PHOTOS OF MY JOURNEY TO WEST AFRICA AND THE FIGHT AGAINST EBOLA

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November – December 2014

Dedicated to M who agreed to sacrifice our vacation so I could serve in Liberia, Guinea, and Sierra Leone
and to African caregivers and aid workers who are protecting us all by their tireless efforts

A rooster running freely along a beach in Sinkor, Monrovia, Liberia

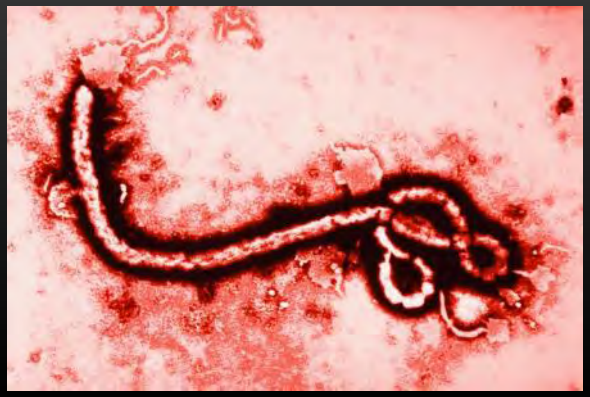
I barely remembered sinking into my hotel bed after an exhausting flight and a tortuous drive in the dark to the city center. The next morning, as I floated in that ephemeral space between wakefulness and slumber, I thought I was back in Dumaguete stretching my arms to the sounds of roosters crowing. The sudden wailing of an ambulance awoke my senses like a slap in the face. It was the first of many sirens I heard that day in Monrovia, Liberia, the epicenter of the Ebola crisis when I first arrived in West Africa.

Street market in downtown Monrovia

Fish in spicy cassava leaves and rice

For more than eight centuries, diverse ethnic groups were drawn to this fertile land where Melegueta pepper and other spices grew abundantly, some of the same spices that today scald the mouths of visitors sampling the local cuisine.

In the 1800s, free African Americans from the United States left for the African continent to colonize the indigenous peoples. The “Americo-Liberian” colonialists established the Republic of Liberia modeled after the U.S. with political power limited mainly to themselves and their descendants, excluding the native inhabitants from citizenship until 1904. Decades of autocratic rule were shattered by a U.S.-backed military coup in 1980 triggering the start of a bloody civil war. My Liberian driver John F. told me how he and his children hid under the floor boards of an abandoned house for three days without food to escape the fighting. By the time the civil war ended in 2003, 95% of the country’s healthcare facilities were destroyed. The country was on its way to recovery in March 2014 when innocent civilians started dying in the hands of mysterious assassins – invisible but deadly killers named after the river in Zaire where they first appeared: Ebola.



Ebola virus as seen with a transmission electron microscope
[from the Internet]

A very sick 10-year old Saah cradles his head in pain as a passerby covers him
(Getty Images)

Sophia and her grandchildren as the Ebola burial team take away her daughter's body
(John Moore/Getty Images)

Ebola belongs to a family of filoviruses (so named because of their filament shape) of which there are five known species. One of the species—Reston ebolavirus—has a Philippine connection. It was first discovered in crab-eating macaque monkeys imported by a lab in Reston, Virginia from the Philippines in 1989. Reston ebolavirus was the first Ebola virus found outside Africa and found only in one macaque species in the Philippines until it was later also found in domestic pigs. Although it kills infected monkeys and pigs, the Reston virus seems to be harmless to humans. The same cannot be said of the Zaire ebolavirus, the deadliest of the five and the strain responsible for the current epidemic. In some places in Africa, Zaire ebolavirus has been fatal to as much as 90% of infected men, women and children, virtually wiping out entire communities.

At first an infected patient comes down with a fever, headaches, nausea, diarrhea, and vomiting—symptoms no different from malaria. Ebola then attacks the liver, kidneys and other organs, destroying collagen and causing blood clots throughout the body. Towards the end, many patients bleed from the eyes, nose, mouth, and gaps in the skin. Death comes a week or two after the onset of symptoms and is caused by loss of blood, shock, and multi-organ failures. As of this writing, there is no known cure.

Ebola mural on the wall of the Liberian Environmental Protection Agency

Ebola posters found all over Monrovia (left) and Freetown (below)

Many healthcare workers did not know what they were dealing with when the Ebola outbreak started. Soon many doctors, nurses, nurses' aides, and ambulance drivers fell sick with the mysterious illness and died. (As of December 21, a total of 666 healthcare workers were known to have been infected in the three countries and 366 have died.) Rumors spread, people avoided going to hospitals, and some refused to believe there was an epidemic, while families in dense urban communities hid ailing relatives in an attempt to avert the stigma, thereby infecting whole households. All schools and universities were shut down on August 1. When an entire urban poor community of 75,000 was quarantined, desperate residents attacked the Ebola center, stealing equipment and releasing the patients (including 10-year old Saah in the previous slide).

Today, just about every other street in Monrovia has a street sign, poster, billboard, or mural about Ebola, its symptoms, the number to call, what to do and what not to do (e.g., do not touch the deceased). The message has gone out: Ebola is real and can be stopped; Ebola is not a death sentence; early detection and treatment increase the chances of survival.

Germ-killing technology built by Africans for Africa
[with Johann Hoffman of Medi-Clave]

Medi-Clave technician demonstrating
the use of the autoclave technology

Like other viruses, Ebola cannot replicate outside the living bodies of humans or animals. If Ebola viruses in waste and other inanimate objects are destroyed, one important link in the chain of infection is broken. Ebola is actually a fragile virus. Exposure to the sun degrades the virus. Half of the Ebola viruses in the droplets from a sick person's cough die within 15 minutes. Hot water at 60ºC kills 99.999% of Ebola viruses in 22 minutes.

I was supposed to be in Manila and Dumaguete in November-December but last September, as chief technical advisor to a UN agency on medical waste, I completed work with a South African company on an autoclave to sterilize infectious waste without generating smoke and toxic fumes as incinerators do. The technology uses pressurized steam at 134ºC. My tests indicated that the technology would destroy Ebola in a matter of seconds.

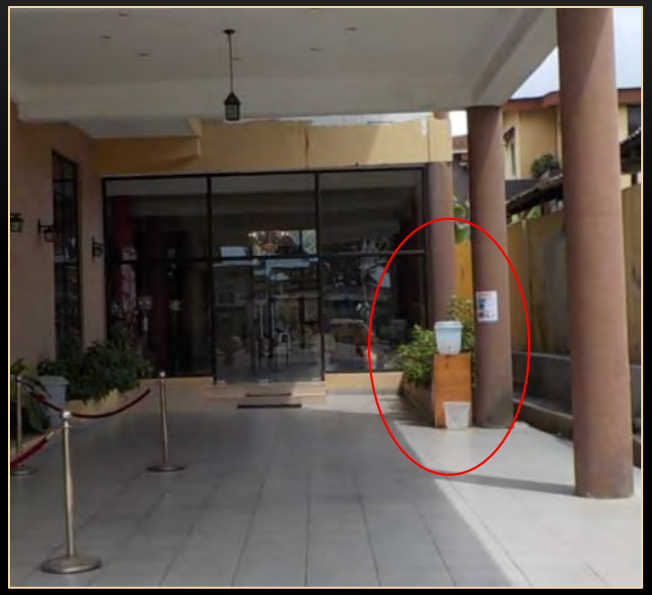
In October, I was requested by the World Health Organization (WHO) to help develop guidelines for dealing with Ebola-infected waste. I had worked for years with my friend and WHO's medical waste expert, Yves Chartier. One of the last things we did together before he died in a tragic accident in 2012 was to update the WHO guidelines on medical waste. His position was never filled due to budget cuts so WHO had to rely on outside experts.

As reports came in that some Ebola waste was being dumped untreated into open pits, it became clear that a medical waste expert was needed in the Ebola-affected countries. Around October 27, the United Nations Development Program asked me to support the West African countries. That scuttled my plans for a relaxing vacation in the Philippines.

My colleague Dr. Babacar Ndoye and I examining a UK incinerator at an Ebola Treatment Unit under construction

My role was to assess existing Ebola waste management practices, train hospital staff including administrators and waste workers on safe management of Ebola-infected waste, and provide clean technologies for destroying the Ebola waste to selected hospitals and Ebola Treatment Units. I was joined by Dr. Babacar Ndoye, a virologist and medical professor from Senegal. He had just retired as head of the Senegalese Ministry of Health's infection control program. He was one of the first doctors to volunteer in Guinea at the start of the Ebola outbreak. We had worked together since 2004 on introducing the first waste treatment autoclaves in Senegal and developed a national training program on medical waste management and infection control.

As we pointed out to everyone who would listen, Ebola waste management is not just a technology but a whole system of management that needs to be put in place.



Upon arriving at Roberts airport in Liberia, I was immediately reminded that this was an Ebola-affected country. Even before entering the airport building, all disembarking passengers had to line up and wash their hands with 0.05% hypochlorite (bleach) solution. This procedure was required of everyone before entering any government building, grocery store, restaurant, hotel, coffee shop, or other public establishment. Some health facilities even had basins of 0.5% hypochlorite for decontaminating shoes.

African colleagues joked that their hands would soon be bleached white. I pointed out to many people that alcohol hand rubs were safer and more effective but hand sanitizers were more expensive.

Physical contact with anyone was discouraged. Instead of handshakes, I learned to do the elbow bump.

Island Clinic in Bushrod Island is a former private clinic transformed into an Ebola Treatment Unit

Dr. Atai (to my right) with my colleague Dr. Babacar Ndoye (left), Hassan of WHO (dark blue shirt), and Island Clinic staff

In August 2014, Liberia was in desperate need of hospital beds. As bodies piled up along Monrovia's streets, more than 100 laborers worked 24/7 for 3 weeks to transform Island Clinic into a 120-bed Ebola Treatment Unit. Within 24 hours of its opening, Island Clinic was already filled beyond capacity. Some patients stumbled in, others were brought by ambulances. I heard stories of fathers bringing their children, too weak to walk, in wheelbarrows. UN colleagues pointed out streets where they had seen many bodies of people who collapsed and did not make it to the clinics.

Dr. Atai Omoruto, the medical officer in charge of Island Clinic, is from Uganda where Ebola struck a few times in the past. She and her team of Ugandan doctors and nurses volunteered to share their experiences working side by side with 600 Liberian colleagues. She received extensive coverage from international media. While touring Island Clinic with her, I spoke to two sweet young girls, about 8 and 10 years old, who kept waving at me from their window in the recovery ward. "How do you feel?" I asked from outside their window. "Much much better," they replied together. It was a good sign and brought hope that these little girls would survive.

These photos illustrate the international efforts involved in the Ebola emergency response.

The left photo shows health workers suiting up to enter the high-risk zone of the MOD Ebola Treatment Unit (ETU) in Monrovia. MOD is headed by Dr. Soka Moses who had been clinical director of JFK Hospital. He tried to convert the hospital's 35-bed cholera center into an Ebola unit but was quickly overwhelmed with 69 Ebola patients, half of whom had to be treated on the floor. MOD was built by the United States. The unit is operated by 49 Cuban doctors and nurses plus a team from Sweden working side by side with 177 Liberian staff. (One of the first countries to respond to the call for help, Cuba has sent hundreds of doctors and nurses to West Africa to fight Ebola, with some of their medics cramped three to a room in budget hotels.)

The photos on the right show an ETU run by China and another by the German Red Cross, the European-based International Humanitarian Partnerships, and the International Rescue Committee.

This is the view from the visitors' shack of the MOD ETU in Liberia. You can see heath workers in full body suits caring for the Ebola patients in the high risk (red) zone. After I took this photo some visitors arrived. I said some words of encouragement to them. It was sad to see families trying to get a glimpse of their love ones from afar not knowing if they would see them again.

This is one reason for our work. Many of the incinerators brought into the countries on an emergency basis did not meet international standards. In the left photo, the heavy black smoke, along with carbon monoxide, hydrochloric acid, cancer-causing compounds called polychlorinated dioxins/furans, and other toxic by-products from the new incinerator blew directly into the homes (on the other side of the gate) of this highly populated community.

The photo inset in the center illustrates another problem. Because the full body suit is highly flammable, operators run the risk of going up in flames. Sébastien, the brave International Red Cross worker who volunteered to run the incinerator, removed his suit in favor of heat-resistant overalls. He used a long wooden pole to push the yellow infectious waste bag into the incinerator while keeping away from the intense heat. He then had to dump water on the smoldering stick and wooden platform.

The photo on the right shows burn barrels used where no other options were available. Behind the smoke and wall you can see the roof and cream-colored walls of the ward housing the most sickly Ebola patients.

This is another reason we were needed in the Ebola-affected countries. The left photo, taken at a hospital that had been treating Ebola patients, shows Ebola waste piled up in a temporary storage building. Notice the boxes spilling over with contaminated syringes. If you look closely at the inset (center photo) you could see the kitten I found rummaging around among the syringe boxes.

The right top photo shows an example of needles that were strewn around the hospital grounds. The bottom right photo is the waste dump inside the red zone (high-risk area) of an Ebola Treatment Unit. The dumpsite was overflowing with bloody bandages and other infectious items. Notice the vulture on top of the corrugated iron roof of the waste dump.

The National Ebola Command Center in Liberia: Each table was assigned to different groups (USAID; WHO; Liberian water, sanitation & hygiene team; military liaisons of various countries, etc.) Babacar and I worked with Dorbor Jallah (green shirt), deputy head of the national Incident Management Team – center front photo and inset.

Dr. Bernice Dahn is Deputy Health Minister and Chief Medical Officer of Liberia. After her government announced that people who had been exposed to Ebola should isolate themselves for 21 days to prevent the spread of the disease, her own assistant Napoleon Brathwaite III (right photo, taken from the Internet) contracted Ebola and died. A widower, Mr. Brathwaite left behind eight children who are now without parents. Dr. Dahn went into self-imposed quarantine, separating herself from her husband and children, as an example for the country. After 21 days, the maximum incubation period for Ebola, she emerged symptom-free.

In this photo we are discussing the wording of the agreement between UNDP and the government. Later, I sat in her secretary's office to review the copy and work on the format. When I was finished, I bid farewell and offered my condolences on the passing of Mr. Brathwaite. It was only then that the secretary mentioned that I had been sitting on his chair the whole time.

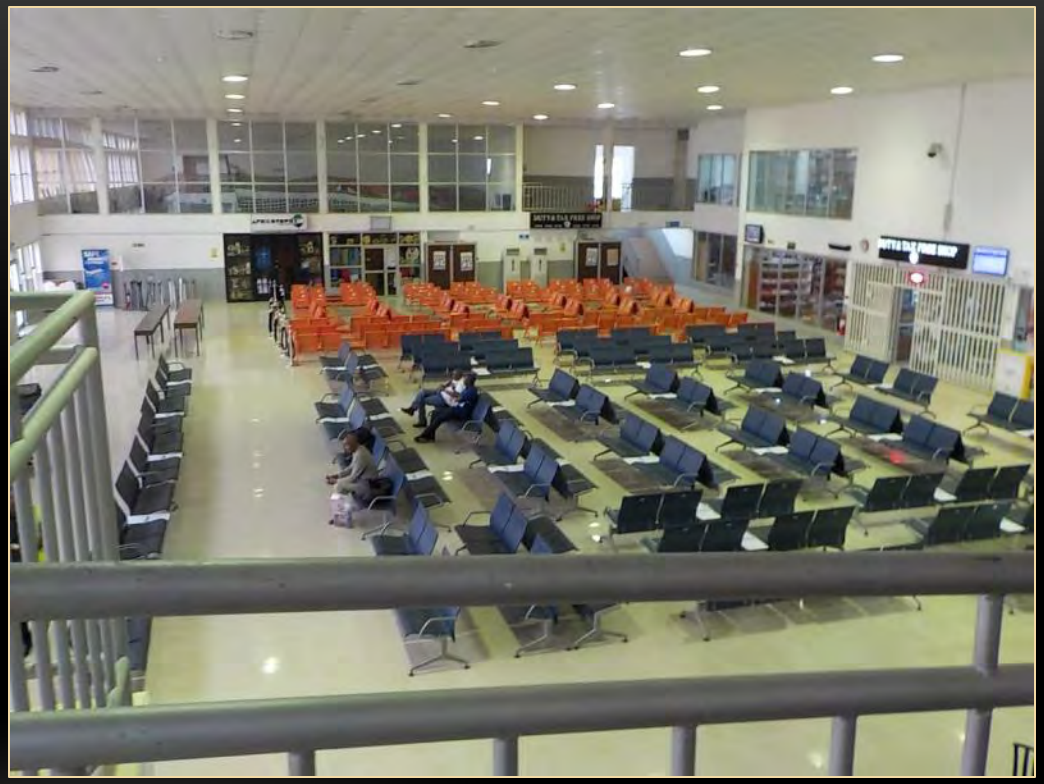
Exquisite tree root carving (left) and mural (bottom) in Golden Beach

Once popular Golden Beach in Monrovia now basks empty in the sun at the peak of the tourist season

Before leaving Liberia, Babacar and I ate in Golden Beach. The area was charming yet somber at the same time, a paradise in normal times with its azure skies, alluring fine-grained sand, colorful mural, cool breezes, a restaurant with eager servers waiting to be called, and empty chairs under the shade of swaying palm trees appealing to tourists, nowhere to be found.

In addition to the enormous loss of life, Ebola is having devastating impacts on, among others, the:

- Economy – many businesses have shut down; manufacturing, construction, and tourism have come to a halt
- Agriculture – farmers have been unable to harvest crops or transport their products
- Employment – many livelihoods have been lost
- Education – schools and universities have closed and children are losing a year of schooling
- Health care – there are fewer resources to address non-Ebola illnesses
- Food security – food prices are rising.



From Liberia, we flew to Guinea. Almost all commercial airlines stopped plying the routes between Liberia, Guinea, and Sierra Leone so we travelled on airplanes of the United Nations Humanitarian Air Service (UNHAS) and the World Food Program (left photos). It was the first time I had to hoist my own luggage onto the cargo hold of a plane. During one trip, the UN had to send a replacement aircraft operated by private contractors when our plane experienced mechanical problems. The ground crew refused to refuel the new plane since the pilot did not have the right paperwork so he paid for the aviation fuel from his own pocket!

The once bustling arrival and departure hall (right photo) of Lungi International Airport in Sierra Leone was deserted except for a handful of aid workers. The awaiting passengers – all six of us – were invited to sit in the VIP lounge. The UNHAS flight was delayed many hours so we ordered food and drinks. The restaurant staff sat with us in the VIP lounge to watch a Nigerian soap opera on the lounge's big screen TV. We were their only customers of the day.

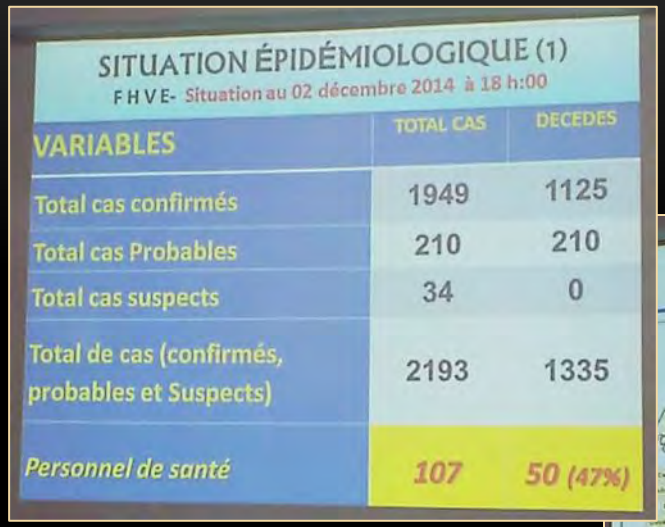
Kalabasa welcome

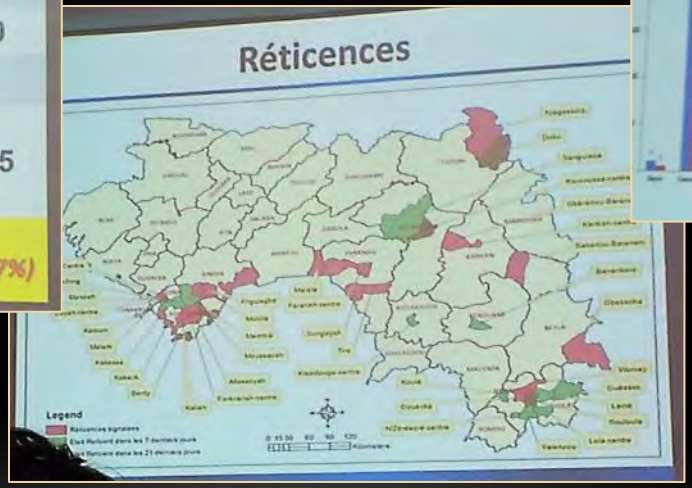
Woman in a colorful dress showcasing the country's weaving and textile arts

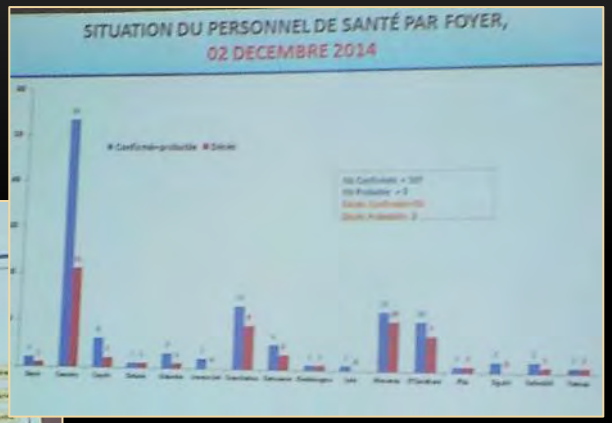
HUMMER for sale in Conakry:
This one doesn't guzzle as much gasoline if you can get it to start.

After landing in Conakry airport in Guinea, we saw a giant statue of a woman offering a calabash gourd, a traditional sign of welcome to a guest. My first impression of the capital was the traffic: Conakry's "beaucoup de circulation" is as bad as Manila's during peak hours. What struck me next as I ambled around searching for a place to eat were the people: friendly, eager to converse despite my poor French, and quite distinct in their sharp facial features compared to other Africans. I also saw signs of extreme poverty in a country so lush and rich in natural resources—a consequence of decades of corruption, political strife, austerity measures, and exploitation of the country's bauxite, diamonds, and gold by foreign corporations.

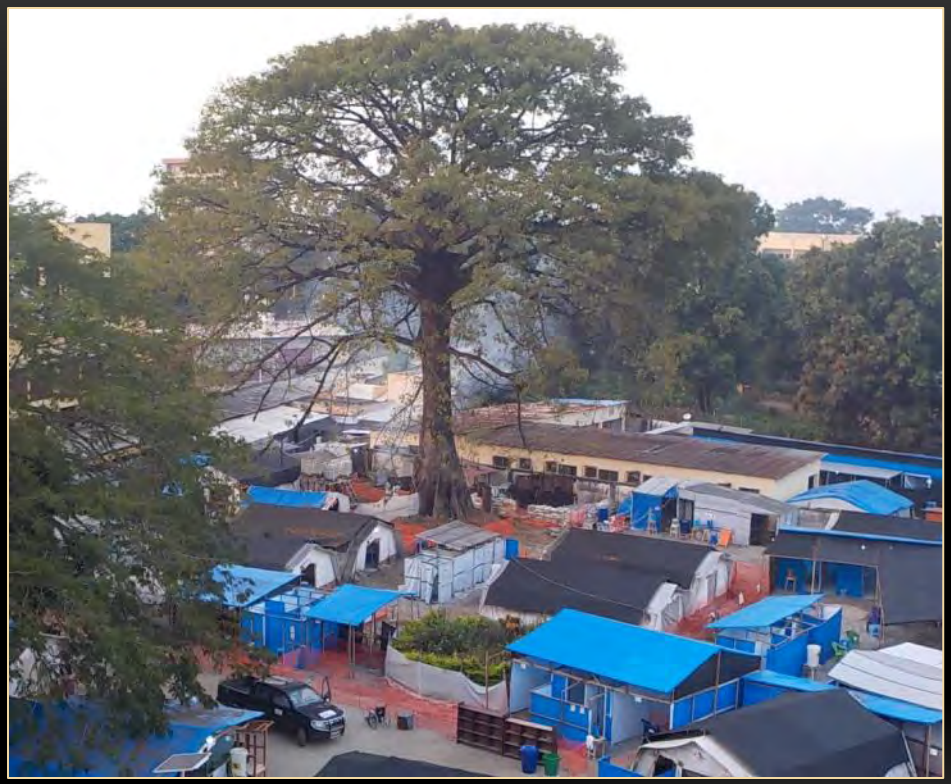
I found it disorienting to see a surprising number of blond-haired, blue-eyed, white-skinned children begging in the streets in a continent where white had often been associated with wealth and power. As Babacar and I discussed recessive genes, tyrosinase, and melanin deficiency related to albinism, our UN driver mentioned that African albino children are sometimes hunted like animals in rural areas due to superstition, their body parts used in rituals, potions, and sorcery.







On my first day in Guinea, we participated in the weekly briefing at the National Ebola Coordinating Center attended by a few dozen international agencies and NGOs. As of that day, Guinea had documented 2,193 suspected, probable and confirmed Ebola cases, of which 1,225 had died. One slide (top right) showed that the majority of the health workers who had gotten infected (107) or died (50) were in the capital Conakry. Equally disturbing was a slide (bottom center) showing areas in red where there was public resistance, at times violent, against health workers. Médecins Sans Frontières reported that they were trying to build an Ebola Treatment Unit in Matoto but were facing serious opposition by local residents. Representatives of the paramilitary National Gendarmerie offered to provide protection, a bit disconcerting in light of Guinea's human rights record.



MSF health workers suiting up before entering the high-risk Ebola patient wards

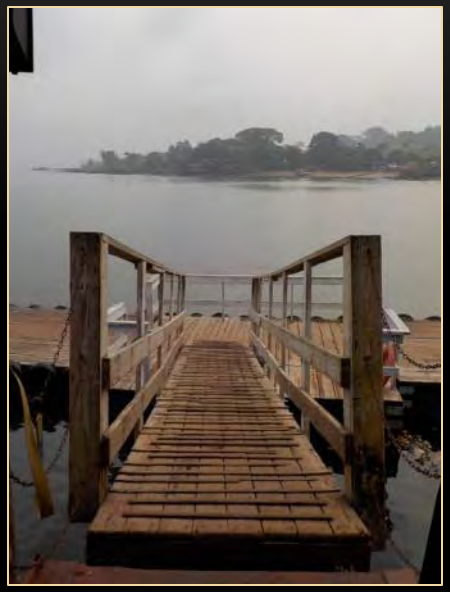
I visited the Ebola Treatment Unit in Conakry run by Médecins Sans Frontières (MSF) or Doctors Without Borders, one of the heroes of the Ebola saga. MSF sounded the clarion call for emergency response as early as March 2014 but the world ignored them. Even as international NGOs withdrew their staff in fear, MSF increased their personnel and partnered with local health workers to fight the spread of the virus with almost no outside help. The epidemic would have been much worse and many more would have died if not for the intrepid souls of MSF, an organization I am proud to support.

In Conakry, I saw a gigantic Kapok tree rising above white tents, red mesh, and blue tarps, standing majestically over MSF's Ebola center like a shepherd watching over a flock (left photo). As we entered, Babacar and I paused to watch two teary-eyed MSF workers caressing a tiny girl with gaunt legs like pool cues sticking out of threadbare clothes. She sat on a plastic seat and tapped her bare feet at the edge of a chair on which lay a tattered stuffed animal in a plastic bag, perhaps her sole possession. She was being discharged, an elfin child who defied Ebola and survived. Seeing her made my heart soar.

L-R: Drs. Carlos Cortes (UNDP Guinea), Saliou Sow (faculty member at Donka Hospital), myself, and Babacar Ndoye

Babacar (left photo) and I met with the Guinean Minister of Health Dr. Rémy Lamah to present our recommendations and proposals on Ebola-infected waste. We used our portable projector to show some PowerPoint slides. At the end of the meeting, I could not pull out my adapter plug from the power strip. Even Minister Lamah, a hulking man with mammoth fingers, could not extract the plug. When his appointment secretary entered to announce the next guest, she found the three of us huddled on the floor, Babacar and I holding down the power strip while the Minister yanked repeatedly with his brawny arms. A distinguished looking gentleman walked in. I unplugged the Minister's power strip from the wall and walked out with it while we bid farewell. After 10 more minutes of tugging and heaving in the corridor, his secretary put us out of our misery. It took her all of three seconds to pluck the adaptor plug from the power strip using the edge of her coffee spoon.

That afternoon we were interviewed by UNDP communications. The media release carried our photo (above, right) with an article entitled "The Ebola Killers"—an awkward soubriquet for an avowed pacifist.



After Guinea we flew to Sierra Leone. At Lungi airport, we had the choice of driving to Freetown through a circuitous route lasting more than four hours, or taking a half-hour water taxi ride across the choppy waters of the Sierra Leone River. It was a good thing that the captain (bottom left photo) of the Bai Koroma water taxi invited me to sit beside him. The fresh ocean spray, lovely scenery, and a clear panoramic view of the horizon from the front of the boat kept my vertigo in check.

With the collapse of the tourist industry, many boat captains no longer showed up for work. Some undoubtedly had to care for sick love ones. The Bai Koroma's captain and his crew were among the few that remained to ferry passengers from Lungi Airport/Port Loko District to Freetown. Instead of tourists, he now ferried personnel of aid agencies and international organizations supporting the country's fight against Ebola.

Freetown seen from a hillside with the city skyline, national stadium, ocean, and Mount Aureol barely visible due to the Harmattan, seasonal winds carrying clouds of dust and sand from the Sahara Desert and cloaking the city with a haze

It is easy to fall in love with Sierra Leone—its warm and hospitable people, spectacular panoramas, enticing beaches, magnificent trees like the ancient bunyans and colossal kapok trees with their thick buttresses, and picturesque homes built on slopes like little boxes on hillsides (to quote Malvina Reynolds' satirical song conceived upon seeing "Filipino-town" Daly City).

The Natural Beauty of Sierra Leone

Left: Outcrop of igneous rocks formed deep in the earth some 195 million years ago (part of the Freetown geological complex comprised of layers of gabbro, troctolite, dunite, and anorthosite in gneisses and schists)

Middle: Hibiscus flower in the garden of the UN compound. A red Hibiscus variety (roselle) is made into a sweet, refreshing burgundy-colored drink called “bissap” in parts of West Africa (Labug in Ilonggo).

Right: Colorful agama lizard (circled). These lizards are everywhere in Sierra Leone but they scamper so fast that I only caught two in a photo. This lizard was bobbing its head up and down in a rhythmic dance competing for the attention of a female against another male lizard nearby. Some have bright vermillion heads.

In all three countries, women and children learn to balance burdens on their heads, from baskets of fruit and firewood to water jugs. I marveled at children hurrying sure-footedly over obstacles and rugged terrain without spilling a single drop of water. Like the Philippine Pandanggo sa Ilaw, some traditional West African dances involve balancing objects on their heads while dancing.

On the way to an Ebola Treatment Unit, we passed by a scenic road leading to the Tacugama Chimpanzee Sanctuary. A UN colleague related the story of Bruno, an emaciated baby chimp found tied to a tree in 1988. He became the first of many orphaned chimps rescued by a Sierra Leonean couple of Sri Lankan descent. Bruno proved to be affectionate and intelligent, learning to imitate human characteristics. The sanctuary survived nearby bombings and raids by soldiers during the 11-year civil war. In 2006, some chimps learned to open locks and 31 chimps including Bruno escaped. The apes panicked when they stumbled upon five equally terrified men, one of whom was killed by Bruno. Since then, camera traps seemed to show Bruno with wild chimps in the Western Area Forest ... probably scheming with Caesar, Cornelius, and movie director Matt Reeves on the movie sequel.

Pinoy Sightings

I met four Filipinos during my trip to West Africa.

After a busy morning last November, my colleagues and I had lunch at a Lebanese restaurant in Monrovia, Liberia. Two people behind the counter preparing the chicken Shawarma kept looking at me. I came closer and saw that they were Filipinos, Roman Tuzon and Gerald Aguilar (left photo). They had been in Liberia for four years. They said there were hundreds of Filipinos in the country and they were all scared.

I also met Herlynn Alfonso (no photo), a human resources specialist with the UN in New York who volunteered to work in Liberia. She stayed at the modest hotel that I was in. It turns out her cousins run the Filipino store near my office in California.

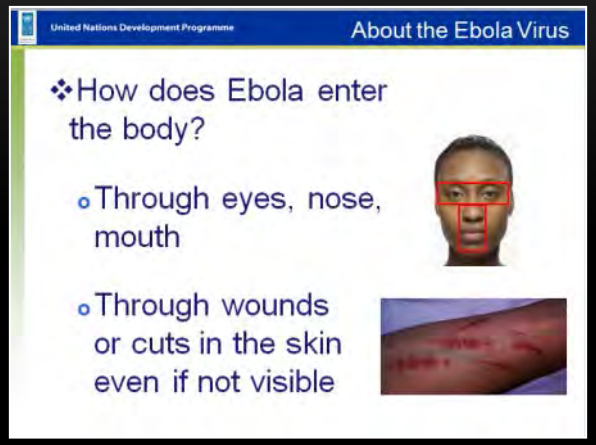
In Freetown, I met a Filipino nurse at the UN clinic, Ronel Maban. Both he and his wife, also a nurse, volunteered to work in Sierra Leone.

A small fruit and vegetable market in Freetown, Sierra Leone

Lumley Beach, Freetown, Sierra Leone

The Sierra Leone economy is at a standstill, disastrous for a country that had one of the highest GDP growth rates in the world in 2013. I often wondered how people survived.

Our small hotel was near Lumley Beach. A reviewer in tripadvisor.com called Lumley Beach “one of the best beaches in the world.” “Nothing like an ocean breeze and friendly locals to make you feel at home,” wrote another. “Overcrowded … famous for late night clubs, parties and food.” Unfortunately, the whole time we were there the famous Lumley Beach was all but deserted.



We conducted a lot of training to the clinical staff and workers at Ebola Treatment Units. We also trained local UN staff on how to protect themselves from Ebola.

Here I am using black light to show how John (to my right) and Iluminate (woman next to him) have invisible fluorescent powder (harmless) on their faces. Just before the training session, I secretly put invisible fluorescent powder on my pen and got the powder into their hands by pretending that I needed to get their cell phone numbers. When I got to the part in my presentation about the importance of washing hands, I asked them to come up. The black light showed how quickly they transferred the powder to their noses and mouths – which is one way Ebola gets into the body. I used the same technique when training clinical staff and waste workers of the Ebola Treatment Units. It always got a good laugh and broke the ice.

The slide on the right is a simplified version of Ebola transmission that I use for the waste workers and cleaners.

PHOTOS OF THE TRAINING

Left: Explaining how long Ebola survives in the environment

Right: Training nurses and nursing aides

Left: Training doctors, nurses, nurses' aides, waste workers, and cleaning staff on the proper way to remove personal protection equipment (body suits, gloves, goggles, etc.) is a matter of life or death

When I mentioned that I was from the Philippines, participants expressed sorrow for the victims of typhoon Ruby (Hagupit). I found it touching that people facing one tragedy could feel deep sympathy for people facing another. Later, one participant told me "Maria Clara" was one of his favorite Filipino soap operas (which air in Sierra Leone!).

We installed the first medical waste treatment autoclave at the Ebola Treatment Unit of a military hospital in Sierra Leone. The command hierarchy in a military hospital made work easier. For example, since many businesses had collapsed or shut down due to the Ebola crisis, it was difficult to find a forklift to move equipment. But in a military hospital, all I had to do was find the highest ranking officer around and in a matter of minutes we had enough human power to move things. It also helped that my colleague, Babacar, is a retired colonel in the Senegalese Army. Notice that most of the helping hands came from military doctors and nurses still in their scrubs and hospital uniforms.

The managing director of Medi-Clave Johann, seen in the left photo with his back to the camera, referred to this as my Michael Jackson phase because of my single gloved hand. Earlier that morning I had singed the tip of my finger while trying to rush the welding of a metal piece. I kept the burn protected with a glove … minus the Michael Jackson sequins.

Heroes of Sierra Leone: Dr. Sheik Umarr Khan was a recognized expert in hemorrhagic fevers. Despite telling the BBC that he feared for his life, he continued to work tirelessly, treating over 100 Ebola patients at Kenema Government Hospital before he himself contracted the disease. Nurse Mbalu Fonnie ("Aunty Mbalu") was the head nurse for 25 years at Kenema Hospital which quickly overflowed with the first Ebola patients. Having survived Lassa hemorrhagic fever, she knew the risks of caring for patients with only gloves and a gown, the only protective equipment available then. Nurse Alice Kovoma was helping Aunty Mbalu when she too succumbed to Ebola. Dr. Modupeh Cole, a doctor known for opposing government corruption, treated Ebola patients at Connaught Hospital. He and Dr. Sahr Rogers became the second and third doctors to die – a tragedy in a country with only 95 doctors and 991 nurses (2 doctors and 17 nurses for every 100,000 people, compared to 115 doctors and 612 nurses per 100,000 Filipinos, or 245 doctors and 981 nurses per 100,000 in the U.S.). Dr. Khan and nurses Fonnie and Kovoma were co-authors of a major scientific paper about the Ebola outbreak published last September after their deaths.

Sierra Leone's Deputy Health Minister Madina Rahman agreed to meet us at an Ebola Treatment Unit that was under construction. She was already there when we arrived, meeting with various delegations, talking to the media, and inspecting the facility. To escape the heat, we sat in a storage room as we awaited the deputy minister and her entourage. My colleagues were engrossed in their emails as workers trudged in and out with medical supplies. Someone walked in and smiled at us. I smiled back and continued working on my computer. After a long while, the woman asked if she could be of help. "We are waiting to see the deputy minister," we replied. I turned to my colleagues and asked if anyone knew her name. The woman chuckled and announced that *she* was the deputy minister. Despite our embarrassment, we found the situation humorous and the deputy minister laughed with us.

Above, left to right: Jason (UNDP), Johann (Medi-Clave managing director who did the installation himself), my colleague Babacar, unknown, Minister Rahman, me explaining the treatment system, Lesley (UNDP Communications) filming the meeting.

Left – photo of the hospital in Freetown where we did most of our work.

Right – flier taped on a window of the hospital honoring one of their nurses who died of Ebola.

Photos taken by UN staff of my colleague Dr. Babacar Ndoye and me before entering the red zone.

Putting on personal protective equipment (PPE) is a long laborious procedure that requires being paired with a trained health worker who assists in the process. PPE includes scrubs, boots, full body suits, double or triple gloves, face masks, goggles or face shields, hood, and a liquid-resistant apron.

We explained to the staff that the face shield should go inside the hood but it took us another day working with them to figure out how to fit the shield inside the hood. Eye goggles are better but they often fog up making it difficult to see what you are doing. The hood, face mask, and face shield often made it difficult for me to hear and be heard.

Some Ebola Treatment Units write your name on your sleeve otherwise you do not know who you are talking too. That is me on the right having a discussion with one of the clinicians. I think that is Babacar on the left because of the way he stands.

We were talking next to the mortuary which was behind me. Notice the stretcher used to carry deceased patients lying between us. The stretcher was extremely dangerous. At the moment a patient dies, he or she has the highest levels of Ebola virus in the body and is highly infectious. Ebola is transmitted by contact with body fluids, not only blood and vomit but even urine, sweat, breast milk, and tears.

Safe burials are a challenge in a region of the world where funeral rites involve touching and kissing the deceased, and ritual washing of the body. The patients who have died must be placed in double body bags sprayed with bleach and handled only by trained burial workers covered in full body suits. These workers face the highest risk.

One time when I was in the high risk (red) zone, I brought my waterproof camera which was later disinfected by soaking in bleach. I also wiped it with alcohol for good measure.

I remember that day because they had brought in a young boy, about 10 years old. His tests confirmed he had Ebola. I could sense fear in his eyes as he stared at the intravenous line on his hand. All I could think to do was wave and wiggle my fingers in a playful way and to say that he will be cared for. I tried to smile but he would not have seen beneath my face mask.

I was careful not to take photos of patients to respect their privacy ... except in the one photo above. I was documenting how the mattresses were being decontaminated and did not realize that in the far background were patients sunning themselves. I talked to them afterwards and found out that they had recovered and were waiting to be discharged. We exchanged “thumbs up” signs. I hope the scared little boy will be like them too, a survivor.

Within 10 minutes of donning a body suit in the hot weather, I found myself thoroughly drenched in sweat from head to toe. Even local health workers used to the heat came dripping out of their suits (see nurse, center photo). However I was so focused on work that I managed to ignore any physical discomfort as well as my slight claustrophobia. In fact the only thing that bothered me was the oversized boots. I'm not referring to fashion sense, of which I have none, but to my inability to walk fast.

Removing Ebola-contaminated personal protective equipment is a slow and dangerous process, beginning with being sprayed from top to the bottom of the boots in 0.5% hypochlorite solution (left photo). The chlorine spray stings the eyes and makes it hard to breathe. After removing the apron, the next step is to stand in a tub of hypochlorite solution while soaking the gloved hands in a disinfecting basin for 3 minutes (right photo). Then comes a complicated process of slowly peeling off each layer in a prescribed manner. Despite having taught this process many times, I was grateful to my paired observer standing outside the decontamination tent and shouting out instructions.

Boots, gloves, and aprons were hung to dry in the sun after washing and soaking in disinfectant solution. My theoretical calculations suggested that 90% of Ebola dies in only 1-1/2 hours under the West African sun at noon based on solar radiation data for the first half of November.

One of the saddest days of the mission ... on this one day, five Ebola patients in the hospital died. Red Cross/Red Crescent was in charge of safe burial. Their staff prepared burial sites, acted as pallbearers, and took care of lowering coffins or body bags into graves or crematories. The left photo shows them suiting up with full body suits while waiting for the deceased to be brought out of the Ebola Treatment Unit (blue tarp area to the right).

The second photo shows them spraying the outside of a casket with hypochlorite solution to safeguard the pallbearers. Only one of the five families could afford a casket.

A Christian pastor said some prayers in a low doleful tone and led the congregation in a hymn. In the silence that followed I could hear the crunching of boots on the gravel. The first deceased to be brought out was a 33-year old man, a fact I would not have known if I had not glanced at his tomb marker which one family member was carrying. As soon as the white body bag came into view, there rose a collective wail that broke my heart. The burial team placed the shrouded body in the casket. No one was allowed to go near. The mother and siblings were distraught. Shortly after I took the photo, the mother (you can barely see her black hat at front and center of the crowd) tried to go to the casket but she was not permitted on the gravel pavement. She gave a mournful cry and collapsed to the ground. Everyone cried. Imagine the sorrow of a mother who cannot touch or even see her dead son for the last time, in a country where kissing and touching the body (known as the final “love touch”) is an integral part of the grieving process.

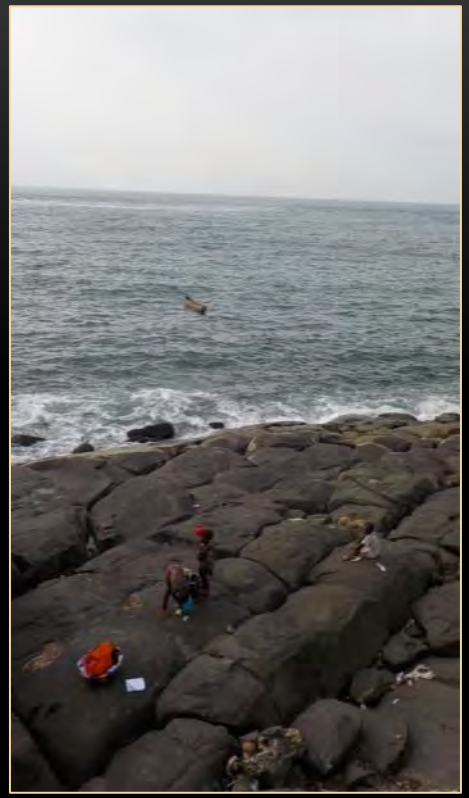
The procedure was repeated four more times: burial teams brought out a white body bag and laid it on the ground, the name of the deceased was quietly announced, friends and family members of the deceased came forward but were told to keep their distance, mourners were given a few minutes to grieve, and then the body bag was placed at the back of the Red Cross/Red Crescent pickup truck (left photo).

After all five bodies were on the rear cargo bed of the pickup truck, the burial team sprayed hypochlorite solution in all spots where the body bags had touched the gravel. The pickup truck led a procession followed first by another Red Cross/Red Crescent vehicle with the burial team in their yellow full body suits. They alone could touch the body bags or casket. The right photo shows the pickup truck with a white tarp covering the bodies as it drove away to the cemetery or crematorium.

I made many friends in Sierra Leone where I spent the most time. One way I did it was by learning a little Creole (Krio), the local dialect. The hospital staff were appreciative when I greeted them in Krio. The man in uniform is Dewar, an ambulance driver attached to the military hospital. We became friends when I first tried my Krio on him. We would chat during breaks after he got out of decontamination. He mentioned that his grandson had the same name as my last name.

Ambulance drivers have one of the most dangerous jobs and many have died. Dewar said his most difficult day was when he was inside a full body suit from 6 in the morning to midnight picking up patients and driving great distances. A photo of his ambulance is shown above. In my book, he and the other ambulance drivers are high in the ranks of heroes in the struggle against Ebola.

On my last day, he brought his grandson Emmanuel to meet me. It was one of two times I violated the “no physical contact” rule. “I am four years old,” Emmanuel said in his tiny voice when I asked him his age. I plan to bring him a little toy when I see him again.



One Sunday, Babacar and I decided to explore the small urban poor community next to our hotel. There must have been 30 families crammed along the narrow pathway that led to the ocean. One had to maneuver between the uneven path and the canal that carried the raw sewage out to the shoreline.

We were met by neighborhood children eager to show Babacar and me the crabs they had caught. Older siblings were busy boiling the tiny crabs for their lunch. Simon (left, with the white shirt and necklace) became our tour guide. He grabbed my hand and took us, along with his little brother, to the rooftop of his home, which was the last house facing the shore. Looking down we saw children playing and bathing among the dark crags. Balancing precariously at every step on the way down, Babacar and I feared for Simon's brother, but the two of them skipped nimbly down with complete ease. We found out later that he was Guinean so Babacar conversed with his father in French. "I am your friend," Simon said as we parted. It was a simple reminder of why I served in the Ebola-ravaged countries of West Africa and why I will return in February 2015.

Liberia, Guinea, and Sierra Leone have cancelled all Christmas and New Year festivities

- All festivities have been halted to avoid large gatherings. All shops and markets were ordered closed.
- Northern Sierra Leone, the current epicenter of the epidemic, is under complete lockdown for five days.
- One town alone in Sierra Leone has 1,455 Ebola orphans.
- As of December 24, a total of 19,497 confirmed and suspected cases have been reported, including 570 doctors, nurses and other health workers.

If you can donate to the Ebola efforts,
I recommend at least one organization to support:
Médecins Sans Frontières (MSF) or Doctors Without Borders.
http://www.msf.org/about-msf
http://www.doctorswithoutborders.org