

AMPATH “Academic Model Providing Access to Healthcare” is a consortium of North American academic health centers led by Indiana University working in partnership with Moi University, Moi Teaching and Referral Hospital, and the Government of Kenya.

## Clean Kitchen Study to Reduce Household Air Pollution

Martha coughs as she kneels on the dirt floor to stoke the wood in the open fire pit of her inadequately ventilated one-room cooking hut. Her 2-year-old baby is cocooned to her back as she prepares to make the day’s ugali, a traditional Kenyan corn-based staple. What Martha doesn’t know is she has been exposing herself and her child daily to Household Air Pollution (HAP) as she prepares her family’s food. According to the World Health Organization, in Kenya more than 15,000 deaths per year are attributed to HAP. Like Martha, 84% of the Kenyan population uses solid fuels such as firewood for cooking—this means the health of 36 million Kenyans is affected by HAP exposure each year. Cooking with solid fuels releases pollutants such as black carbon and soot which can potentially cause pneumonia, stroke, heart disease, chronic pulmonary disease or lung cancer.

To help reduce HAP-related illnesses, AMPATH is piloting a clean kitchen study in the Nandi region. The study is a community-led intervention in which the women were educated about HAP and asked to design and build their improved kitchen systems. As shown in the photo above, the Nandi women created a stove made out of clay that has two holes in the top to place the pots that cook over



*The Nandi women designed a cook stove so that it is elevated, so the woman doesn’t have to bend over the stove to cook. They also built a coop under the stove to act as an incubator to raise chicks to be able to sell chickens at the market.*

the open fire. The ability to cook with two pots at the same time was just one novelty of the design. The key factor to the new clean kitchen design is the installation of the chimney to properly ventilate exhaust fumes, another unique feature to the rural Kenyan kitchen. The stove was also built elevated vertically so the women do not have to bend over the fire while cooking. In addition to the improvements on the cook stove, there is also an entrepreneurial aspect to the new kitchen. Coops were built under the stoves to act as an incubator to raise chicks. The idea being, once the chicks are raised it would only take selling several chickens at the market to earn enough money to buy another chimney so that a clean kitchen can be built for another woman in the village.



*Chipati, a Kenyan flatbread, cooking next to a second pot on the cook stove. Cooking with two pots at the same time is a time-efficient, novel concept in the rural Kenyan kitchen.*

Brandon Boor, an Assistant Professor of Civil Engineering from AMPATH Consortium partner Purdue University, traveled to Kenya through an International Development Lab (I2D Lab) seed grant to evaluate the efficacy of AMPATH’s Clean Kitchen Study. Brandon said already the women have reported improvements in their ability to cook more efficiently and have noticed a significant reduction in visible smoke levels in the kitchen.

“Most cook stove interventions across the globe have been largely unsuccessful as they fail to meet the unique needs of the local community,” said Brandon. “In Nandi, the woman have designed and built a kitchen based on what works best for their cooking practices.”

Brandon and his students at Purdue are collaborating with Dr. David Lagat at Moi University School of Medicine and Irene Kalamai, an AMPATH nurse from Nandi, to quantify the reduction of HAP between the new kitchens and the traditional Nandi kitchen over the coming year.



*Black carbon and soot are visibly present on the wall above the traditional open fire pit stove.*

## ADVANCING THE AMPATH MEDICAL RECORDS SYSTEM WITH REAL TIME POINT-OF-CARE

For many years, in developing countries such as Kenya, the health informatics infrastructure used paper-based data entry. Today, with the decrease in costs of technology, such as tablets, and the rapid introduction of affordable 3G internet throughout western Kenya, AMPATH now has the opportunity to roll out a real time point-of-care system to support clinical providers at rural clinics. Point-of-care provides real time access to the electronic medical records, allowing patient records to be accessible during patient-clinician interaction. Additionally, this system enables AMPATH clinical officers to receive critical decision support in the field. Already, the point-of-care system has been

introduced in 14 AMPATH sites, engaging 1,100 patients daily.

*Point-of-care is used on a handheld device, making patient records accessible in the field.*



Point-of-care is a new platform used with the existing AMPATH Medical Records System (AMRS). AMRS, a web-based open source medical records system developed for AMPATH, now holds the largest clinical data repository in Africa and is active in over 40 countries worldwide. Point-of-care can be accessed by a handheld

device at three points of the patient's visit, namely outreach, triage, and the clinical consultation. In addition, the point-of-care system is linked to the laboratory, making test results available to the clinician during the patient visit.

Any IT implementation is heavily dependent on reliable power and network connectivity, neither of which is consistent in rural Kenya. To support this effort, solar power stations have been built and 3G-based Wi-Fi networks have been created at the pilot sites. But to ensure 100% uptime of the AMRS point-of-care, with support from the AbbVie Foundation, AMPATH is now creating a pioneering cloud-based point-of-care electronic medical record system, which will be one of the first that the Kenyan public health sector has ever seen.



*Paper-based data entry creates challenges for clinical providers who need to make precise, timely health care decisions.*



*The point-of-care system delivers critical decision support, such as automatically sending providers reminders about when to order tests.*

### **AMPATH Administration**

**Wilson Aruasa**  
*Director, MTRH*

**Fabian Esamai**  
*Principal, MUCHS*

**Bob Einterz**  
*Director, AMPATH Consortium*

**Adrian Gardner**  
*IU Executive Field Director*

**Sylvester Kimaiyo**  
*AMPATH Program Manager*

### **Gazeti Staff**

*Editor: Theresa Vernon*

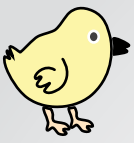
### **Autumn 2016 Contributors:**

- Brandon Boor
- JJ Dick
- Cindy Morehead

*The AMPATH Gazeti is published by Indiana University:*

AMPATH  
702 Rotary Circle, RO 101  
Indianapolis, IN 46202

**P: 317.278.0835 | Fax: 317.278.0838**  
**[www.ampathkenya.org](http://www.ampathkenya.org)**



## Chicks for Chicks

In June, Bill Gates asserted that raising chickens is an inexpensive and easy way to improve food and income security, and donated 100,000 chickens to the needy in Africa through Heifer International. Could it be that the idea was triggered from Cindy and Kirk Morehead? Earlier this year, Kirk and Cindy took a six-month assignment through Kirk's employer, Dow AgroSciences, to be stationed in Eldoret as part of a collaboration with AMPATH to help improve food security challenges. While Kirk has been working every day to strengthen the farmer groups, Cindy has been volunteering at the Amani Shelter, Tumaini, and Neema Children's home. These facilities, operating on bare bones, oftentimes only have beans and rice to offer their residents at mealtime. One day, Cindy realized that the land at these facilities had the capability to raise chickens for eggs, food, and income. She created a fundraising campaign, "Chicks for Chicks" and "Men who love Chicks," to raise money to purchase the initial chickens to lay eggs, fryers, and to revamp existing coops or build layer boxes.

The campaign successfully raised \$6,500 to get the project off the ground with the initial 425 chickens. To keep the program growing, an incubator was purchased to allow 96 chicks to be hatched every 21 days. To date, almost 1,500 chickens have been placed in 17 shelters and orphanages in the Eldoret area.

Cindy says sustainability is the end goal of the project. She hopes that when she and Kirk leave Africa, the program will continue to promote health and wealth for the residents of the shelters and orphanages. She says she has learned a lot about how to raise and care for chickens in Kenya. "I've learned so much from my colleague, Kibuba Wambua. He has been my right hand in this endeavor," Cindy said. "He is both a teacher in poultry as well as life lessons. And together we have figured out the needs and specifics of each coop."



*Cindy said she has learned a lot about how to raise and care for chickens in Kenya from her colleague, Kibuba Wambua.*



*Cindy and Kibuba have worked with the children and caregivers, to teach them how to raise the chickens to produce eggs for food or to sell at the market.*



*To date, almost 1,500 chickens have been placed in 17 shelters and orphanages in the Eldoret area.*



**AMPATH**  
702 Rotary Circle, Suite RO 101  
Indianapolis, IN 46202

Presorted  
First Class  
U.S. Postage  
**PAID**  
Indianapolis, IN  
Permit No. 8365

**INSIDE THIS ISSUE:**

**Clean Kitchen Study to Reduce Household Air Pollution ..... 1**

**Advancing the AMPATH Medical Records System with Real Time Point-of-care ..... 2**



**Chicks for Chicks ..... 3**

**Director of the NIH visits AMPATH ..... 4**



*Director of the National Institutes of Health Francis Collins visits AMPATH to tour clinic sites and meet with AMPATH clinicians, students and researchers, making it the first visit by a current NIH director. Collins was active on social media during the visit (photo right) and toured the Moi Teaching and Referral Hospital with Dr. Abraham Siika (photo below) as part of the visit.*



**SEND  
US  
YOUR  
EMAIL!**



**We are phasing out the AMPATH Gazeti to once per year. If you are not receiving the monthly AMPATH eNewsletter, *Habari*, we don't have your email address! To stay up-to-date on AMPATH activities, please email [tm5@iu.edu](mailto:tm5@iu.edu) with "sign me up" in the subject line.**

***Asante Sana!***