

**International Clerkship Summary of Experience
Mulago Hospital-Makerere University, Kampala, Uganda
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for the record, i wrote these entries for my blog.

living situation

i'm living in the edge house on the makarere campus in kampala, uganda. it primarily houses multinational medical students rotating at mulago hospital (which is associated w/ makarere university). there's about 15 of us in the house. we hail from the US, UK, germany, belgium, and the netherlands. needless, to say, interacting with these europeans has been an experience in and of itself, which i'll address later. here are a few notables about the house, in bullet format.

- i really enjoy living here, despite the absence of usual comforts
- living on campus feels so safe compared to other areas of the city
- only cold showers w/ very limited water pressure
- mice/cockroaches in our food drawers - i've had to throw away several items d/t the mouse
- obviously no a/c - some nights i'm perspiring in bed
- very poor lighting - there is electricity, but there might be only six dim light bulbs in the whole house
- no internet access
- a tv with one channel; the shows here are interesting, as they are usually foreign w/ hiatuses every 10 seconds for the lugandan translation. it is definitely not ideal.
- a monkey lives near us, raids our garbage can, and occasionally invites himself into our personal space to take food
- he's taken bananas right off our fridge; we haven't befriended him though - we'll try to shoo him off and he'll bare his fangs and feign lurching/jumping at us; i don't want rabies, so i'm staying away
- we usually sit outside on the porch together at night, as it is usually 10 degrees hotter inside. this means we're subject to anopheles mosquitos and dark





multinational students/friends

one of the absolute top highlights of this trip has been the opportunity to meet and regularly interact w/ these primarily european friends. i expected to learn more about africa, but i've really enjoyed learning more about life in europe - especially as it is different from life in the US. some notables are below.

- about 95% of european boys grow up playing soccer. alternative sports are handball and rugby. basketball, baseball, and american football (our most popular sports in the US) are an absolute rarity. this, of course, also explains why professional soccer is so much more popular in europe. we've already watched two champions league games. most girls are also interested in professional soccer and can name many of the players on their city's team.

- in belgium, at least, the church is dead. i get the sense it is very similar in the other countries represented here. one priest may preach at/manage 10-12 different church communities and very, very few of the pews are filled. among people my age group, you are in the extreme, extreme my minority if you are a christian who goes to church on sundays. most people call themselves christians because they were baptized/completed (i'm forgetting the word, but the the event that occurs for teenage christians after completing classes). however, they profess agnosticism or atheism. none of the europeans in the house profess any other faith.

- it is unheard of for a guy who asks out a girl to pay for her meal. i explained that usually the "asking" guy will pay for 5-10 dates before the couple begins splitting the bill. there reasons harken back to a greater appreciation for feminist ideals.

- i've met several swedes here and they love socialism. they also cherish the ideal of equality and are taught to never consider themselves better than another, no matter what a person's standing in society/vocation. the topic arose because Nile River Explorer's motto/slogan was "probably the best rafting in the world." we noted that in America, a company would claim they were the best w/out a second thought. the swedes said the modesty of the statement was standard for them.

- i met about eight germans on this trip. seven of them smoked. only one other non-german european i met smoked.





kampala

kampala is clearly a city in the developing world. however, it is vibrant, very safe (compared to other African cities like kinshasa, nairobi [nai-robbery]. in some areas, it is busier/more crowded than any city i've ever been to, including new york and chicago. transportation is by walking, boda-boda (riding on the back of a motorcycle [extremely dangerous and i never do it]), matatu (15 passenger van equivalent to our city buses), and special hire (equivalent to our taxi). matatus are somehow independently operated and they fight for passengers, so i'll often see "collectors" quarreling among each other for patrons.

- very dusty

- hot - i'm sweating pretty much everytime i walk outside; not unbearable though

- people selling anything/everything on the street: fruits, underwear, sandals, belts, suits, dress shoes

- the wireless network is surprisingly good here - you have generally good coverage everywhere in the city, though i have had a fair number of dropped calls. i also don't mind pre-paying for my minutes, which most people do here. having phone plans is a rarity.

- generally very nice people

- whites are called "mizungus"- you here this often as you're walking down the street as the locals usually want your business, whatever type it may be

- in certain areas of kampala, you have to be very concerned about being pickpocketed. it happened to my german friend and i saw it almost happen to my belgian friend. we were in a narrow space and a younger man tried to open her personal bag. it happened during midday and was just outrageously egregious.



food

generally speaking, the local cuisine leaves a lot to be desired. standard foods are posho (cream of wheat that is much more solid than liquid), matoke (mashed, green plantain), ground nut (tastes like peanut butter but more liquidy) sauce over rice, beans over rice, casava (similar to potatoes/yuca), and yams. the meats are usually chicken, beef, chicken/beef liver. kampala has a surprising amount of foreign restaurants that are quite good. it is particularly known for its indian cuisine (as indians were a fixture in uganda before being exiled by idi amin in the 70s).

- the local markets are excellent - i can buy a slice of jackfruit for 10 cents, a mango for 50 cents, a whole pineapple for a dollar, 6 apple-pears for 50 cents, and 12-15 small bananas for a dollar

- one of the menu options at most restaurants is all-food, which means you get all the standard foods

- an average ugandan lunch here costs \$1.50 - \$2.00

- eating out costs anywhere from \$3 - \$15

mulago

background

mulago hospital is associated w/ makarere university, a partnering university of the u of minnesota. mulago is the national hospital and the tertiary referral center for the country. broadly speaking, i would liken mulago to hcmc. it receives more of an indigent patient population. many of the staff doctors are extremely well-qualified. it is lacking funds, though much more so than hcmc. and there are a surplus of patients. of course, it is different in many other ways that i'll detail below.

from what i'd heard from the locals, a sick patient w/ options/money, would do best to avoid mulago. there were several other private clinics/hospitals that had much nicer facilities and reportedly provided better care. the europeans who lived there went to the private clinics. in some respects i very strongly agree w/ the local sentiment. in others respects, however, i felt mulago provided excellent care. for instance, cancer patients received relatively standard regimens on a timely basis. sometimes cheaper/more toxic drugs were substituted for gold standard ones, but generally speaking, oncological care was near the standard of care.



unfamiliar diseases

i was surprised by the severity and variety of diseases i encountered in only 3.5 weeks at mulago. i'll list and discuss these below.

- kaposi's sarcoma. given that ostensibly 80% of the hospitalized patients had HIV, this was a very common disease. its clinical presentation was most remarkable for massive nodular lesions (that presented first on the feet), woody induration of the skin, and an extraordinary amount of edema. i'd never seen pitting edema up to the axilla/pectoral muscle. some patients had ocular kaposi. some had pulmonary kaposi. they were usually treated w/ bleomycin and vincristine. the prognosis was actually pretty fair. needless to say, however, many patients suffered from neurotoxicity and i saw a few w/ possible pulmonary fibrosis/heart failure 2/2 bleo.

- burkitt's lymphoma. about half the children in the peds onc ward had this disease. a significant portion of the others had ALL. interestingly, it presents predominantly in the jaw in Africans and in the abdomen in Caucasians. the prognosis is very poor. i will forever remember some of the children i saw on this ward.

- HIV. it presented as potentially everything (like AIDS cholangiopathy) and was the absolute first thing you mentioned in your presentation to the staff - 30M w/ positive serostatus, not on bactrim, not on HAART, last CD4 count ____.

- pulmonary and extrapulmonary tuberculosis. this was universally the second item on the differential. it was generally ruled out by an unremarkable chest x-ray and no b-symptoms. i was exposed to so many patients w/ these nasty, wet, hacking coughs on the ward - i hope i don't convert. i initially wore my n95 mask but was told it was only effective if i used a new one every day.

- malaria. i actually wasn't directly involved in the care of a patient w/ outright malaria, though there were a few on the ID ward. i did care for several patients w/ "partially-treated malaria" who were put on quinine and did better. apparently there was some cerebral malaria on the ward as well.

- tetanus. i saw two patients w/ tetanus and saw one w/ active opisthotonic spasms. i can't say i saw the classic risus sardonicus but the trismus was definitely present. it seems like an absolutely awful disease. spasms seem to last on the order of 1+week even on treatment. prognosis was maybe 50/50 but depended most on what stage a patient presented in when treatment was begun.

- tungiasis. an adolescent presented to us w/ about 50+ jiggers (fleas) in each foot. they probably live in the dermis, they're about 1 cm by 1 cm. treatment is surgical extraction. it is highly endemic in tropical africa and is extremely infectious.

- cryptococcal meningitis (CCM). ostensibly 40% of the patients on the id ward presented w/ a meningitic picture and CCM was easily the most common cause. i'd never seen true neck stiffness until this rotation. "stiff as a board" should be taken literally. the doctors would grab the patient by the back of the head and lift. if the whole body lifted w/ the head, then it was positive. i also saw some true positive kernigs and brudzinskis. unfortunately, prognosis of patients w/ CCM was very poor. i saw only one pt do well. most pts suffered significant cognitive damage s/p the disease and most eventually died. treatment was w/ amphotericin and fluconazole w/ therapeutic lumbar punctures to relieve excess intracranial pressure.

- neurotoxoplasmosis

- conversion d/o. a young adult male had presented w/ altered mental status +/- fever. we ruled out infection/meningitis (i tapped him). his altered mental status persisted however, and psychiatry ultimately saw him and transferred him to their ward. i still clearly remember this man's unresponsiveness and persistent moaning on the wards.

the wards

rounding/the wards/the clinical team etc were all much different at mulago compared to the states. i'll discuss this topically.

the wards - physically. patients basically did not have privacy at mulago. the id ward was essentially three large rooms w/ approximately 15 patients in each room. if you were presenting a patient, you'd use code words like seropositive (for positive HIV). if you needed to examine the genitals/rectum, you'd get a portable curtain. most patients had beds, but some had to sleep on the floor. a mat was provided for patients, but bedding was not. the oncology ward was slightly better.

attendant. this was the patient's caretaker. if the pt didn't have one, she had no one to bring food, bring a change of clothes, or help her use the bathroom. that said, some patients w/out didn't eat, soiled their clothes, and didn't have anything to change into. occasionally, attendants of other patients would "adopt" an attendant-less patient. sometimes, pt's w/out attendants had lazy families who had other priorities than caring for their loved one. more often, however, patient's w/out attendants had literally nobody else in their lives.

lack of usual hospital supplies/amenities. it was not uncommon to run out of basic supplies - like gloves. there was very little lidocaine available, so procedures were usually performed w/out anesthesia (including lumbar punctures and thoracenteses). glucometer strips were only sometimes available, in which case insulin doses were guesses (their RFTs, which are equivalent to our BMP, did not measure glucose; thus the glucometer was the only way to assess sugar control). there was no suction, so patients w/ chest tubes had tubes connected to the open air. there were no bag-valve masks on the wards. there was one oxygen tank that produced a max of 2L/min for about three different services (100+ patients). sadly, the single patient hooked up to oxygen had a very grim prognosis.

dying patients on the ward. mulago did have an icu, but i never saw a single patient transferred there. apparently they had four ventilators and pts had to pay out of pocket to be on them. regardless, pts died on the id ward on almost a daily basis.

teams. on id, there was one intern, one senior resident, and one staff doctor for about 35-45 patients. on oncology, there was one advanced intern and two staff doctors for about 20-30 patients. each team maintained about 3

makarere medical students, whose primary role was to present patients. their presentations did not include an assessment and plan. they rarely participated in the management of the patients and seemed to leave in the early afternoon for class. they were excellent at the physical exam, and used chest percussions, tactile fremitus, shifting dullness on a regular basis.

nurses. the nurses roles were primarily to administer medications. there were so few of them (perhaps one nurse/20 patients) that this was all they had time to do. thus, the physicians drew blood for any labs they wanted. some nursing students were trained by the residents to do complex procedures like lps and paracenteses since the residents simply did not have enough time. nobody had a role to take vitals. if you wanted them, you did them yourself - with the one blood pressure cuff the team had (which sometimes mysteriously disappeared).

rounds. rounds varied. about two days/week, these would occur w/ the attending physician. these were very much like rounds back home w/ medical students and residents presenting patients to the attending. the other three days/week, the senior resident would round w/ the intern. on most days in id, about 1/3 of the patients were simply not evaluated due to the number/complexity/toxicity of patients. the other foreign medical students and i would help by presenting patients, drawing blood, performing lumbar punctures, etc. also, if a patient wasn't in his/her bed at the time the team arrived, he/she was almost never evaluated that day.

work ethic. despite the patient volume, the work ethic, GENERALLY SPEAKING, was relaxed. residents/providers wouldn't begin work until about 9 am, sometimes 830 am. the work day usually wouldn't last past 3-5 pm. on id, the residents worked a little longer - perhaps til 6 sometimes 7. now, on id, the residents were working extremely hard on the job - often they didn't even eat lunch. but they still "called it a day" even when 1/3 of the patients hadn't even been seen. this was a very different experience for me.

one unforgettable patient experience

one patient experience i had highlights some of the differences between patient care in mulago and patient care in the states. we had just finished drawing labs and bringing them to the respective cbc, rft/lft, csf analysis, cryptococcal antigen labs (all different locations). (all labs had to be submitted by 3 pm. it was not unheard of for late labs to be thrown away). when we returned to the ward, we noticed a new patient hooked up to the single oxygen tank on the entire floor. we didn't have time to attend to him immediately, as we needed to remove a chest tube and obtain some CD4 results. on one occasion, his attendant stopped the intern and tried to have us evaluate the patient.

after probably one-two hours after the patient had arrived on the floor, we saw him. he had probably spent several hours before that waiting to be seen in casualty (ie the ED) and another few getting transferred to id. the following is what i remember of his presentation. the pt was 30-40 male, in ARF by his labs. his creatinine was > 10x normal. his potassium was 7.4. he was exhibiting agonal breathing and looked extremely cachectic. his blood pressure was 70/30. we hung fluids. while we were still forming a plan, his breathing worsened even more. though he gasped for breath, he wasn't moving any air at all. i opened his mouth to assess his airway, but my exam was compromised by the lighting. i rushed to get a bag-valve mask. i had to go to casualty, which was downstairs and in an entirely different part of the hospital. in the meantime, there was no code called. the intern and another foreign medical student managed him in the meantime. when i returned w/ the bag-valve mask, the pt was surrounded by a portable curtain (many attendants/patients had gathered to watch the events unfold). he had essentially expired, but we attempted bag-valve masking him anyway. we gave up after about a minute.

i wonder how things might have been different, especially had he been in the states. the patient could have presented earlier, when his disease wasn't as severe. he could have been intubated and ventilated in the ED or at least transferred to the ICU where he could have been intubated and ventilated and then dialyzed. there could have been at least one medical staff (ie a nurse) monitoring him. there could have been more physicians to share the duties of managing the floor (rather than a single intern managing 40+ patients). the necessary supplies could have been available to us immediately (ie > 2LPM oxygen, a bag-valve mask, a pulse oximeter, BiPap etc). i could have performed mouth-mouth breathing. what could have been wasn't, however, and the patient died as a result. now, the pt may have still died had he received optimal medical care, but his care was so suboptimal in so many ways.

last reflections

one of my greatest regrets at mulago was that i didn't do more. certainly, i was a medical student who couldn't make clinical decisions on his own. still, i came in at 9 like most of the others. while i presented one-two patients/day and helped w/ the management of these patients, drew blood, and performed lumbar punctures, i still left between 4 and 6 most days. rarely, i even left earlier. i left with some very sick patients on the ward, some who hadn't even been seen. our examples, the senior residents and attendings, however, also left early. the makarere medical students were gone even earlier. i certainly do not blame the system for my shortcomings; however, it certainly influenced me. and i do believe i have learned from this experience.

excursions

jinja/whitewater rafting

jinja is located at the source of the Nile, ie Lake Victoria. It is only 2 hours from Kampala. I had heard so many reasons not to go on this trip before I scheduled. A girl from our house broke her thumb. Friends had heard of people losing their teeth, dislocating their shoulder, and breaking other bones. Many of the people in our house thought they were going to drown the last time they did it and several said they wouldn't do it again. There was also the risk of getting schistosomiasis - a very undesirable parasite.

That said, so many people told me to do it, and I'm glad I did. There were four grade 5 rapids, four grade 4 rapids, and several other grade 2-3 rapids. We rafted the whole day. There were opportunities to do grade 6 rapids; however, these have areas/caves where you could get stuck while the current keeps you in the cave.

I never felt like I was going to drown, but I think that was due to the fact we didn't flip on two of the longest, scariest-looking rapids. I only lost hold of the raft after flipping once: on that occasion, I sustained a bloody nose, bruised knee, and an "almost-ripped-off thumbnail." The rapid just has its way with you once you're in it unanchored.



the initial part of the rapid





we temporarily thought we were good. and then...



this pic.

... we were suddenly relaunched. you can see my leg in



this was the rapid i am so glad we did not flip in. it was about 70 meters of this. my friends who felt like they were going to drown flipped in the first 10 meters.

sipi falls

sipi falls was located about an hour from mbale, which is on the eastern side of uganda, just across the border from kenya. this place was beautiful, peaceful, cool (d/t the elevation), and relaxing. i went w/ three other belgium girls. the whole weekend trip cost us only \$50, including transportation, food, and a saturday guide around the falls.



murchison falls

murchison falls national park is in the western part of uganda, close to the DRC. it is generally considered the best national park for safaris. tourists hope to see the big five: elephants, giraffes, water buffalo, lions, and leopards. we missed the leopard but saw everything else. on the way to murchison, we stopped at the ziwa rhino sanctuary, and saw some white rhinos. apparently, rhinoceroses are near extinction, so those at the sanctuary were guarded 24/7. on our boat ride up the Nile river, we saw tons of hippos and a few crocodiles. the falls were quite remarkable as the 100+ meter wide Nile narrows down to 7 meters and drops about 30-40 meters.



miscellaneous

dairy: while i enjoyed nearly every other foodstuff in uganda, i particularly disliked the dairy. you name it, the cheese, yogurt, and milk all left a lot to be desired.

favorite foods: i acquired a few new favorite foods and reacquainted myself w/ some old ones. - banana chips and fried plantain.

- pork. pork is one of uganda's favorite foods. the locals season their pork just right, throw several pieces on a skewer, and cook it over a grill right on the streets.

- chapati. this is basically a thicker, slightly more greasy, more flavorful tortilla. it is so good. you can eat it w/ just about anything. i had it alone, w/ pbj, w/ eggs, and w/ guacamole.

- rolex. this is a chapati w/ a thin omelet rolled inside. it is amazing. stands would open up in wandegeya (our village w/in the city) in the evening and operate until the wee hours of the morning.

food market: uganda has markets for everything: crafts, miscellaneous items, fruit, etc. the most remarkable market type, in my experience, was the food market. here, mainly women prepare meals in this open air building. there are probably 20 tables w/ a one-two woman team serving food together at each (table). they serve the standard ugandan entrees.

the people: arguably moreso than in the us, the people are very friendly and very welcoming. and some of them always seem to be smiling and laughing.