

AUGUST 2014



## Global Health Fellows

NORTHERN PACIFIC GLOBAL HEALTH RESEARCH  
FELLOWS TRAINING CONSORTIUM

# NPGH Fogarty Global Health Fellows Newsletter

*This month's theme: Maternal and Child Health, Research Question and Study Design*

## Welcome to our new Program Coordinators

This summer we welcomed two new program coordinators to the team in Seattle.

Nikki Eller is a Seattle native, and recently spent two years in Palpa, Ica, Peru as a Peace Corps volunteer, installing *cocinas mejoradas* (improved cook stoves) in rural homes with local nurses and authorities.

Mallory Erickson is originally from Seattle, and just spent five years working with a non-profit in Managua, Nicaragua. She supported three artisan cooperatives producing jewelry, baskets, and coffee.

They have both recently moved back to the Seattle area, and are excited to a part of the Global Health team.



L-R: Joe, Nicole, Nikki, Alicia, Mallory



## NIH Fogarty Orientation July 7-11, Baltimore

This year's NIH Fogarty Global Health Fellows Orientation provided the opportunity for current and former trainees across the five consortia to meet and discuss their research. Overall, 109 trainees participated, representing research in 25 countries around the world. We wish the trainees the very best as they arrive in their research countries and begin their projects.

### Upcoming Event

**August 7; Core Competency Discussion:  
What is Global Health Research?**

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)



The **HIV Research Trust** is a charitable foundation that provides financial support to physicians, nurses, scientists and other health care professionals in resource-poor settings from LMICs working in the field of HIV infection. The Trust supports early/mid career researchers (from doctoral students to group leader level).

**Deadline for applications: Oct 13<sup>th</sup>, 2014.**

**Eligibility: LMIC applicants**

<http://www.hivresearchtrust.org.uk>



The American Society of  
Tropical Medicine and Hygiene  
Advancing global health since 1903

Established in 1999, the **Burroughs Wellcome Fund/ASTMH Postdoctoral Fellowship in Tropical Infectious Diseases** supports career development of physician-scientists focused on infectious diseases of the developing world. This unique fellowship provides funding for individuals to conduct research in tropical infectious diseases (and, on occasion, other clinical conditions unique to tropical medicine).

**Deadline for applications: Aug 20<sup>th</sup>, 2014.**

**Eligibility: US applicants**

<http://www.astmh.org>



The **Afya Bora Consortium Fellowship** was created to train future leaders in global health. The focus is on African health professionals, but also includes U.S. trainees. The Fellowship has two major components, a set of didactic modules and an assignment at an Attachment Site. The one-year training program targets African and U.S. medical post-graduates, post-residency physicians, and graduate nurses with the majority of trainees from Africa.

**Deadline for applications: Nov 30<sup>th</sup>, 2014.**

**Eligibility: US and LMIC applicants**

<http://afyaboraconsortium.org>



## Funding Opportunities



The **Excellence in Pediatrics Institute** is pleased to announce that a number of bursaries will be offered again this year for pediatric health care professionals from the developing world to attend the EiP 2014 conference in Dubai.

Selected individuals from developing/emerging countries will receive travel allowance, conference registration, lodging and meal allowance, and will be expected to participate in the conference schools where they will share experiences and learn new skills.

**Deadline for applications: Sep 5<sup>th</sup>, 2014.**

**Eligibility: LMIC applicants**

<http://2014.ineip.org>



RESEARCH ASSOCIATESHIP PROGRAMS  
Fellowships Office

The mission of the NRC Research Associateship Programs (RAP) is to promote excellence in scientific and technological research conducted by the U. S. government through the administration of programs offering graduate, postdoctoral, and senior level research opportunities at sponsoring federal laboratories and affiliated institutions.

**Deadline for applications: Nov 30<sup>th</sup>, 2014.**

**Eligibility: US applicants**

<http://sites.nationalacademies.org>

## Seeding Labs

**Seeding Labs** helps talented scientists in developing countries conduct life-changing research by providing the resources they need but often do not have access to, including lab equipment, training, and introductions to key influencers in their field.

**Seeding Labs partners with public universities in LMICs.**

To learn more, visit: <http://seedinglabs.org>



## Research Spotlight: Marilyn Kioko, Kenya

*Marilyn Kioko is a Year 3 trainee who will be performing research at Gertrude's Children's Hospital in Nairobi, Kenya. In 2010, as a pediatric resident at the Brooklyn Hospital Center, Marilyn co-founded Pediatric Universal Life-saving Effort (PULSE), a non-profit whose mission is to provide sustainable acute and critical care services for children in developing countries. Since then, she has traveled to Nepal, Kenya, Haiti, El Salvador and Nigeria, providing training and certification for over 300 medical professionals.*

### Pediatric Sepsis: Beyond the P(ediatric)ICU Marilyn Kioko, MD

Sepsis, or septicemia has been around for centuries. Often described as “blood poisoning” by our scientific predecessors, who assumed it was a result of the host's invasion by pathogens that then spread into the bloodstream.<sup>1</sup> This breach in the body's protective barrier sets up an inflammatory response, whose hallmark is fever, and puts the host at increasing risk of low circulating blood volume and poor oxygen delivery to tissues (shock) and eventual death. Our understanding of the pathophysiology of sepsis has led to considerable improvements in therapies, particularly in antibiotic therapy. Still, despite its contribution to considerable mortality in resource abundant and resource-constrained settings, sepsis remains largely unknown by the general public and under-recognized by health care providers. The first step to take in confronting ‘Sepsis’ perhaps should be creating awareness by making it a household name.

The incidence of severe sepsis outside modern ICUs, especially in parts of the world in which ICU care is scarce, is largely unknown.<sup>1</sup> Many technologies adapted for ICU care, simply termed as ‘lines and tubes’ put patients at increased risk for development of bloodstream infections. In the U.S. sepsis accounts for 10% of the disease burden in Intensive Care Units. According to estimates from the World Health Organization, sepsis accounts for 60-80% of lives lost per year in childhood, with about two-thirds of these in developing countries. Mortality increases as disease progresses to severe sepsis, and septic shock.<sup>2</sup> Common illnesses including pneumonia, diarrhea, dehydration and malaria remain major contributors to child mortality<sup>3</sup>, with circulatory compromise and shock as a common pathway leading to death.

Pediatric sepsis represents a unique challenge. The presenting signs are often subtle, and the presence or absence of fever, particularly in neonates, is unreliable as a sole indicator. Children's vital signs vary according to

age, therefore familiarity with age-appropriate vital signs is crucial for providers to sift through a constellation of symptoms that may or may not be life-threatening. As pediatricians we know sepsis is often elusive, yet an astute clinician incorporates the parent's observations at the time of presentation to the clinic or hospital into the decision-making algorithm. Parents will often describe clues of “poor feeding,” “increased sleepiness,” or simply, “the child doesn't seem quite right.” Therefore employing a system of triage based on vital sign criteria and seeking supporting evidence can assist the clinician in early recognition of severe disease. Increased heart rate in children presenting with suspected infection should prompt immediate management despite normal blood pressure, as hypotension is a late and often ominous sign.

There are considerable challenges in tackling shock in resource-limited settings where ICU care remains largely inaccessible. In Kenya, efforts to reduce infant and child mortality are in place, but with poor health seeking behavior and limited diagnosis and management of acute illnesses; children present to outpatient clinics in advanced stages of disease requiring critical care at different levels. There is limited data or published research focused on the need and challenges in developing pediatric critical care in Kenya. Critical care services for children have only recently been recognized as a priority by the health system. Many hospitals therefore still do not have dedicated critical care units for children and only a handful of doctors and nurses have training or experience with management of children in a critical care setting.

## *Pediatric Sepsis: Beyond the P(ediatric)ICU cont.*

Sepsis occurs as a continuum and may lead to low blood pressure, respiratory failure and multi-organ dysfunction requiring varied levels of critical care. The 2008 International Surviving Sepsis guidelines, (revised in 2012) made 14 recommendations that can be simplified into three major goals: early administration of appropriate antibiotics, early control of the septic source and early resuscitation to achieve hemodynamic stability.<sup>4</sup> These fundamental steps have been shown to reduce mortality in a cohort of pediatric patients in which practice bundles outlined in the Global Sepsis Initiative<sup>2</sup> of the World Federation of Pediatric Intensive and Critical Care Societies (WFPICCS) were implemented.

The role of fluid resuscitation in the treatment of children with shock and life-threatening infections who live in resource-limited settings has not been established.<sup>5</sup> Aggressive fluid resuscitation remains the mainstay of treatment, with administration of rapid fluid boluses of 20 ml/kg up to 60 ml/kg of isotonic fluid administered in the first hour, and titrated to restore normal heart rate, blood pressure and urine output. While no consensus exists on the choice of fluids or the speed of delivery in management of shock in children living in low income countries, a common management strategy for developed and developing countries alike supports early fluid resuscitation to restore hemodynamics. Over the next year my research aims to assess the impact of educational curriculum and targeted management for shock in the pre-hospital setting on reducing ICU-related pediatric mortality in Nairobi, Kenya, taking into account special patient populations who require modified therapies.

### References:

1. Angus, D. Severe Sepsis and Septic Shock N Engl J Med 2013; 369:840-851
2. Kissoon N. et al World Federation of Pediatric Intensive Care and Critical Care Societies: Global Sepsis Initiative Pediatr Crit Care Med 2011 Vol 12, No. 5:494-503
3. Ayieko et al. A Multifaceted Intervention to Implement Guidelines to Improve Admission Paediatric Care in Kenyan District Hospitals, A Cluster Randomized. Trial PLOS Medicine Apr 2011 8(4): e10010018
4. Han Y., Carcillo JA. et al Early Reversal of Pediatric-Neonatal Septic-Shock by Community
5. Maitland K et al. Mortality after Fluid Bolus in African Children with Severe Infection. New England Journal of Medicine, June 2011;Vol 364 No. 26

## In case you missed it...

**Julia Robinson** from the UW Global Health Department gave a recent Tedx talk entitled, “Transcending Technology in Global Health.” She makes the case for more investment in health workers in countries such as Mozambique.

<http://tinyurl.com/RobinsonTedx>



Body language affects how others see us, but it may also change how we see ourselves. Social psychologist **Amy Cuddy** shows how “power posing” — standing in a posture of confidence, even when we don’t feel confident — can affect testosterone and cortisol levels in the brain, and might even have an impact on our chances for success.

<http://tinyurl.com/ACuddyTedTalk>



# Celebrating our Mothers and Children



1. Marilyn Kioko (Kenya) and her mother
2. Rocky Oteng (alumni) and his mother
3. Iman Martin (alumni) and her mother
4. Tatiana Metcalf (alumni) and her family
5. Frankline Onchiri (alumni) and his family
6. Eric Muriuki (Kenya) and his family
7. Bart Ondigo (alumni) and his mother
8. Linnet Masese (Kenya) and her children



# Research Questions and Study Design: An Overview

## *Bartholomew Ondigo, PhD*

*Bartholomew Ondigo is a Year 1 alumnus, whose malaria- centered research focused on the quality of antibody responses to multiple *P. falciparum* antigens in western Kenya.*

A research question is one of the first steps to focus on when you begin your global health fellowship. A research question must be **clear, concise, simple, original and interesting** around which you center your research. A research question is interrelated to the following: research topic, research problem and hypothesis and they all support each other. The research question needs to be well thought out and focused, as it will lead directly into your hypotheses.

Your question identifies your contribution to research and should have the capacity to produce robust results.

Tips to Fogarty Global Health Fellows about research questions:

1. Discuss your research question with your mentoring team and make sure they approve it before you start searching, downloading, and reading relevant articles.
2. Evaluate your question; it should not be answered with “yes” or “no.” It should be answered after conducting research and analyzing the data.

### **Study design**

After developing your research question this will lead into the hypothesis. You will then decide which study design will be the most appropriate to test your specific study hypothesis. A study design is the procedure under which a study is carried out.

Epidemiological study designs can generally be classified as intervention (experimental) or observational (non-experimental) studies.

In intervention studies the investigator identifies the study participants and allocates them to the different study groups through the use of randomization. The investigator then intervenes and observes the effect of intervention. Intervention studies can either be clinical trials or field trials.

In observational studies the role of the investigator is simply to identify subjects and observe what happens, recording the characteristics of who is exposed or unexposed and who has or has not developed the outcome of interest. Observational studies include cohort studies, case series, case- control studies, cross-sectional surveys and meta-analyses.

Special thanks to my mentor, Dr. Chandy John.

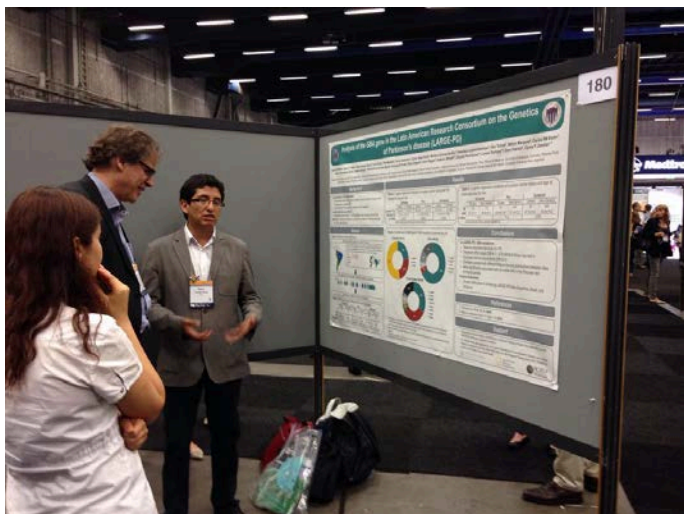
Have something to share?

Email your submissions to Mallory Erickson  
emallory@uw.edu



## Did you know?

**Mario Cornejo** (NPGH alumni) recently traveled to Stockholm, Sweden to attend the International Congress of Parkinson and Movement Disorders. Mario also was recently promoted at his home institution in Peru, Instituto Nacional de Ciencias Neurologica) and is now Chief of the Neurogenetics Division. Felicitades Mario!



## Stata Tip

*Tip contributed by Frankline Onchiri (Year 1 alumnus, Kenya)*

The Stata command of the month is: inspect.

The inspect command provides a quick summary of a numeric variable that differs from that provided by commands like inspect summarize or tabulate:

- Syntax: inspect [varlist] [if] [in]
- Example: inspect income sex marital

Inspect command reports the number of negative, zero, and positive values; the number of integers and non-integers; the number of unique values; and the number of missing values; and it produces a small histogram. Its purpose is not analytical but it allows you to quickly gain familiarity with unknown data.

## Ask Globie

**Q: What was your favorite part of Orientation?**

*My favorite part was getting caught in the downpour during the Monuments at Night tour. It was cold and rainy, but I got to spend some quality time with all of you trainees while seeing the sights of Washington, DC.*

Remember, you can share your photos from orientation, and see the professional group shots on our NPGH Facebook group.

<http://tinyurl.com/npgfacebook>

