to conflict.
http://bit.ly/interconflict

Andrew Gardner and Barclay Stewart, MD MPH represent the Ghana faction of our NPGH Fogarty Trainees this year. Both work in Emergency Medicine and Trauma, and are focusing on health system strengthening and the use of alcohol as it relates to injuries. More of their research is described on pg. 1 of this newsletter by Dr. Ron Maio, one of Andrew's mentors.

The Heavy Burden of Injury

More than 6 million people annually or nine people per minute die from unintentional injury or violence. However, injury death represents only the tip of an iceberg of life-limiting disability. In the next five years, one in five disability-adjusted life years (DALYs) lost globally will be due to trauma. Low- and middle-income countries (LMICs) disproportionately harbor 90% of this burden where prevention strategies and quality trauma care and rehabilitation services are sparse. Given that injury directly affects predominantly young and able people, trauma certainly contributes to the vicious poverty cycle. Moreover, the injured's family and community often suffers considerable social and economic losses.

Road traffic crashes are the greatest cause of traumatic death and disability. LMIC development has been accompanied by an increase in the number of vehicles and traffic-related injuries and deaths. For every death from a road traffic crash, there are around 50 more hospitalizations for injury. Many of these injuries result in permanent disability. The annual cost of these injuries is estimated to be more than US$ 500 billion each year, far exceeding the total global expenditure on development assistance. Additionally, data generating mechanisms needed to inform policy are insufficient; comprehensive road safety laws cover only 7% of the world's population, and half of all countries lack adequate data.

While acknowledging that strategies aimed at prevention are paramount, there is also an urgent need to strengthen the access to and delivery of treatment to the injured. Only recently has surgery itself been accepted as a necessary component for the improvement of global health. Additionally, rehabilitation, mental health and social support for survivors and their families must be considered.

Despite the growing evidence for the importance of injury in global public health and economic development, research and program funding are grossly inadequate. For example, less than 1% of the WHO's 2007 budget was directed towards injuries and violence. Contrary to expectations, surgery has proven to be a cost-effective public health intervention but requires dedicated funding mechanisms. The World Bank's Disease Control Priorities Project estimates that simple interventions, like building speed bumps, enforcing helmet laws, and providing essential trauma surgery would cost US$ 2–15 per DALY averted, which is the same or less than the costs per DALY averted from supplementation with vitamin A and zinc, measles vaccination, oral rehydration salts and anti-retroviral therapy.

Though heavily funded global health initiatives have reduced burdens of specific diseases, they have done little to strengthen health systems in a comprehensive manner. Subsequently, some advocate for a shift from the *vertical* approach to care delivery to a *diagonal* one. The latter supports initiatives that strengthen many facets of a health system. Trauma and acute care surgery are examples. Trauma care requires improvement in community prevention, pre-hospital care, emergency services, lab and radiologic capabilities, acute and critical care, surgical services and rehabilitation. Each of these is also important for a host of other conditions that can benefit from the same services. Furthermore, there is argument that investment into acute care services strengthens systems' capacity for coordinated and timely care.

Directly supporting trauma care is not only appropriate given its global burden, but may also bolster a host of other services integral to effective health systems.

References for Injury Prevention Article

Debas HT, Gosselin RA, McCord C, Thind A. Surgery. In: Jamison D, Evans D, Alleyne G, Jha P, Breman J, Measham A, et al. Eds. *Disease control priorities in developing countries*. 2nd edn. New York, NY: Oxford University Press; 2006.

Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL, editors. *Global burden of disease and risk factors*. New York, NY: The World Bank and Oxford University Press; 2006.

Ostlin P, Braveman P, Dachs N, Task WHO. Force on Research Priorities for Equity in Health; WHO Equity Team. Priorities for research to take forward the health equity policy agenda. *Bull World Health Organ* 2005; 83: 948-53 pmid: 16462988.

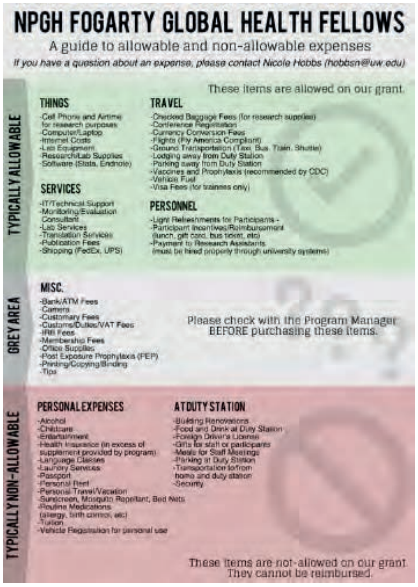
Bishai D, Hyder A, Ghaffar A, Morrow R, et al., et al. Rates of public investment for road safety in developing countries. Case studies from Uganda and Pakistan. *Health Policy Plan* 2003; 18: 232-5 doi: 10.1093/heapol/czg028 pmid: 12740328.

Mulligan JA, Walker D, Fox-Rushby J. Economic evaluations of non-communicable disease interventions in developing countries: a critical review of the evidence base. *Cost Eff Resour Alloc* 2006; 4: 7- doi: 10.1186/1478-7547-4-7 pmid: 16584546.

Gosselin RA, Heitto M. Cost-effectiveness of a district trauma hospital in Battambang, Cambodia. *World J Surg* 2008; 32: 2450-3 doi: 10.1007/s00268-008-9708-4 pmid: 18716830.

Did you know?

Trainees often have questions about what is allowable to purchase with your research funds, how to make those purchases, and how to get reimbursed. We have created two infographics to simplify the information and hopefully make the process easier for you.



http://bit.ly/allowability

Remember to ask yourself the following questions before making any purchases:

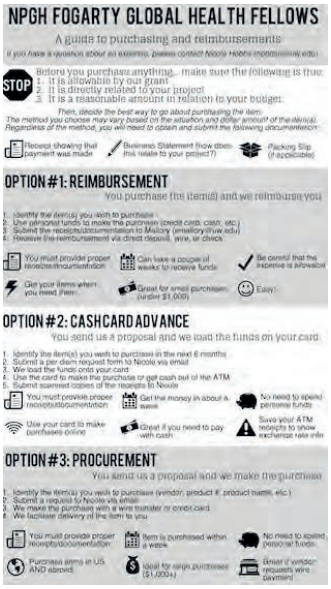
-Is this necessary for my research study?

-Is it an allowable expense?

-Will I be able to obtain the required documentation?

Click on the links below the thumbnails to view the full sized infographics.

Consider printing out a copy for your reference.



http://bit.ly/pchasing

Mentor Spotlight

Collaborating for Injury Prevention in Ghana

Peter Donkor, MD, MPH

Peter Donkor is a Professor of Oral and Maxillofacial Surgery at the Kwame Nkrumah University of Science and Technology in Kumasi, Ghana as well as the Pro Vice-Chancellor. He has earned degrees, fellowships, and diplomas from six different colleges, taught at the University of Sydney and the University of Birmingham, and served on numerous advisory boards throughout his productive career.

Ghana, an African country of 25 million inhabitants is located 8^0 north of the Equator and 2^0 west of the Prime Meridian. This uniquely places it closest to the center of the earth, with her citizens being among the friendliest in the world. Other unique features about Ghana include the hand woven kente cloth; the Volta Lake (a large man-made lake); "red-red", a favorite local dish; open drains, and mini-buses inscribed with social, religious and political messages.

The buses which are mostly used are "home second-hand" imports from Europe, and form the backbone of the public transportation system that includes vehicles that have been written off in their countries of origin either after an accident or because they are unserviceable. These buses often also serve as ambulances for the transport of the seriously ill or injured to health facilities.
Mechanics in Ghana have developed skills for restoring "dead" vehicles regardless of their state. Thus rusty old vehicles get patched up and rendered "roadworthy". A Mercedes Benz car with a failed engine may get refitted with a used but functional Toyota engine, while the rusty frame of a Mazda vehicle may be replaced with a newer Nissan one. In the same manner that imported used clothing keeps the not-so-well-off in Ghana decently attired, imported used vehicle tires keep vehicles moving on the very poor road network across the length and breadth of the country. Like many developing countries, injuries from road crashes contribute disproportionately to the burden of disease, and undoubtedly dilapidated vehicles contribute significantly to the problem.

Over the past twenty years one NIH/FIC funded research collaboration between the University of Washington (UW) in Seattle and the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi has focused on injury control. Activities under this collaboration have included driver education in first aid and safe transport of the injured; training of district medical officers in emergency surgical procedures; teaching of undergraduate medical students in trauma; workshops for media practitioners, police, fire personnel, lawyers, judges, parliamentarians, surgeons, social workers, engineers etc. Several Ghanaian graduates have gained MPH degrees in injury research, and faculty exchanges have also taken place.

Domestic violence, unintentional injuries such as accidental ingestion of chemicals by children, burns, suicide, and road traffic injuries require the combined efforts of law enforcement agencies, engineers, medical personnel, law makers, policy makers, researchers, and international agencies for effective control. Efforts at controlling this menace in Ghana require a multi-pronged approach and must include a strengthening of the entire health system. In an increasingly globalized world, international collaboration is a sine qua non. The recent Ebola epidemic in West Africa, and the threat it poses to the entire global community is a reminder that unless we collaborate internationally to solve global health problems, we stand the risk of perishing together. Therefore, as we celebrate the successes of the UW/KNUST collaboration, greater efforts are needed for extending the gains to benefit more communities.

Fogarty Global Health Fellowship: A Platform That Shaped my Career Goals and Progress

Olivia Achonduh, PhD

Olivia Achonduh, PhD was an NPGH Fogarty Fellow from 2013 to 2014 at the University of Yaounde I in Cameroon. She is currently working in the University of Yaounde I's Biotechnology Center.

I had the opportunity of working on infectious diseases, malaria in particular, both as an investigator and as a coordinator in public and private sectors at the national and international level. These experiences ignited a passion in me to work in this field, especially on the aspect of appropriate diagnosis and treatment in children, with the goal of designing feasible interventions that could improve the management of these diseases in sub-Saharan Africa. My PhD thesis, which focused on the "evaluation of nutritional supplements on human response to malaria infections; pharmacovigilance and pharmacogenomics profiles in children," enabled me to learn many modern scientific techniques and helped me acquire several skills.

The Fogarty Global Health Fellowship further shaped my passion in this field by giving me the opportunity to investigate the causes of non-malarial fevers in children. My cordial relationships with my mentors, renowned researchers in tropical diseases, enabled me to learn from their experience and acquire guidance on how to achieve my career goals. Coordinating an ACT Consortium sponsored project aimed at designing interventions to change clinicians' behavior on the management of malaria further increased my knowledge and sharpened my skills.

Teaching being one of my passions, I look towards having a faculty position through which I can train future aspiring scientists the world over, imparting knowledge to them. I also look forward to attending strategic international conferences where I can link up with like-minded researchers with a view towards preparing and applying for collaborative grants in infectious diseases in children. My previous experiences as a clinical laboratory practice trainer for WHO/TDR African region, part-time lecturer in molecular biology/quality assurance at the University of Yaoundé I, and trainer on malaria diagnosis with the National Malaria Control Program have honed my teaching skills.

Though I am already in the early stages of my career, I recognize the fact that I need to periodically go for training to increase my knowledge in public/global health and implementation research. One of my long-term career goals is to influence policy on health related issues at the national and international levels. Maintaining a close relationship with research and academics at the national and the international level is something I value a lot and hope to continue with.

Ask Globie

Q: What is your favorite way to celebrate Halloween?

Every Halloween I like to go trick-or-treating with my younger friends and collect a bunch of candy. Then, I go out to a Halloween party and compete in a costume contest.

Q: What is your favorite Halloween candy?

Gummi Bears, of course!

"We don't want to risk having any injuries during spring training."

Upcoming Events

October 2: Surgery and Injury Prevention
Presenters: Andrew Gardner, Anya Romanoff, and Barclay Stewart

October 16: Teamsmanship and Conflict Management
Consortium Discussion

Both events will take place at:
6am Seattle; 8am Lima; 1pm Ghana; 2pm Cameroon;
4pm Kenya/Uganda; 8pm Thailand; 9pm China

Link for Adobe Connect:
http://uwmedical.adobeconnect.com/ghfellows
(Login with your name)

Have something to share?

Email your submissions to Mallory Erickson
emallory@uw.edu