Innovating in the Health Sector in India

Transcript Begins:

Vikram Patel: This event, a very special guest, Rajani Ved, who will speak about the role that governments can play in encouraging these health care innovations and scale up the plan. The structure of this event is as such. So I'm going to invite each of our four panelists to give opening remarks, which are prepared remarks regarding the work that they are doing. Then we will have an open Q and a and I would really encourage those of you who have any questions, please do use the Q and a box, and we will try and attend as many as we can with the time that's available.

So, let me move on to inviting our first panelists. Dr. Satchit Balsari, who is the principal investigator on the project on task shifting technology and training in healthcare. As an assistant professor in emergency medicine at Harvard medical school and the Beth Israel Deaconess medical center, since 2009, he has been affiliated with the FXP center for health and human rights at Harvard University, where his research has contributed to advocacy on behalf of vulnerable populations affected by disasters and humanitarian crisis. Sachit, welcome.

Sachit Balsari: Thank you Vikram. Thank you, Sandra and Manoj, especially to the Tata trusts, for this very long and sustained support that has helped a lot of researchers, both in India, as well as Harvard to jumpstart the mission, Manoj that you've had outlined. Diving directly into our project -- task-shifting technology and training, I went it back to the launch of the iPhone in 2007, that marked the beginning of the Mnet revolution around the world, the power of the personal computer in the next five years or so after then was set to become extremely portable. And the growing penetration of cell phone coverage allowed the world to imagine a future where mobile devices deployed at the bedside in clinics around the rural developing world would change how, what, who, when and where healthcare would be provided.

Just by billions of dollars invested in this dream. Just by billions of dollars invested in this dream. This was not to be. We received the first pilot Tata trust brand to test a hypothesis, we have developed to examine this question about why there was such rampant pilot, titus. These mnet tools seem to succeed in small targeted communities, but almost never reach scale. The framework was developed to test the successful integration of digital health tools and our hypothesis was that a required three pillars task-shifting technology and training India did not, will not, and need not have the human resources to staff every primary care clinic with an MBBS doctor trained for five and a half years.

The vast majority of ailments that patients come to in clinics anywhere in the world can usually be taken care of by mid-level providers by following standardized protocols. Patients in the United States are routinely given care by nurse practitioners. India has longstanding success with community health workers, chipping away at tasks that were originally the purview of allopathic physicians, heavily contested court cases in Maharashtra have ruled in favor of

community health workers, even giving antibiotics to mothers or children for very specific conditions.

In the early decades of the 21st-century information and mobile technology have the opportunity to accelerate this transition manifold take for example, the protocol for chest pain in a tertiary hospital in New York City. A 40-year-old patient presenting with chest pain with no risk factors is offered two blood tests. The cardiac troponin four hours apart, and two EKGs are 30 hours apart. If all the tests are normal, the patient goes home. Think about the same scenario in primary care clinics, anywhere in the world, especially in resource constraints, settings where either the unfortunate patient, a patient will be given a cushion, a quack, or if they present in front of a registered practitioner, they're likely to be referred to the next higher level of care that can sometimes be as much as, as many as 8 to 12 hours away.

There was no need for this to happen. Troponin is now a point-of-care device that is available at the bedside. EKGs, can be done quarterly and can be read remotely by cardiologists sitting miles away. What does not happen is an overlap in this one diagram of understanding what the real-world needs are, what the standard of care is globally, and what technologies are available that can fill this gap. On the flip side, context is understood. Limited experience with design thinking has precluded, widely deployed digital health platforms... public health screening tools. For example, analog world generating endless pages of radio buttons for community health workers to click through with reams of data generated that do not necessarily see the light of day. Lack of standardization, interoperability, and mandate have generated fast feeds of siloed data across the vertical programs in the global South. And especially in India and exploration we did with some type of trust funds early in this project, we examined the existing data flows in a single and one primary care clinic in Maharashtra. And it showed that there were over 3,800 non distinct data points being collected by community health workers across 171 different forms and registers.

It was in this context that we collaborated with St. John's Research Institute in Bangalore with systematically imagining and building out the ecosystem for integrating technology and task shifting into primary care in India. There was already ambulate evidence that both task shifting and technology failed to sustain their benefits if not accompanied by periodic training and feedback loops. Where we have landed up three years later, including after the pandemic or the first phase of the pandemic is a very different place from where we had intended to go. But the flexibility and the generosity of the Tata Trusts have allowed us to chart the course we took.

In the first year of the grant, we conducted a needs assessment in primary care clinics in urban and rural India through observational studies that our government front of primary care centers in Bangalore, Ahmedabad, Bangalore, it's semi-urban clinics on the outskirts of these cities. And even in the tribal Belgaum in Maharashtra where cell phone penetration or electricity is not reliable around the same time. India announced the Neeti Ayog fund part, the universal health coverage scheme targeting a hundred million households of 500 million people. Information technology was expected to be the engine driving the billions of clinical and financial transactions that would fall, In response at Harvard, we organized a project centered on The

Tata Trust under the India digital health network with representatives and partnerships with folks from the NCD digital platform in India, Ambrit managed by Paramus West. I am techo and good drop and technology partners and entrepreneurs from Iceberg and also in Bangalore before the end of the year, ideation had provided a substantive 60-page response to the Srikrishna commission data protection bill, focusing on the impact of India's data protection laws, and to show healthcare or paper re-imagining health data exchange essentially laid out the blueprint for what was to then follow from Neeti Ayog in the ministries, culminating in the initial and then national digital health mission.

In year two, we began two workstreams, one to start preparing the digital health infrastructure needed to successfully integrate and test these treating combinations in primary care and the other to prepare the regulatory and operational infrastructure required to rapidly iterate and systematically test digital health solutions in a public sector for widespread deployment. Our team evaluated, ready to use open source tools combining Comcare from Dimagi with top works, a bounty platform to show what this interoperability was really going to look like in India. Before we started embarking on this national exchange program. For the second week, for the second workstream, and this is, I think what's exciting and lasting beyond the Tata trust's support to talk about is that we collaborated with NHSRC when Dr. Rajani Ved was still heading it, with Dell technologies with Tata trust, with the government of Karnataka and the government of India to designate 10 newly minted health and wellness centers and Karnataka as digital health innovation hubs to rapidly iterate and test digital tools that were being provided to public sector for widespread deployment.

This was the ecosystem that would allow this vision that Manoj has of entrepreneurs coming up with these grand solutions. But once that did not have the option to be tested in a real-world environment, especially in our clinics, in the public sector. And there was sort of a desperate need, for scientific rigor and a testing environment that did not require permission streams going all the way from the village up to Downey and back, but rapid iterative cycles that allowed both the entrepreneurs as well as the frontline providers to co-develop and co-create these solutions.

In year three, as the pandemic restarted, at three key contributions to the digital health ecosystem in India. The inclusion more specifically, of the term machine-readable and the data protection bill, which lays out the stage for health data to Roper blue T the concept of the personal health record, as opposed to a hospital-based electronic medical record that then becomes the organizing core for India's digital health ecosystem. Finally, the inclusion of regulatory standards in the national digital health mission that allows for a testing environment. For the vision in year three, we finally pivoted because of the pandemic to apply some of these learnings to telemedicine services at St. John's research institution for their patients whose care was interrupted because of COVID through the pandemic. We have also secured permissions from a variety of national and state organizations to move ahead with a cause that experimental study a first product that we will be testing as a non-communicable disease platform developed by the Government of India, and worked out the original intent of the grant was to support the generation of livelihoods and innovative sectors in India. Given the growing acceptance of the private sector solutions plugging into existing public health platforms, largely driven by

technology and interoperability. There is certainly a massive potential for growth here, not just in the small slice of the startup ecosystem in Bangalore, but in the creation of whole new covers of tasks shifted providers augmented by technology.

In 2021, we partnered with a consortium of technology partners to build a pipeline that will feed new apps and digital tools into these digital health innovation houses. And we hope to build and sustain this over the foreseeable 24 to 48 months. Thank you.

Vikram Patel: Thank you very much and it is a fascinating program and I'm sure there'll be questions about this, and I'm particularly interested in the use of the term by the Titus. And I know that others will also want to hear a little bit more about how you see this work progressing in the future. Let me turn now to our second panelist Dr. Rajani Ved. Rajani was most recently the executive director of the national health system resource center which provides technical support to the government of India's national health mission. Her work has focused on linking community processes with health systems and supporting the implementation of comprehensive primary health care.

From what I know, Rajani is joining us today from New Delhi and again, you know, I hope everything with your community of friends and colleagues are, I hope you'll all managing well, as well as can be imagined in this very difficult time. Rajani, can I request you to undo your video and, and please... yes, we can see you now.

Rajani Ved: Thank you very much, Vikram. Well, it's not such a great situation when every 10 minutes you're getting a WhatsApp from friends, family colleagues saying somebody so-and-so is positive from two year old to 25 year olds to 70 year old. So it is a very scary situation, but anyway, to this presentation, so let me just share my screen.

Is this visible, please? Yup. It is. Okay, so my talk today, and it's nothing as granular and exciting as Sachit’s, but it's basically reflecting from my experiences, being at the national health systems resource center, which is a technical support institution to the national health mission, which had a very particular mandate of nurturing innovations in the health system.

So I just have a very few slides. I'm making basically some reflections from what were the key factors to strengthen the innovation ecosystem speaking from experience. So I think one of the first factors that drive innovations in health systems are really health system needs and weak performance indicators. So everybody's in search of a solution that would target high neonatal mortality rates, high maternal mortality rates are poor care seeking behaviors. How do you make the lives of community health workers better, uh, in terms of ensuring that they get the appropriate support and supervision in terms of drug kits, et cetera. So these are really the drivers of innovation from a health systems perspective. The second major learning is that the diversity of context in India, and we are particularly fortunate in this facilitates innovations across multiple contexts, that address similar problems. I shouldn't have said interventions.

It's similar issues. So if it's neonatal mortality reduction in Maharashtra, in Gachibowli versus Tamil Nadu versus Himachal Pradesh we have a range of innovations being tried out to address similar problems. And this has implications for scaling up because once they've been tested across a variety of contexts, it's easier to take it to scale.

The third major point is that strengthening the innovation ecosystem. An important factor is having partnerships between government, academia, NGO, and external funders. And when I say health systems innovations, I don't mean that the innovations come from within the public sector, they could be innovations from any of the stakeholders working on a particular issue, but having a partnership between these various agencies facilitates the process of scaling up, bringing that innovation to light and then scaling it up.

I think one of the most important factors that NHM had was funding availability for testing innovations and for scaling up. And it's not very usual for health systems innovations to be for health systems, to be provided first with funding to actually test out innovation. So there's a very specific budget line item in the NHS budget that is allocated towards testing innovations.

And then if the innovation is successful, there is always support for scaling up. There's another aspect to this. How NHM nurtured innovations, is having a best practice workshop annually. And it's been in place now since 2013, it's a platform to facilitate sharing and learning. It also has enabled, uh, the development of specific criteria to, uh, review both product innovations as well as process innovations. And I think one of the... since we were part of the people designing the process innovations criteria, two criteria that we were kind of non-negotiable was scalability of the innovation and what was the potential of the innovation for equity. And I think that was very important because of NHM’s state of objectivity to provide equitable health services.

The second at another set of health systems, factors is building capacity of district teams. And de-centralization is really critical to foster and nurture innovation because you empower district and sub-district practitioners, you build their capacity. They're able to do two things. One, they have the confidence to mount innovations, two they're able to recognize innovations that happen within the district.

See at the block level with a service provider, making a particular program to meet the needs of the district that I'll give you an example in Navrampur, Orissa, many years ago where there are mobile medical units to address the needs, health needs of the more trudy populations, particularly in tribal districts, a block program manager really hit upon the idea of positioning mapping out the entire blog. And I'm talking about the days when mapping was not really a common thing about five or six years ago and positioning those mobile medical units so that they would be of most help to the really vulnerable communities. Another important factor is having mechanisms for effective interaction with stakeholders and by stakeholders.

I allude to private sector NGO, academic bodies. Another example for this is when the state of Tamil Nadu and there's a process. Now, of course, it's part of the large-scale program, an intervention called STEMI to address ischemic heart disease. Essentially it focuses on

stabilizing patients with any SCTV of changes for ischemic heart disease, so that they're able to be taken care of and then refer to a higher level institution.

This was an innovation developed by a private sector, but the state government collaborated with the private sector and were able to introduce this in all of their district hospitals. And now of course, it's spreading to several other States as well. Another issue is that innovations in vertical programs or programs that have single outcomes often don't consider the overarching health system.

And I'll give you an example in adolescent health programs, for instance, a long time ago, when they used to be funded by external development partners always insisted on a lot of additional staff to address the needs of adolescents. All very, very important. We do need counselors. We need staff in adolescent friendly health clinics, but this doesn't consider how you could translate this innovation into the larger scale health system, whether it is often not the luxury of having separate counselors or separate staff for vertical programs. So when innovations are designed for vertical programs over the single outcome in mind, they also need to consider the overarching health system. And what are the implications with innovation it would have on that system? Another factor is it's often better or it's more acceptable to have a package of innovations that address a similar problem. And I'll give you an example of retaining human resources within the health system. India's constant challenge. So the state of Himachal Pradesh and places Chhattisgarh, Financial incentives to retain doctors have been the solution for a long time but these particular States took on a component, a composite set of incentives, financial incentives, nonfinancial incentives, including getting the spouses of service providers jobs to retain them within the health system and the package of innovations that address a particular problem have a much better chance of scaling up.

And finally I think, and this is my concluding find, is that innovations may need to bide their time depending upon the political context, the epidemiological or the demographic situation off of particular context and the health systems majority. And again, I'll illustrate this with an example, About three or four years ago, the Tata Memorial hospital worked in Thane in Bombay to look at a model where they could train Ashas to deliver mental health and palliative care. And at that time there was no way we could have scaled this up into the large scale health system, because the Ashas were busy doing reproductive and child health. There was, we didn't even think that the Ashas could be involved in mental health, the palliative care, but today with the introduction of the Ayush Bharat health and wellness centers and the delivery of comprehensive primary health care, Ashas are firmly and squarely within the paradigm of where they are having to deliver some component of mental health and some component of palliative care.

So this biding the time is also a very sometimes innovations, just have to wait for their moment. My final slide is on what is the key mechanism to nurture innovation and to support scale up is having the institutional support. I worked in the national health systems resource center for 11 years, and we would have a boundary, we are a boundary organization, straddling, implementation, and policy, and we perform the following functional functions, but I've seen that wherever such institutions exist at the state level. And I have to make the case that we need

many more of these kinds of institutions. So what are the functions that an institutional support mechanism to foster innovations needs to undertake one identify areas where innovation is needed. So, as I said before, what are the drivers of innovation? So, which are the problems that really need solving and for which innovation is needed.

And then excite people at institutions to actually undertake innovations in those spaces. The second is to identify innovations when they do occur. As I said before, many innovations happen at the district and sub-district levels and, it's like, You know, it just flourishes there and it's never heard of at the state level, much less than national level.

So an institution can act that is actually located at the state level, could identify local innovations as well. We have to, of course evaluate the innovation. Innovators are too prone to say that the innovation is successful. This needs an objective evaluation that validates the innovation itself and an equally important part is the documentation of the innovation description.

This is important because we're talking about scaling up into large scale health systems. So model description, the context in which the innovation was located, the cost effectiveness, the comparison of costs between similar models or similar innovations. And most important of all, what are the existing synergies with the system and what might be needed to make the changes in the model to adapt it to a large scale system.

So that skill is necessary. We also then need beyond the innovation is to contextualize and design the scaling up strategies, handle scaling up and also to evaluate effectiveness of the innovation at scale. And for this, you do need a dedicated institution. It doesn't have to be one single institution.

It could be a consortium of institutions and that's where stakeholders like academia researchers, NGOs, and the funding agencies come together to build this consortium of innovations, really to nurture an ecosystem for innovation that can be scaled up into non-scale hands. So that I'll end there. Thank you very much. Sorry. I said, I hope I was on time, you know.

Vikram Patel: Thank you so much for joining us. And also I wanted to just emphasize a couple of points that I think we do in the Q and a, on the issue of equity and particularly how you think the health system needs to emphasize this in terms of the inequitable impact that the pandemic is having in India.

Let me turn to our third panelists now. Dr. Pawan Sinha, who is the principal investigator of project Prakash, which is the project that is supported through this collaboration between the Tata trust and the Mittal Institute. Pawan is a professor of vision and computational neuroscience in the department of brain and cognitive sciences at MIT using a combination of experimental and computational modeling techniques.

Pawan's laboratory has focused on the understanding of how the human brain learns to recognize objects through visual experience and how objects are encoded in memory. He's going to tell us more about, specifically his work on project Prakash power.

Pawan Sinha: Thank you, Vikam. Uh, I hope I'm unmuted. Several of you on the call are joining us from India and I can barely imagine the challenges that you are going through and I'm especially thankful that you are joining us despite the difficulties that the country is facing. My very best wishes. I want to add to what Vikram had said. Best wishes for your safety and for the safety of all of your loved ones. I want to start by thanking, I'm going to embarrass Sanjay, but I do want to single them out.

Sanjay Kumar, the director of the India operations of hardwood South Asia Institute the LMICI Sanjay and his team have been just such amazing supporters of the work that we have done over the past so many years. I can't fully express in words, the gratitude that I, and the rest of the Prakash team have for him. So, let me very briefly tell you a little bit about project Prakash that Vikram referred to. The health problem that we are trying to tackle is encapsulated in this one startling statistic. About one in every hundred Indians of blind that's across all age groups, across children. The problem is especially acute. The incidents of childhood blindness in India is at least three times as high as it has in the vest as if that was not tragic enough. Uh, it's also remarkable that a large proportion of the children who are languishing with the blindness don't have to, they have avoidable preventable or even treatable conditions, but very few of them actually get treated for the obvious reasons of not being close to a treatment facility, not being aware that the condition is beatable or simply not having money to get the treatment. And the consequences of this untreated childhood blindness is a distressing index screen. The lifespan of an Indian child who's born blind is on average 15 years shorter than that, of the size of the child. And that's for the lucky ones who are making past the first few years alive, according to the who, fewer than half of all, children who are born blind live to see the fifth birthday, very few are educated and very few find employment as adults.

This is the health problem that we are trying to address, the challenges given this problem are. How can we create a program which would include funding and human resources for identifying and treating blind children? How can we improve the state of arc in treatment and rehabilitation? How can we have the program be rooted in the community that seeks to serve and have it be long lasting and very practically? From my own parochial perspective, as the convention, my lab is a fundamental neuroscience research lab. So how can a basic science lab like mine make headway on these seemingly very applied goals. The innovation in Prakash lies in a very key and a very simple in hindsight, realization. That realization is this. That in meeting this pressing clinical need of providing treatment took care of the blind children, such as this boy as fundamental neuroscientists, we have an incredible and an unprecedented window into the processes of brain development.

So you can imagine a child who has been born blind in whom you are able to surgically initiate sight, right? From the moment the child's bandages are opened after surgery, you have a

window into the process of development in that child, a window that the field of neuroscience has simply not had until this point.

So. The innovation of our work of this project is in meshing together. The basic scientific quest and the fundamental clinical mission. Several years ago, we launched project Prakash to bring together these two goals and project Prakash is organized as follows. Our medical outreach seeks to identify children living in remote rural areas to find those who are candidates for treatment. These children are then brought to New Delhi and provided the very best world-class surgical care followed by education and rehabilitation. This is more of a nascent program, but tied to the treatment and education is our work in basic centric research. And this is truly a two way interaction between medical treatment, education and scientific research.

And our hope is that the outcomes would be independence and integration for the children and basic scientific advances. This approach has been bootstrapped with funding from science oriented organizations. So I posed the question of how do you even get off the ground with such an effort and because of the science component to this work, we were able to attract funding from organizations like the national Institute for health. that cater to scientific research, but that funding directly benefits, the treatment program because scientific research cannot proceed in this case without benefiting the children. Project Prakash involves, as I said, outreach, we are based in New Delhi, but our teams go far and wide into the country.

These children are then provided high quality surgical care. And then following surgery, we have the research part of the work. Here is a very quick vignette of what surgery does to a blind child, here is a young child, an 11 year old little girl by the name of Sumithra. Whom you are watching pre surgically.

So at this point, Sumithrajust has the ability to see light and dark. She's essentially blind and we've asked her to try to find a box of chocolates that we put by the side of the hospital corridor. And of course, Sumithra had a very hard time doing this. That's her father in the background, but next you will see her about a week after the surgery.

And you notice what a remarkable change that surgical intervention brings about it. So far project Prakash has screened over 40,000 children, provided surgical care to over 500 blind children all of whom can now see and provided non-surgical care to many more. The impact of project Prakash has gone beyond just the children that we work with. There have been very significant outcomes, even impacting fields like autism from the research findings that have emerged from this work. So those are based in which we attacked in the first two challenges, but I had mentioned that an additional challenge is for us to figure out how can we have the program be rooted in the community that seeks to serve in order to give it some sense of permanency.

And on that front, what we have started doing with the very generous support from the Tata trusts is instead of just being based in New Delhi, we have recently started two satellite centers in the Gorakhpur district, some of the most impoverished parts of Eastern UP. The Harvard

South Asia recently did a very nice article about some of the work that's happening at the Prakash's vision centers. This I feel it's just the start. Our goals are very substantial. We want to have a whole network of such Prakash vision centers in order to have the care. The critical eyecare that's needed in these communities be available to them locally. So let me just summarize. Project Prakash in about 15 years of its existence has provided us some fundamental insights on the basic science front. It has given us a clinically relevant hypothesis about conditions like autism and is also helping us in the design of artificial intelligence systems. It's serving as the model of an alternative paradigm that can bring together basic scientific research and societal service. And of course it has helped in a modest way alleviate some of the challenges of childhood blindness in the country. And with that,, let me conclude and faith, thank you to all of our supporters and especially the South Asia Institute. Thank you.

Vikram Patel: Thank you, Pawan, on a terrific example, really of how you're going from the bench to the bedside and from the bedside, well beyond that into the population. I'm sure we've done back to this issue of the translational pipeline that you've illustrated so beautifully as how this can also be seen as a critical innovation in improving population health. Let me turn now to our last of the four panelists.

Dr. Anant Bhan is a physician who has specialized in the area of bioethics and holds a master's degree from the university of Toronto. He works for Sangath where he is the head of the Sangath, Bhopal Hub. Sangath is one of the leading research organizations in the field of child development and mental health and I personally have also been associated with Sangath from its founding. He's also a researcher but more broadly in the fields of global health, health policy and bioethics. So Anant, I welcome you to this panel and look forward to your presentation.

Anant Bhan: Thank you also to the Tata trust and the Mittal Institute for funding, some of our work. So for those of you who have been following the panel and might not know of Sangath, Sangath is now 25 year old and has been working for a long time in many areas, including mental health. And one of our focus, geographical areas has been work that we've been doing in Bhopal.

And This is what will sort of speak to some of the insights we've gained from that. And also what we've started to do in Gujarat through the funding from the Tata trust. So just very quickly why you know, mental health is an important area to sort of focus on. There's now enough evidence which shows that there's been a historical neglect in global health. Just the fact that one in five people live in globally with depression, yet in India, yet only less than 10% of those individuals in India receive access to evidence-based mental health interventions,, work by Sangath and many other partner organizations has also demonstrated that evidence-based psychological treatments can be both effective and cost-effective as a first line of care and these can be delivered by frontline community health workers.

We also know that India has some of the largest populations of frontline health workers, the Asha specifically, but also other carriers, including the newly minted community health officers who could be leveraged for delivering psychological treatments, especially because.

psychologists or psychiatrists can be insurance applied. Now some of the groundwork actually came through a grant called Essence, which is funded by the U S national institutes of mental health. It's a five-year study. We are towards the end of the fourth year. Right now, this is a study we have been doing in a neighboring district to Bhopal with an idea of trying to reduce the treatment gap for mental disorders particularly for depression. This being a work, which is being done through an MOU between the national health systems resource center, which we talked about. And Rajani, she had led until recently the national health mission in MP.

So what exactly are we doing in Essence is basically focusing on developing digital evidence-based psychology, psychological therapy training which could be delivered to a smartphone app and the smartphone app can also be used offline. We are hoping that this would enable frontline health workers to learn and master and deliver treatment for adults, with depression with an idea of reducing or closing the mental health treatment gap to an extent possible. Of course you can have an idea, but how do you actually put it into practice as the most important component of any of any project.

And we have taken a human centered design as we call it, which I think was alluded to, by some of the other speakers on the panel, where we worked with our target population, the frontline health workers in co-designing our innovation. So this has meant a lot of workshopping, a lot of storyboarding with them, a lot of focus group discussions, testing multiple versions of prototypes so that they are comfortable, they like, and they find it contextually relevant. They are able to understand what what the content is. And it is something that doesn't seem foreign to them. It is something that they can relate to. Now this is work, which has taken quite a few months, but has been really substantive in terms of telling us what works and what doesn't work now. One of our initial concerns was would digital training, for example, be something which would be appealing to Asha workers, some of who, as you know, have only studied till 8th (grade) standard. Sometimes they might not even have done that. But we've recognized that we have realized by interacting with them that this is something that they really have taken to very quickly.

There is a fair bit of accessibility to digital training. There is also some level of familiarity now, especially during the pandemic. There also, there has been a lot of uptake of digital technologies among frontline health workers for risk mitigation purposes. But obviously what matters is ensuring that the content. And language is something that they can relate to and figuring out ways to engage them more when you're delivering digital training. So far, what we've done with Essence is actually developed a systematic methodology. Some of which I described to digitize the learning content for an evidence-based psychological treatment, which had already been tested through a manual.

We worked with them to co-produce digital content and worked on acceptability. And all sort of tech competency assessments with the training modules and also being working on evaluating the possibility of impact of digital training in a randomized controlled studies. In fact, our main study has finished recruitment and we're just connecting with our last batches of trained health workers. And we should hopefully have some results.

Now that led to actually work, which has been funded by the Tata Trust. And then through the Mittal Institute, this is part of a larger initiative. Empower is based at the global mental health group in Harvard which leads Empower India, is specifically is a collaboration between that group and Sangath. And in India, we are trying to use digital platforms in the way we've done in Essence, to enable nonspecialists health workers, such as Ashas, NCHS, to learn evidence-based psychological therapies for mental disorders through the funding that we received from the Tata trust. We've now extended the work we've done in Bhopal, MP to Gujarat.

And we have, in the midst of actually testing that out and basically have been doing through this grant is taken, is taking the work that we've done in MP and contextualize that for Gujarat and the reason we want to go that route is because has this large platform called a Techo, which almost reaches the entire population and under 65 million population and is available all across the state and presents as an opportunity to actually go to scale pretty early, if we can demonstrate feasibility, acceptability, and also utility in the local setting.

And I would just describe the steps involved in what we've been doing. So the first step actually was taking what we had in Hindi and translating that into Gujrati. So these are the scripts of the LD activity program. The form of this is basically behavioral activation. We've used again, the same approach, which is working with local organizations, working with the local experts, as well as our target audience, which is Asha workers. In ensuring that we get a review done, we have a fidelity check by someone who's an expert, a psychologist typically in this case, the psychologist who knows Gujarati well. So we are sticking to the original scripts and we are not deviating when we do the translation. We do a lot of feedback incorporation through multiple workshops with Asha workers, with trainers of Asha workers.

And we realized again through this, that there is a lot of richness which comes through which you can incorporate in the process of improving the content. They also tell us about the fact that this training is relevant to them. They talk about the fact that they have seen such individuals with cases of like depression, but might not have recognized that this is a mental health issue and the training is helping them reflect on that.

And once you've done that, what we do is typically go to the studio. We do dubbing, subtitling, and then a lot more workshopping again, to try to lock the content for the digital training. This again is then taken back to similar groups of Asha workers, Asha facilitators, key trainers of Asha workers, as well as experts within institutes of mental health, who go through the videos and show that there is enough fidelity and that we are ready to then launch a training program.

Similarly, we received fairly positive, but also sometimes constructive feedback about what works, what doesn't work and where there might be a need to promote amendment. So where we are now and I'm seven months of work in this grant is that we finished up adaptation, translation and fidelity check. We have conducted three workshops with Asha workers, nurses, psychiatric social workers, both in the tribal parts of Gujarat, as well as at the Apex Institute of

mental health in Ahmedabad. We have now prepared all the videos after all of these checks on two platforms, one is our own learning management system in Sangath.

Then also the Techo platform, which I said earlier covers the whole state. So what we are hoping through this work is that we are using again, a rigorous testing approach involving high quality research in testing the utility of digital training for frontline health workers, specifically for delivering depression care. But hopefully this is also a work which can impact other forms of mental health care and also the role of digital remote supports for supervision purposes. We feel that this is going to be an important way, but it's certainly not the only way of trying to address the large gap of mental disorders and the need to provide care for that.

And especially at times of a pandemic, when, you might not be able to meet face to face it might provide an opportunity for us to actually get care to local communities. And hopefully the evidence from the work that we're doing in MP and Gujarat will help inform the systemized scale-up of these training approaches and help again, increase coverage for depression care in communities all across India, as we adopt more forms of comprehensive primary health care reform in multiple other modalities.

So thank you for the opportunity and we'd be happy to also connect with any of you who's interested in this and provide more information.

Vikram Patel: Thank you very much, can I request if all the panelists can just open up the video cameras so we can see one another and we can pivot for the last 20 minutes that we have available for Q and a.

And I wanted to, we've had some very terrific questions and I don't think we'll have enough time to cover all of them, but I'm going to request all our panelists to be brief in your responses so we can try and take as many as possible. And my first question really is to you, Rajani. I really wanted to hear, all of us want to hear from you about -- as you talked about the goal of the NHSRC to strengthen health systems across India, you're facing perhaps the most daunting challenge ever in the history of the NHSRC right now -- could you speak a little bit to how the NHSRC is supporting the government in guiding the COVID response?

Rajani Ved: Okay. Well disclaimer, I was there six months ago. But certainly from the start of last year, VikramI talked about innovations being generated within the health system. And over the last six months, we've seen some really interesting stuff. A lot of it came from guidance from the central government, but a lot of local innovations happened, whether it was deployment of human resources within a district so that they could… human resource shortage is a perennial problem in India.

But having being able to identify which areas to post with staff so that they could continue to do the essential services, the non COVID services, like evenization antenatal care, and also be able to do the COVID related activities like surveillance, risk awareness. Contact racing, et cetera. Again, it depended upon the system. So we did write guidelines from the national level

to say, this is what you should try to continue to do. But at the end, it was empowered districts and States with mature health systems that were able to do this. But, and I know that for instance, in Tamil Nadu, now, let me give you an example where they mobilized the mobile medical units and the ambulances to make sure that people who are on treatment for chronic diseases got their medicines at their doorsteps, that those who are in need of dialysis, they redeployed all of the ambulances that were meant for referral transport of pregnant women, to the houses of patients, so that they could come in for dialysis. Ensuring that Ashas has received parcels that allowed them to do community level outreach work.

Many of these innovations that are. Call it innovations, call it a program intervention. We're all directed towards the most vulnerable. So if an Asha was empowered through online training, as Anant said that we didn't experience, we had doubts about whether the Ashas would take the online training, but surprisingly, a lot of them did.

So that was aimed at making sure that they reached the last households in the community. And so from, and I would not dare to say from a national point of view in a country like India, one cannot say that, but certainly several interventions for essential non COVID services and for COVID services were aimed at making sure that the vulnerable populations that are marginalized were reached. Where we know how successful we were.

We already know there's data that we were not terribly successful in doing so, but I must say that there was always this intent and making this happen. And, and it also led I think to rethinking on the way we need to restructure urban health systems. So that we have better urban primary health care. I think that was a big learning from this entire experience.

Vikram Patel: Well, thank you, Rajani. I also welcome any of the other panelists responding to any of these questions, but as I attempt to try and make the time as efficient as possible, I'm going to turn to another really important question, Manoj.

I hope you're still connected with us. I'd like to place this question to both you and Anant. I think the question really from Dr. Radika Krishnan is the role of NGOs when they develop innovations, how do they actually get supported to scale this up?

And I wondered whether Manoj, you could speak from the perspective of a major funder that has actually been behind the support to many of these innovations. You know, what is a role that you see from a funder’s perspective of taking these innovations to scale? And similarly, Anant, what is your view on how NGOs can actually leverage resources, where they do their goal to actually take these innovations to scale? So first Manoj, and then Anant.

Manoj Kumar: That's a great question. Really. But we also need to understand that the philanthropic capital is not unlimited, it’s in short supply. And considering we have millions of NGO in India to get started thinly distribute it over that. So the real issue is to see up opportunity cost here, right?

So if you look at philanthropic organizations and CSR who fund NGOs, they have an opportunity costs, right? And direct implement on disaster management or COVID care right now versus funding? You know, there's some that takes several years to actually get validated and go to market. So it's really important that, and I noticed this, that every time there is a discussion on innovation, we miss one thing. And even today's discussing big time. I would say gap. That we target entrepreneurs and that's something that we are actually trying in social alpha to see if we can find entrepreneurs who will take innovation from lab to market. And that's important because that's when you can really grow the Kitty, the pool, right.

That is available for supporting innovation. So just depending upon the philathropic capital for innovations is a very risky and very difficult idea because most of the time. Philanthropic capital goes for high priority high-risk area. And I know this one unfortunately, is not among them because it takes time, time to market is so we need to find definitely philanthropic capital, at least like what we are doing with the Mittal here today.

But eventually you need a larger pool of capital to take that innovation to market. So I really doubt an NGO has the ability to take innovation from early stage and take it to the community. The next level. It's just not possible.

Vikram Patel: Thanks Manoj. I mean, with that somber sort of opinion, I'd love Anant to respond also very specifically to Manoj's challenge.

Anant Bhan: Yeah. So it is certainly a challenge, but I think in our area appearance with my Sangath hat on what has worked has actually been the process of co-ownership, you know, in most of our research projects, we work with the health system locally, and that involves a lot of conversations, right? From the beginning when we were doing either ideation to proposal submission, to working with them, to actually set up our projects and work on these projects, because most of our work is around task sharing.

It involves working on frontline health workers and the health system. It involves working with various levels of the health system, right from the national level state level, district level sub-district level. And it involves working with them to convince them that this is important work and also for them to support us.

Because without that support, we can't do those studies. But once we are doing those studies, as the evidence is getting information generated, it's also important to feed that back into the system and tell them that, you know, this is what we've learned. This is what seems to work. This is what might not be working and work with them to try to advocate for policy change.

Sometimes it works. Sometimes you might not have as much success which resonate. For example, we worked in trying to integrate PHQ two into the revised comprehensive form C, which Asha has used. And I think that that's a small win, but that tells us that, you these wins are important, but they have to be based in evidence and evidence ideally generated locally because that is the kind of evidence which has the most impact. So I think policy impact is

important and NGO can work on that, but you cannot work in islands of isolation. You have to work with the system to bring about that change.

Vikram Patel: Thanks a lot. And, uh, I want to now turn to Pawan and Sachit to address the question that I think is really, really interesting Mrunalini Mirchandani and I'll read out the question. Is scalability necessarily always a desired criteria for acceptance of an innovation? I think it's a very challenging question because we always talk about scalability as the ultimate goal and she argued sometimes scalability needn't be in the terms of physical or geographic extendability, but in the context of deepening or strengthening a process, for example, community led interventions have their own dynamics and are situated in very specific contexts.

These may not be scalable in the traditional sense of the word. I want first to Pawan, given your work. It's a great example of that actually. And then across to you Sachit after that.

Pawan Sinha: Thank you Vikram. And, and thank you, Mrinalini for that, for the question. So I completely agree that the way one defined scalability has to be nuanced.In our project Prakash, scalability can be thought of as the impact that you have in terms of the knowledge that you generate, but the other more conventional dimension or definition of scalability would be how many people on the ground are you positively impacting in the short term?

And we have been trying to walk this fine line that balances both of these definitions of scalability. We would have been happy, but just one, let's say the service or the science side, but I think there is a happy medium to be found. You can have, I mean, we feel obligated to have primary eye care be made accessible to as many people as possible because all of our groundwork so far has shown us just how pressing the need is.

So, it just seems right for us to try to scale our presence on the ground. And that's why our desire to grow the network of the Prakash centers. But at the same time, we also take to heart the point that the knowledge that's being generated from the scientific work has its own way of scaling up. It has its own way of having an impact on the scientific community. And also when it's translated then on the clinical side of the world as well.

Vikram Patel: Thank you Pawan. Sachit?

Sachit Balsari: So, yes, Mrunalini's right. Scalability should not be the only metric, as Pawan said, I wonder if, sustainability and memorialization are equally important. You know, the trouble with these pilots is twofold, both successes and failures are not memorializing, not institutionalized. And then very specific Indian context, given the high turnover of bureaucrats in the health and public health departments often you would have really good innovation sometimes with the private sector you've gone through this checklist that aren't into is talking about co-creation co-development.

Two ideas here at the Harvard Mittal Institute where engagements at the Kumb Mela in Allahabad and Nasik where with partners in India, we had set up a very light touch real-time

disease surveillance systems all the way back in 2013. And not only does it not scale, though that would have been desirable, but there is no institutional memory embedded in the public sector of these initiatives, which, precluded its rapid deployment during the pandemic where a very simple solution deployed across all primary care centers, but it immediately allowed the setting up of national epidemiological disease surveillance system at very low cost and very high speed. And that is the trouble. So, I think scalability is probably the second or the third step. We need to figure out how to take these pilots. And even when they're successful find the regulatory and the financial resources required to continue to then go beyond the experimental stage.

Vikram Patel: Thank you so much. Well, I think we have time for one more question and I'm going to keep this an open question for pretty much anyone on the panel. And it's another very interesting and a very lively question in India right now. And I'll read it. I'll read out. I'll accept it. It's from Bhaswati Bhattacharya. The question is where is the role of Ayurveda amongst all of these efforts? And I guess one should look beyond just your efforts more generally, but more particularly about the role of Ayurveda in innovation. Bhaswati goes on, not only is the current government supportive of this knowledge, but there's plenty of evidence to show low cost interventions that could be useful for people with patients and implementable by open-minded medical people. Maybe I'll throw this open as, would anyone like to feel this question? It's I think a very germane question, given the context of the support that instances of medicine are receiving currently.

… So I'm happy to maybe make a small comment to this. So in line with what a lot of us have been trying, there is actually, as Manoj was talking about a whole new set of entrepreneurs. And even the Amber are your space specifically allopathy who are very interested in using an evidence-based approach to this problem, which is to say that, they recognize the importance of building the evidence to make the case that certain interventions have promise.

They are trained to recognize both the utility of evidence-based approaches, as well as understand that it's ayurveda, and then I'm making the case through working through well established research protocols in establishing that. And I think that's where we can see a lot of your new information, new evidence coming in, because I think there is certainly hope a lot of interest in that space, but there is also skepticism.

And the way to address that skepticism is to generate evidence. And, I think that is the role of research institutions. The role of entrepreneurs is to actually generate that evidence so that we can leverage all of these existing knowledge bases, the literature and actually demonstrate any impact, especially from a health systems perspective.

Vikram Patel: Okay. Thank you. Well, I want to ask a question to all of you as much as you're able to respond, please feel free to do so. And the question is this. If you had the year of the health minister or the prime minister of India asking you to give a recommendation on how the country can actually stand this horror that is unfolding what would you suggest is the most

immediate and urgent action the government should take? Let me start with you Rajini, since you have been closest to government in these last many years.

Rajini Ved: And thereby perjure myself, I'm still in a glazer too because you're putting me on the spot. You can ask someone else that's okay.

Vikram Patel: Okay. All right. Let me stop and let anyone who wants to get, get going. I mean, by the way, the prime minister is not listening. So, it's a hypothetical question it's meant to be hypothetical. Sachit?

Sachit Balsari: Meaningful masking, efficient masking that there are very few non-pharmaceutical, I mean, there are no pharmaceutical interventions, honestly, that we have at this point, given the status of the availability of the vaccines, a bridge to a vaccine is, is to meaningfully get people to distance, sanitize and mask.

And what I mean by meaningful is to, take people on board with you. I think the current administration has for a sustained period of time, despite the ups and downs has the ears of the people and to use that communication and the pulpit that they have to do invest the kinds of resources that they have in interventions, like digital contact tracing apps and, and lockdowns.

Or this chase for remdesivir instead of to really get people to be a hundred percent compliant with a triple layer mask that covers the nose and the mouth and, and to, and to do it in a way that is meaningful and the hot summers of India to do widespread mass distribution using these war rooms in our state government.

Vikram Patel: Manoj?

Manoj Kumar: Like with Sachit as said, the mask and vaccine. I think, you know, the earlier been involved private sector in vaccine is better. It would be vaccine next to basically, we just need to accelerate it as much as possible. We'll put all our money behind that because you know, it's not about which vaccine is good or which is not, it's all about aggregating Lexan or not actual, we need to action as much or above by populism expertly and mask is must, is absolutely now.

Vikram Patel: Pawan?

Pawan Sinha: Of course, the points that Sachit and Manoj have made or critical ones, but I would say the ultimate to understand the existential threat that the pandemic poses and that threat forces people to engage in behavior that then endangers the rest of the community. So we need to take a broader perspective on this problem.

Why are people not following the seemingly simple requirements? And I think in some cases they had simply not been convinced enough. And in other cases, they don't, they don't have the luxury of staying at home when their child is about to pass away. So I think this requires a very

difficult and a very broad intervention, and I'm not an economist. So I don't really know exactly what that intervention is, but I think this is an amazingly difficult problem that we are facing.

Anant Bhan: I was just gonna say that I am a firm believer in the fundamentals and I think the fundamentals is a health system's, resilience, which needs to be built in. There needs to be public health intelligence decisions, through the last year have been often driven by home ministries and sometimes police machinery and not really by public health folks. We really need public health folks in, at times of this to be leading the response. And if that happens and it is actually done transparently with accountability, then I think, all of these issues would be better addressed. And I think we have the competence and expertise available. We perhaps are just not leveraging it enough in the right way.

Vikram Patel: You have the last word, Rajini.

Rajini Ved: Yeah. I agree with everything that the panelists have said. I just wish I could say that what we did last March. After the horrible lockdown period, was widespread awareness on masking on distancing. We need to do that 10 fold more now, given the variant and its infectiousness regarding public health intelligence.

And I also agree with Pawan on this whole behavioral thing, people are tired. Health systems providers are tired and the finances, and I think that's a very important consideration. We'll have to mobilize the money, which is not happening quickly enough. I think we have to mobilize money so that our workers on the front lines get paid. We have reports coming in from almost every state, that Ashas have not been paid. And that is really unjust and unfair because they have been on the forefront of this battle. So I think we need to go at this the same way we did last year, but with them like double, or a triplet effort, Because it's the basics.

It's the mask as Sachit said, but also then open up the vaccines to people above 18 and to make sure that the private sector is controlled and regulated. But to make sure that it's available to everybody, even now, people in slums and vulnerable areas are not even women or even individuals over 60 and over 45 who are eligible for the vaccine are not getting it simply because workers are unable to reach them and motivate and mobilize them for the vaccine.

Vikram Patel: Thank you Rajini.

Well, just thanking each and every one of you on behalf of the Mittal Institute for having made the time to be with us today and to all the attendees. I just want to end by not only endorsing, everything that's been said by a panel members regarding what India should be doing in the days and weeks ahead, but I'd like to also reemphasize some points that were made, which is about having an equity focus in our thinking here.

The pandemic is affecting groups in our country in a very disproportionate ways. And particularly we know from the benefit of hindsight that what those groups are leading at the top of the list of people who are daily wages. And I think it's deeply, deeply important that the Indian

government really takes a leaf out of the tremendous stimulus efforts that many other countries, including finally here in the U S, have played, to make sure that people don't go hungry because of the impact of the pandemic. It would be such a tragic moment that in saving lives from the infection, we see people dying because of hunger.

And that is a clear and present danger right now. And so certainly I would add the issues of the powerless and the poor in India as being at the top of the priority list. Well, with that rather somber ending to this panel, it is a somber moment for India. We cannot, we cannot pretend otherwise. Let us wish all our friends and colleagues in India, all the very best in these next few weeks and months.

And we hope from the Mittal Institute's perspective that whatever we can do to support you, please do let us know and we will try and reach out in whatever way we can that is feasible. Thank you all very much. And have a great day. Thank you. Bye.