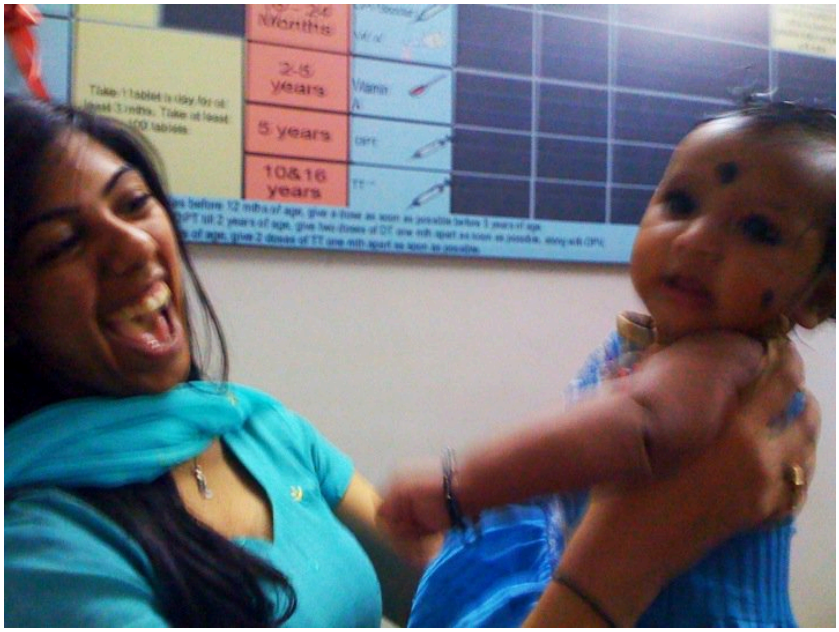
# Blog Series: Kurnool 2011

***Life in Kurnool***
*By Priyanka Pathak*

Dust, doctors, and donkeys. These are the three D's that Kurnool is famous for, and one of the first things Dr. Deepesh Vendoti told us about the city when we arrived there late one night. This is a very apt description that essentially sums up everything about Kurnool, as there is no shortage of any of these around this town! Life here is slow - it's the sort of place where all stores must legally close at 11 pm, rickshaws have routes like buses do, and "city girls" like us can be spotted immediately. Even though our first two weeks have consisted of us frantically trying to balance beginning work with learning everything about our new surroundings, we've somehow managed to settle in, get our bearings, and understand the big role this project will play in this small city.

Our education on the state of health affairs in Kurnool began almost immediately upon our arrival. One would think that a place with a regionally famous medical college would have first-rate healthcare to match, but this is not the case here. In fact, right before our first visit to a government hospital, we were quietly told that if we had any health issues of our own, we were absolutely not to go to that hospital for help - that we should seek one of Deepesh's doctor friends instead. At the time, we didn't realize why...until we actually got there and had to step over a sleeping pig to enter through the dilapidated maternity ward. Our shock didn't end there - as we waited in the pediatric ward to meet with a faculty member, Nadia and I found it difficult to avoid looking back at the eerily quiet children on rickety cots, attached to faded IVs, who never once took their eyes off of us while we were there. The head of pediatrics told us that the crowds of poor families that overflowed from the hallways would eventually leave one by one after realizing that they probably would not get to see a doctor that day, simply because government service was just that slow and unreliable. Nobody cared to come in for vaccinations, he said, when the chance that they would actually get it in a reasonable amount of time was so low.

Contrast these images to the TIKA Center vaccination clinic - a tiny, square, violently pink building located in bustling Old Town Kurnool. Inside, there is brightly colored furniture, a cheerful sign explaining the vaccination schedule, and of course the effervescent Dr. Deepesh, who hugs and plays with every infant that comes into his clinic. It's clear to anyone who enters that here, you are in good hands. On our first visit, we expected only a few children to come as it was a Saturday evening, nearing dusk. We had only opened the doors for a few minutes before the day's first family walked in, a small woman in a yellow sari carrying a two-month old baby girl. Half an hour later, the room was filled with families, all of whom were individually seated at the desk by Deepesh and personally consulted on which vaccines their child needed and why they were so important.




On a more personal note, the warmth of Kurnool's people is not limited to the TIKA center. Everyone that we have met so far, from the local med students to government officials enmeshed in bureaucracy, has been respectful and endlessly hospitable to us. Each meeting is accompanied with tea and snacks (we have been eating quite a bit here...), and almost everyone has offered to help us on a personal level should we ever need anything during our stay in Kurnool. This is due partly to us working with DMF and Deepesh, who is well-liked and well-respected around the city, but it is also enhanced by the fact that we are female and natively Indian - both facts that afford us a more advantageous position, culturally speaking. It even allows us access to more spaces than men, in some cases. For example, we were able to visit with an all-girls nursing school and freely walk the halls of the maternity wards at the hospital. Even the mothers at the TIKA center seem more comfortable with us - they never hesitate to show off their beautiful babies in our presence, and we couldn't be happier about it!

We were pleasantly surprised to find that we are taken just as seriously as men are everywhere, and that many of the officials and heads of departments that we meet are women as well.

Now that we're settled in, we've been able to create a sort of approximate timeline for implementation. This past week was spent modifying the study design to better fit context and testing the new vaccine module in PatientView, and the next week or two will be spent installing the system and gathering link volunteers, training them, and getting ready to begin sending out volunteers to gather baseline data and simultaneously enroll households into the study. There is a lot of work ahead of us, but we are really excited to kick into gear! Stay tuned for more updates and insights from us as the project moves along.

***Learning about the health system***
*By Nadia Hasham*

During our first rushed week in Kurnool, our first no-so-brief "briefing" was on the health system in India and in the state of Andhra Pradesh. We spent hours studying the rank and file of various VIPs in the national, state, district, and municipal governments, CIA-training style. You could quiz us now, though we're not making any promises. We also learned a considerable amount about health care and specifically care related to vaccination provision, including maternal and child health. All unanimously agreed that, following such an extensive session, combined with our meetings throughout the week, we should be bestowed with Public Health degrees. By the end of the summer, we'll be as good as certified Public Health practitioners - something to look into for us, Medic Mobile?

True to the stereotype, we soon learned of the inflated bureaucracy of the government, which we have become well acquainted with by now. The health sector does not disappoint, living up to its expectations of many levels of leadership within the one portfolio, from the national down to the municipal. We're hurriedly meeting as many relevant government officials as possible in order to gain a holistic understanding of the system and to discover how best our project can complement existing and planned government programs. Working under the DMF-India and TIKA Centre banner has certainly proved invaluable in this respect - being a former Kurnool Medical College Graduate and a locally-known philanthropist, Deepesh (or Sir, as he is often referred to) is well-respected by many in Kurnool, and the government officials are no exception to this. It's not surprising considering that his clinic brings public services to areas the government cannot reach without making it a for-profit venture. By this measure, he's doing the work for the government, which gives us a political opening.

A few key people that we've met include the District Immunization Officer, in charge of vaccinations for Kurnool District (which includes both the urban areas of Kurnool town as well as the surrounding rural areas), those in charge of the government's Integrated Child Development Services (ICDS) that operate centres for mothers and children, and faculty and students at the Kurnool Medical College, all of which are affiliated with the work of the TIKA Centre and therefore our project in some way. We've also had the good fortune of meeting representatives

of international players, including the World Health Organisation Consultant in charge of polio eradication in Kurnool District, as well as UNICEF's Health and Nutrition Specialist in Hyderabad.

A brief note on the current structure of vaccine provision and how our project fits in:
As in any district, the government approaches urban and rural populations differently, with Community Health Centres (CHCs) in urban centres and Rural Health Centres (RHCs) in rural areas. City-dwelling families may receive vaccinations at a government hospital or CHC, or may choose to access a private clinic for a fee. Often the RHCs are the only option for rural populations - community health workers trained in basic health care will set up a different village on a weekly rotating basis. For those who do not visit the centre, a health worker will visit their house. This process, from what we understand, is fairly haphazard and there is no mechanism for health care workers to ensure children are being vaccinated or to keep track of vaccination histories of each child - the parents are entirely responsible. Another challenge faced here is superstitions associated with vaccinations, from disbelief in their effectiveness to rumours of them causing sterility. Of course, the hope is that the educational components of the TIKA Centre that are being promoted by our SMS project will change this.

To understand the specific need for the TIKA Centre, we'll return to the urban setting. Here, we've noticed a very important distinction between urban slum and urban non-slum populations. The TIKA Centre, opportunely situated in the heart of a central slum, aims to bring government-provided vaccines for newborns to "underserved" populations at no cost where the population does not, for many reasons, access government centres to receive them. Underserved segments of society may include any combination of slum-dwellers, Muslim communities, or even urban non-poor and educated families. Vaccinations at the TIKA Centre also include an educational component for the parents on the importance of timely and complete immunization for their children, aimed at giving parents a sense of ownership over the health of their children so that they will seek out appropriate health care and ensure their children are fully immunized. A complete immunization schedule includes receiving all six government provided vaccines within the first year of birth, though this does not take into account another seven or so privately available vaccines at a hefty price. The next step for the TIKA Centre is to provide those vaccines at cost rather than for a profit. On our first day at the Centre, we witnessed one such shot being given - the Centre's inaugural chicken pox vaccine!

Our pilot has the potential to play into these shortcomings of the health system, the lack of knowledge about vaccinations, and the absence of initiative on the part of the parents, in addition to serving as a simple reminder system for those parents who just can't remember what their child's vaccination schedule should be. DMF hopes that this will revolutionize the way families access government health care. Medic Mobile hopes that this will contribute to the discourse on potential uses of mobile technology in health care provision. We (affectionately termed P/N by our Doctor Sahab) hope to take in as much as possible during our short stay here and get the ball rolling on a project we know has great potential in this small town that seems to be growing on us.

***A Few Weeks Later***
*By Priyanka Pathak*

It's difficult to believe that we've been here for five weeks already! Nadia and I thought that only our initial two weeks would be a whirlwind – little did we know that it would simply become part of life here. It's already been an invaluable experience for us both, though, on both professional and personal levels. Nadia and I have taken the interim weeks to prepare for our work - meeting and forming partnerships with local and regional officials, finalizing our study design, hiring and training volunteers, and getting everything in order to launch our enrollment procedures and reminder program.

We were pleasantly surprised by the great deal of interest that has been shown in our work here, especially by those who weren't even ever involved in it. We've been fortunate enough to work with some very helpful representatives from UNICEF, the World Bank, and the WHO to ensure that our study is well designed and able to provide tangible value for the academic and professional communities. Additionally, we have continued holding discussions and gathering feedback about our project details with many district and state health officials who have all expressed support and promised the many resources at their disposal to us. We even went on a field visit to some urban health centers and Anganwadi centers (government child- and mother-care centers) with the Integrated Child Development Services branch, which was both enlightening and inspiring.

A big reason for having to go through the study and make so many changes after our arrival was to address the cultural and technical barriers that we only discovered after we arrived in Kurnool. While the technical problems took a decent amount of time to fix – such as finding a reliable modem and ensuring that each laptop had enough memory and security precautions – they were not so significant that they affected our study design in any way. It was the cultural

issues that took (and will continue to take) the most time and consideration, such as trying to estimate the true extent of mobile literacy in Kurnool, especially for women, and battling common superstitions about vaccinations.
We even encountered a few issues that we had not thought of during the original program design, such as the issue of the accuracy of the child's date of birth, which determines the schedule of reminders. When we enroll mothers-to-be into the study, we will be noting the child's *expected* date of birth, but how could we determine the actual date of birth? We knew we couldn't depend on the enrollees to report the true DOB – there was too much risk of non-reporting. To solve this issue, we included determining the actual date of birth as part of the follow-up phone call for the expected at-birth doses, and added that as part of the protocol.

In addition to all these tasks, we've been getting to know the people of Kurnool very well – even so far as to feel like part of the community here! We've been simply blown away by the sheer amount of generosity and kindness shown to us by every single person around us. From the tea shop lady who showed up at our door with breakfast one morning after expressing concern that we weren't eating enough, to the little neighbor boy who taught us to play cricket, to the med students who volunteered to drive us to Hyderabad themselves if the bandh didn't end in time for our flights – each person we've encountered has treated us more like family than foreigners. Perhaps the one lesson we've learned best so far is that you get back far more than you give here – while we may be trying to help raise immunization rates in Kurnool, Kurnool has already done more for us personally than we could ever have expected.

We don't know how we can ever repay all these kindnesses, but we're trying as hard as we can. The other day, we – along with Brian Wayda of DMF, who visited our project site from Yale - were asked by the principal of Kurnool Medical College to guest lecture on the US and Canadian health systems, which we happily did (in front of a large audience, too!). Additionally, in exchange for getting volunteers from the government nursing school, Nadia Madam and I, Priyanka Madam, have been giving the third-year nursing students English lessons! We've had an absolutely fantastic time with this – every Wednesday and Thursday, we practice conversations, do hilarious skits, and otherwise entertain the students with our funny Western ways.

If everything goes as planned, we'll begin our enrollment procedures and launch the reminder system next week! I'll also get tech-y on everyone and blog about the vaccine module software in more detail next week. We're incredibly excited to watch this project begin, and we'll be sure to keep everyone posted with updates as they happen!

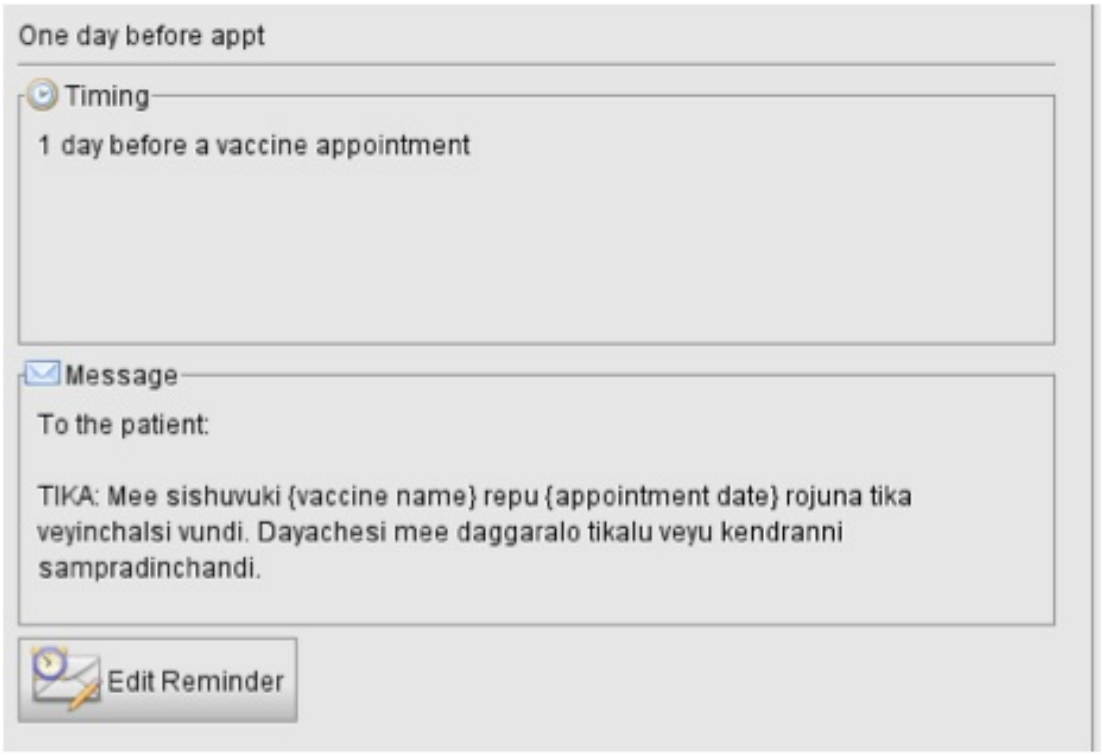
***The Technology Itself***
*By Priyanka Pathak*

It's probably about time we described the setup of the system we've designed for the vaccination reminders. As mentioned before, the system itself is not very complicated – it's the planning, customizing, and implementing part that gets wild. When we were first assigned to the project, Nadia and I (rather naively) couldn't quite figure out why it would take eight weeks or more to implement. What's so hard about installing some software and getting it up and running? It shouldn't take more than a week or two to get it all up and running smoothly, right?

Wrong. Even aside from the study component, which alone took us weeks to get going, the software itself took plenty of care and consideration to effectively customize. The crux of the project – the reminder system – is of course run through FrontlineSMS and Medic's PatientView plugin. Each child that will be born after August 15th will be represented in the system under their mother's name, since most children aren't given names until much later after birth. The actual DOB and gender will be adjusted after the first follow-up call is made two weeks after the EDD (see Nadia's story about asking for a child's gender before birth!!). Since the vaccine module in PatientView is customizable for any vaccine, we built in reminders for the BCG, DPT, Hepatitis B, oral polio, and measles vaccines according to the following schedule, recommended by the Indian government:

| **Age** | **Vaccine** |
|---|---|
| Birth | BCG, OPV0, and HBV0 |
| 6 weeks | DPT1, OPV1, and HVB1 |
| 10 weeks | DPT2, OPV2, and HVB2 |
| 14 weeks | DPT3, OPV3, and HVB3 |
| 9 months | MCV |

SMS reminders are scheduled to be sent out to each patient in the system at one week and one day prior to a scheduled vaccination as well as one week after. Every evening at 8 pm, PatientView will comb through the database of patients and their vaccination appointments and check to see if any reminders need to be sent out to their listed phone numbers. The reminders are configured to take into account missed vaccines, necessary periods of time between doses, and age windows for vaccinations. In addition to these appointment reminder SMS messages, our system sends educational messages regarding vaccinations in general at 3,4,5, and 7 weeks after birth. All messages sent, both the educational ones as well as the reminders, will be in Telugu, transliterated to English.

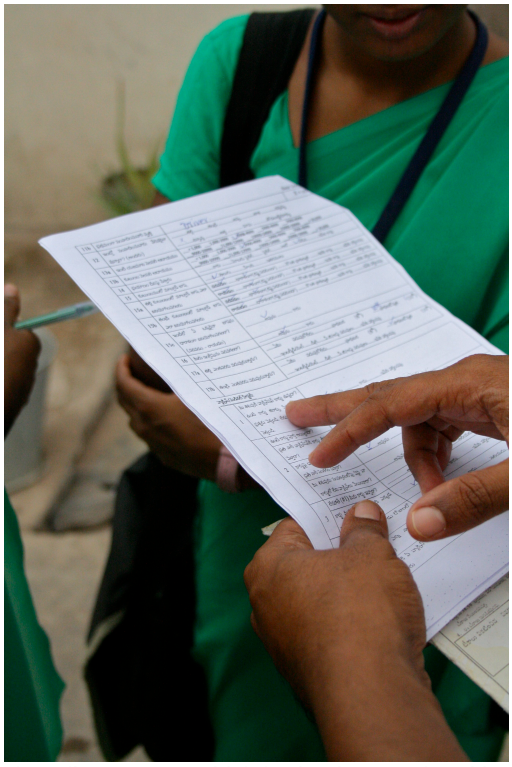



In addition to all these preparations, we also added two new features to PatientView. The first is a Java app that allows anybody to SMS in their child's birthdate (in any date format) and receive back an SMS with a personalized vaccine schedule for the child's first year. The other app is a simple randomizer that allows our enrollment volunteers to SMS in an enrollee's ID and receive back an SMS back with "Group A" or "Group B" (to randomize each patient into one of the two intervention groups). The first app will actually be advertised throughout Kurnool starting this weekend, as we plan on allowing anybody to use it, not just those involved in our study!

In addition to all these considerations, we've faced just about every technical problem imaginable, including (but not limited to) the following: regular power outages, modem compatibility issues, modem sporadically shutting down and later quitting altogether, laptop crashing, problems with each of our backup laptops (we have none left!), the occasional software bug, and of course the entirely separate issue of getting all 20 of our SIM cards, phones, and service/data plans working. Recently, during one of our enrollment days, our modem suddenly stopped working and Nadia and I had to take on FrontlineSMS's role by individually fielding all the text messages sent in by our volunteers!! We manually responded to well over 200 messages that day, using our modem's SIM card. It's been quite an experience, but it makes us all the more proud for having pulled it together.

For the baseline surveys, we used paper forms instead of mobile phones because of the sheer volume of data that needed to be recorded for each household. To collect data for enrollment, though, we opted to use EpiSurveyor on a bunch of Nokia C1-02s that we lent to our enrollment volunteers and trained them to use. We opted out of using FrontlineForms only because we needed to collect far more data from enrollment than would be contained in the patient records, and EpiSurveyor would allow us to collect all our data into a neat little Excel sheet, which we could then condense into a sheet containing only data for the patient records that we could import into PatientView.

On a more non-technical note, one consideration that has been especially significant to our work is the language barrier. As we've said before, Nadia and I are both Indians ourselves who, between the two of us, can communicate in Marathi, Gujarati, Hindi, and a little Urdu. None of these are even remotely similar to Telugu, though, which serves as a huge barrier to accomplishing anything and further complicates ordinarily simple tasks such as describing the location of a ward to volunteers. Our baseline surveys, enrollment forms, and consent forms all also had to be translated into Telugu and even actually written out in Telugu script. Our invaluable fellow DMF associate Murali Krishna translated all these documents for us, though, and he also translated during our training sessions and helped oversee our surveying procedures. We absolutely couldn't have done any of this without him. We're fortunate to have Murali working with us, but future projects, be warned – make sure you can either speak the local language well yourself or at least work with someone who does!



Our baseline survey, which had to be translated into Telugu script

And so, finally, we're very happy to say that after our weeks of work, we have started enrollment and launched the system for mothers who are expected to deliver after August 15th! All the enrolled mothers-to-be will begin getting their scheduled reminders after that date. We still have a week left in Kurnool to ensure things go smoothly, and a lot to take care of HR-wise in that time, but the bulk of our work is done. Next week, we'll wrap up our series of summer blog posts with a look at the future of this project and exciting potential partnerships that it has created.