I spent 4 weeks in Mumbai, India in a variety of clinical settings. I had the opportunity to spend time in a hospital, a clinic in the slums, and an orphanage. I began my rotation in Jupiter Hospital, a private hospital in Thane, doing a combination of MICU/PICU/NICU. In the MICU, patients had organophosphate poisoning (suicide attempts are common with these as they are easily accessible), TB meningitis, and Dengue fever. Another very common problem seen in the ICU is head and neck cancer, especially given the prevalence of chewing tobacco. I had a patient with tongue cancer, who had received radiation and was awaiting resection. Jupiter is a very modern hospital with lots of resources. They had a problem with MRSA and resistant Pseudomonas, but with rigorous hand washing and protective equipment protocol, they have effectively eradicated nosocomial infections.

The most common things seen in the PICU/NICU are malaria, dengue, burns, complicated pneumonia, and trauma from accidents. I saw a 1.5 year old with foreign body aspiration with a super infected pneumonia, a 10 year old with mumps, 2 month old with respiratory distress and fever, a boy with significant epidural hematoma with midline shift and 3rd nerve involvement, and a boy recovering from an MVA. In the NICU, I had a 26 week preemie and a low birth weight c/s baby. The NICU is just as modern as ours in the US, with ventilators and isolets. Hospitals that do not have the resources of Jupiter still have interventions they use with premature infants. They use a thermal box, which basically keeps the baby warm but not much else. While this intervention does not have the same rate of success, it is successful more often than not. What seems to be most prohibitive in having an ICU for pediatric patients is the cost. The cost for pediatric equipment is significantly more expensive than adult equipment, because adult equipment can be mass produced whereas pediatric equipment is less in demand so manufacturers don't make or sell them in bulk.

I also spent time at Ashray, which is an orphanage for children affected or afflicted with HIV. Ashray is one of several projects of an NGO called Committed Communities Development Trust (CCDT). Their projects focus on prevention and intervention of children and families affected by HIV and community health and development. While visiting Ashray, I met a social worker from another project, Project Roshni, which works with commercial sex workers. Ashray is also a housing center for women in crisis and the social worker was trying to get one of her clients to come there. In addition to helping these women stabilize their lives acutely, Ashray provides them with an alternate trade. The women make crafts and all profits from their sales go into individual accounts so they can establish a savings and they can reintegrate into society.

Ashray houses 50 children currently, about 1/2 of who have HIV. Dr. Lala, the pediatrician who specializes in HIV, came to work with Ashray about 2 years ago. She explained that previously, there was no screening mechanism in place for children born to known positive mothers, as there were neither guidelines for prevention of mother to child transmission, nor any infrastructure in place if a child did test positive. It would be unethical to test a patient, who was found to be positive, if there was no medication available to treat. As she was able to get the government to pay for combination anti-retroviral therapy and could initiate a screening program, she encountered new problems. The children are receiving basic healthcare and nutrition which they would not have otherwise received, and are thriving as a result. As children with HIV receive treatment, they are living longer. However, the parents either cannot provide for these children or have succumbed to their own illnesses. So, the question arises: If we are treating these patients as we should and they are growing and thriving without a place to go when they are no longer children, what is to become of them? Ashray has worked to provide education and vocational training for the children who come to them. They help give them tools and support so that they can reintegrate into society. Often Ashray gets children whose parents cannot care for them. I participated in the initial consult of an 11 year old boy who was brought by his father. His mother had passed away from HIV 5 years ago and the child was also infected. The father and child were seen at a local hospital for TB treatment and at

the time the hospital recommended that the child be placed at Ashray, as the father was unable to care for the child appropriately and the benefit he would receive at Ashray would be immense.

I was able to interact with the kids and saw some of the true success stories of Ashray. I met a boy who came in to Ashray with a CD4 count of 24. With ART and comprehensive care, he now looks like a typical, happy kid. He is doing well in school, plays with the other kids, developing. We also met Tushar, a boy Dr. Lala said she didn't think would survive he was so sick when he came to Ashray. He has been doing extremely well, and the other kids call him dada (which means big brother). The Make a Wish Foundation recently granted his wish to go on an airplane and he and 3 of his friends from Ashray flew to Delhi for a day. When Dr. Lala asked him about it, he got a huge smile on his face. At his initial assessment, he was not able to speak, but now he talks in sentences, draws (he drew a great picture of the airplane), and is generally happy. Jasmine is an infected girl who previously lived at Ashray but has since been living with her brother in the community. He is not infected, goes to college, and has been taking great care of her. She still comes to Ashray to see Dr. Lala for checkups and get her counts checked, but has overall been doing very well.

In addition to the children in the orphanage, I saw children from the community affected or afflicted with HIV. I saw 1 family with 3 children, both the mother and father were positive. All the children were severely malnourished, but the youngest so delayed that she was at the growth and development of a 6 month old (she was actually 18 months old). Additionally, she was receiving treatment for TB and had generalized scabies. She was likely co-infected with HIV, though she had not had appropriate testing, so it hasn't been confirmed. Dr. Lala explained that the mother to child transmission rate of HIV is 35-40% in India (in the US with no intervention it is about 20%, with intervention less than 3%). This mother was tested at 8 months into pregnancy and was negative at that time, though the father was known to be positive at that time. The mother was likely in the window period, as she was later found to be positive. The mother was not re-tested at birth, delivered vaginally, not counseled about the risk of transmission, nor advised on avoidance of breast feeding/mixed feeding. In India, especially the population of women that we were seeing, avoiding breast feeding is not feasible, given the water quality and the rate of malnutrition. If not breast fed, children would likely die of other infections (1.5 million children a year die if not breast fed vs 500,000 from HIV) so the benefit of breast feeding outweighs the risk of transmission. What should be recommended instead is exclusive breast feeding, as opposed to mixed breast/bottle/food, as this can cause an inflammatory reaction in the gut and make transmission much more likely. However, this counseling was also not done for this patient and all possible transmission risk factors that could have been avoided were not. Unfortunately, this is typical, even in the big cities of India.

I helped to set up a database to computerize the medical records of the kids at Ashray. I was able to read through all the "charts" and input whatever data was available. It is incredible what information is not available, including birthdate and in some cases even the child's age. Often parents do not remember when their kids were born or with Ashray kids no parent is around to tell us. Some of the kids even had different names on their labs throughout the chart. Hopefully, now there will be some consistency and things can be entered directly into the computer with all the information in 1 place.

I also did a clinic in the Deonar slum in the Babanaji area. This slum is in the biggest dumping ground in the Mumbai area and what looks like mountains from a distance is actually heaps of garbage. The garbage is how most of the people who live there make their living. They sort through the garbage and collect anything they can turn around and sell: plastic bottles, rubber, metal, lightbulb filaments, paper. I worked with a fledgling NGO called Doctors for You. The doctor who runs this group is a Preventive and Social Medicine doctor who is interested in community health and disaster relief. He has been involved with flood relief in Bihar and is trying to set up a health center there. He is also hoping to set up health

centers in the slum areas of Mumbai as his next project. I saw about 200 children over 2 days. Most had abdominal pain, diarrhea, cough and cold, nutritional deficiencies, or worms. Some of the biggest issues we faced were in education of the patient and family. We also had to deal with resistance of the parents to use western medicine in favor of faith healers and herbal medication. I had a 3 year old boy with a 3rd degree burn on his arm. The burn occurred 1 month ago, but the parents never sought medical advice. They chose to treat the child with traditional medicine, tumeric powder. When I saw him, the burn had never been properly cleaned and was likely infected. I told them they needed to take the child to the government hospital nearby, as the medication we had at the clinic was not sufficient. They did not go, but came back to the clinic the following day hoping for a different answer. We had to again refer them to the hospital.

Apnalaya, the youth center we worked with for this clinic, has several social workers working with the slum community. They talked a lot about the importance of building rapport with this population especially, since it is so hard for them to understand what we tell them. They are trying to promote education and instill changes in the community, but of course change comes slowly. They did give an optimistic example. TB has been a big problem in India and there have been steps taken to help this, especially with medication compliance. There are DOT centers all over and systems set up so that patients can get their meds for the week and someone can go into the slum communities and watch them take their medications. While this seems like a small thing and is of course not getting to everyone, the overall incidence of TB in India has been decreasing.