Health in India 2047 | Text Transcript | CIRCLE

This is a text transcript for the recorded event “Health in India 2047,” presented by the Canada India Research Centre for Learning and Engagement (CIRCLE) at the University of Guelph. The event was recorded on May 12, 2022, and was moderated by Cate Dewey. The guest speakers were Avni Amin, Srinath Reddy, and J. Radhakrishnan.

Cate Dewey:

I would like to welcome you to the University of Guelph where our motto is - To Improve Life. I think it's very fitting for this panel today. My name is Cate Dewey and I’m the Director of the One Health Institute and the Associate Vice- President (Academic) at the University of Guelph. I'm also a Professor of Epidemiology in the Department of Population Medicine at the Ontario Veterinary College. On behalf of the university, I’m delighted to welcome you to our shared virtual space today.

We are each coming to the symposium from a different location, a different homeland. As a settler in a colonized nation, I would like to take a moment to acknowledge the Indigenous Peoples who lived and thrived on the land where I currently stand. The University of Guelph resides on the ancestral lands of the Attawandaron people and the Treaty Lands and Territory of the Mississaugas of the Credit.

We recognize that this gathering place in Guelph is today home to many First Nations, Métis, and Inuit peoples, and acknowledging them reminds us of our relationship to the land where we explore, share, discuss and learn about our shared responsibility for human, animal plant and ecosystem health.

In February of 2020 at the University of Guelph the Canadian India Research Center for Learning and Engagement (the acronym is CIRCLE) was established it is an interdisciplinary nucleus in Canada for cutting edge research on India and Indian diasporas to showcase advocate catalyze and foster an equitable respectful and sustained exchange of knowledge between Canadian and Indian scholars on complex and emerging and perhaps unexplored topics related to sustainability and social and economic well-being and I really appreciate the drive and determination of those on faculty at the University of Guelph who have worked so hard to make this happen.

Today's event focuses on health in a broad sense with specific focus on violence against women aligning public health education to India's development agenda and the needs and challenges of institutionalizing One Health in everyday public health many countries have adopted a one health agenda and are in the process of determining how to put this into action perhaps we'll hear some of that today.

The One Health Institute at the University of Guelph is a robust organization tackling some of the world's most complex issues at the junction of animal human plant and environmental

health it has affiliated faculty members a very active member student club and opportunities for students to earn degrees in One Health at the undergraduate and graduate level.

Our future is to build on our capacity in One Health by graduating students to advocate and employ trans-disciplinary systems-based methodology that is grounded in community participation and prepared to lead teams to tackle the complex health issues of today in the future and certainly today's presenters are going to be talking to us about complex health issues of today. Each of today's speakers will have 15 minutes to give their presentations. I will interrupt them or note them at the 10-minute mark and then again at the 14-minute mark so that they recognize they have one minute left to wrap up their presentation. In this way we will enable 25 minutes for the question-and-answer period.

I encourage those who are here participating in this panel as participants but not speakers to please put your computers on mute and turn off your video that will enable those who don't have strong internet connections to be able to continue to hear our speakers. As the presenters give their presentations, feel free to put comments or questions into the chat.

At the end of the presentations, you are welcome to raise your hand to ask questions specifically or you can continue to put your questions in the chat, and we will moderate the chat dialogue and pass questions onto our panel please keep your questions and comments brief so that we have plenty of time to hear from our panelists. The event is being recorded in the hope that it can be made available later. Now it is my very great pleasure to introduce our esteemed speakers today in the order that they will present.

Our first speaker Dr. Amin is a Technical Officer working in violence against women in the World Health Organization's (WHO) Department of Sexual and Reproductive Health and Research. The title is "*Gender equality in 2047: reimagining a healthier future for women and girls in India*."

Our second speaker Dr. Reddy is the President of the Public Health Foundation (PHFI) of India. Dr. Reddy will speak on "*Aligning Public Health Education to India's Development Agenda*."

And last but not the least, Dr. Radhakrishnan, Principal Secretary of Health for the Government of Tamil Nadu will be speaking on institutionalizing One Health in everyday public health, what are the needs and the challenges. And with that I am happy to turn the microphone over to Dr. Amin. Welcome.

Avni Amin:

I am going to invite all of you on a journey to India in 2047 to imagine what the future for women and girls will be like, one where all women and girls will be healthy, where all women and girls will be equal and have equal rights as men and boys in the country. I am going to do that through asking four questions.

The first is where are we today in 2022, where do we want to be in 2047, what is our vision for women and girls in 2047, how can we get there and what can you do as researchers? To start

with where are we today, to look at where we are today, I am going to share some slides with you showing data on how gender inequalities manifest in health outcomes in India based on the World Health Organization's Southeast Asian regional office's profile on gender and health that is available online and it draws largely from the National Family Health Survey (NFHS) of 2015-16. Now I know that we have new data, but I suspect that even with the new data the trends are not likely to be that different from 2015 or 2016, if anything, I suspect that because of COVID, these indicators will have largely either remain stagnant or in fact be worse. So, I am going to share the slides with you just for a few minutes.

My first slide is simply what we know about the sex ratios at birth. Gender discrimination as we all know in India starts before birth, at birth and continues throughout the life of women and girls. This sex ratio which is a 110 males per 100 females highlights how adversely the sex ratio is in favor of men. We already know that the global average or what we call the normal sex ratios at birth are around 105 males per 100 females. But in India this is worse, and we have known this for many years, and it is a result of "son preference" or what we call devaluing of girls' right from birth.

When we look at the top causes of death and morbidity in India, cardiovascular diseases emerge as one of the top causes of death and morbidity for women. But we also see that there is a mix of respiratory illnesses, infectious diseases and unfortunately unlike many parts of the world birth complications remain one of the top causes of death and morbidity for women in India and interestingly we also see anemia and self-harm. Now I am going to show us some data which explain why we see these as causes of morbidity and death among women in India.

One of the first groups of risk factors that I am going to look at and the data here come from NFHS is what we know is the intersections of fertility, female literacy, and poverty. We know that female literacy is lower for women in India compared to men, but we also know that this is very closely linked to high rates of fertility and here on the left you can see data which show that among women with no education the fertility rates are much higher compared to women with education.

Likewise, total fertility rates are much higher for women in the lowest income quintile compared to those in the highest income quintile. Just unpacking not just the discrimination by gender but also by education as well as poverty. Another group of risk factors is with respect to obesity, household smoke and a third is related to intimate partner violence (IPV) - a topic that is something that I have been working on for almost 25 years.

We know that these data are quite dated from 2004 but we know that there is a disparity by sex in obesity prevalence among adults with women having higher rates of obesity in adulthood compared to men. We suspect that this has only gotten worse in the last years. Women we know are exposed to household smoke from fuels (from cooking fuels) while assigning the performed gender roles of cooking and nearly 3 in every 5 households in India today use unclean cooking fuels, exposing them to a range of respiratory illnesses including chronic obstructive pulmonary diseases.

Another risk factor which we know is very closely linked to high rates of suicide, high rates of depression as well as high rates of unintended pregnancies, low birth weight babies and maternal health outcomes in intimate partner violence. According to the NFHS (2015-16), 35 percent of Indian women report lifetime prevalence of physical or sexual violence by their spouses and 18 percent in the past 12 months, highlighting the tremendous burden that this harmful and gender unequal practice has on women's health.

The next set of risk factors are related to women's autonomy, women's burden of unpaid care work and women's access to employment. We know that decision making autonomy both for household and fertility and sexual and reproductive health is very closely linked to health outcomes. And yet only 6 in 10 married women in India say that they alone or jointly make household decisions. Decision making is also very closely linked to women's access to employment.

And yet we know that women's labor force participation in India is three and a half times lower than that for men and this gap has not only persisted over time but even where women do work it's largely in the informal sector which has very little social protection. So where do we want to be? Here I am going to stop sharing and invite all of you to just take a moment to close your eyes and imagine where we want to be from this vision I laid out. The data that I laid out in 2022 and where do we want to be in 2047.

In 2047, what I would like to do is imagine where the scenario for women and girls will be very different. First, in the India of the sex ratio will be 105 male births to every 100 females. Deaths due to birth complications will be rare. The current maternal mortality rate in India is 145 over hundred thousand live births. But in 2047, we will be far less than the SDG target of 70 maternal deaths per hundred thousand women. In the India of 2047, respiratory illnesses, anemia will no longer be the top causes of illness and death among women.

In this India almost all girls will be educated, all girls will have access to comprehensive sexuality education and know about their bodies, their menstrual and reproductive cycles. They will exercise their rights and control over their fertility and sexuality. They will be able to determine when they want to get married, with whom they want to get married, whether they want to have sex with whom they want to have sex, whether they want to have children and how many children they want to have.

In this India they will make joint autonomous financial decisions, household decisions and men and women will share equally in their household responsibilities for domestic work and unpaid care work. In this India every household will have access to clean cooking fuels reducing the exposure to household air pollutions even as the government invests in green technologies that overall reduces air pollution.

In this India all women and girls will be safe and free of violence in their homes on the streets in the workplaces and have the freedom, the time and leisure to engage in physical activity and economic activities. In this India women will have access to paid employment with safe and decent working conditions. So how do we get there?

I published with several other co-authors a vision for gender equality in 2045 with the British Medical Journal last year and I am drawing this how to get their piece largely from here to get there. Here the government has a critical role to play in ensuring universal coverage for health as well as social protection through financing for health services, education, old age pension and health insurance through tax-based systems, but of course we know that in India the private sector is large and will need to complement what the government's role is in this.

We already know from current data in India that the cash transfers and incentives for school education for women and girls as well as employment training are working and we need to make sure that these are targeted to those communities that face multiple forms of discrimination on the basis of caste, religion, those who live in rural areas and in the lowest economic quintiles.

Women's bodily autonomy is key - so apart from education we need to make sure and scale up comprehensive sexuality education that is not compromised by the tropes of culture but that enables boys and girls to learn about their bodies, sexuality, and respectful consensual relationships.

And we have examples of this from states like Bihar and Jharkhand that are bringing together multiple stakeholders to scale up comprehensive sexuality education for kids both in and out of school, strengthening health systems and services for provision of quality and essential services including reproductive health care is key but here it is important to reflect that many of these services are only reaching women and girls after they have had their first child or their first pregnancy.

So, we need to make sure that we are reaching newly married couples to delay their first pregnancies and in the light of very early high rates of early and child marriages really working with young people. We also need to make sure that we are investing in importantly safe and decent working conditions and paid work for the largely female health workforce that we have in the country the ASHAs (Accredited Social Health Activists), the Anganwadi workers and many of them are relying on volunteer work and under very unsafe and not very rewarding work conditions.

We cannot have good quality health services in India without investing in the women health workforce. We need to make sure that we value and support unpaid care work - it contributes billions to the economy, and we need to make sure that we support that with paid family leave, parental leave, sick leave, and child support childcare support services. In schools, workplaces, and communities we need to mobilize boys and men so that they are conscious of their equal responsibility for caring domestic chores and for non-violent behaviors.

We need to scale up prevention programs for violence against women that are already in place in small scale, such as in Maharashtra where for example 250 schools are already implementing a curriculum through sports to change boys’ and girls’ attitudes towards gender equality. In 2047, digital technologies will be much widely available, but we need more choices and

freedoms so that the access to information is not only restricted but also online spaces are safe particularly for women and girls.

We need to invest in access to STEM, ensure that women are leading in science, health and key government institutions. We cannot achieve health for all when these institutions are led by men and we need to create spaces for civil society activism, creativity and innovation and accountability so that governments and private sector working on health and social development are held accountable.

What can you do? Prioritize research questions that unpack, address and scale up gender equality as a key factor of health and address neglected aspects of women and girls' health in policies and programs, create equal partnership with researchers including practitioners and NGOs so that the capacity on gender and health is institutionalized, create centers of excellence for gender and health in Indian public health and academic organizations, role modeling this on the Canadian centers of excellence on gender and health, which I am aware of there are several, support grassroots advocacy and activism on gender equality and health, identify and address the gendered impacts of innovations in the clinical health and digital artificial intelligence and green technologies that will have on women and girls, and monitor evaluate progressive realization of gender equality and women's health including through disaggregation of data and using gender equality indicators in the tracking.

Cate Dewey:

Thank you very much for the inspiring presentation. Now it's my pleasure to invite Dr. Reddy to invite Dr. Reddy to take the microphone.

Srinath Reddy:

When we are considering what India might be in 100 years, that is independent India, we probably need to start with where we were in 1947 at the time of our independence, where we are this year when we're just about going to be 75, where we hope to reach when we're 83 by 2030 when our commitment to the Sustainable Development Goals (SDGs) would be called into question in terms of how much we have achieved and of course then look forward to what we hope to be in 2047 when independent India would be 100 years old.

Indeed, there's been a great deal of progress in health but still much remains to be done. If you look at our life expectancy at the time of independence it was about 35 years. By 2020, we are at 69.8 years. Between 1990 and 2020, there was a 10-year gain in life expectancy. In terms of our other indicators whether it is in terms of under-five mortality which is about 35.7 per thousand live births or infant mortality ratio of about 30 per thousand live births or maternal mortality ratio rate of 103 per hundred thousand live births - we are almost on par with other countries at the same income level.

However, when we actually look at what our competitors are in terms of some other countries even in our immediate neighborhood who have not achieved the same level of economic growth as India has, then we recognize that we have not reached the full potential of our

economic growth being translated into tangible, measurable achieved health gains. We see for example that compared to India's life expectancy of about 69.2 or 69.8 by 2020, Sri Lanka's is 77 years, Bangladesh's is 72 years, even Nepal is ahead of us in life expectancy.

When we look at the infant mortality rate for India's 30, we see Sri Lanka at 6, Bangladesh at 25, which means that our economic growth was not translated fully into health gains and that is where we have much to make up. We seem to be on track to achieve the goals that we have set for ourselves in these indicators as far as the Sustainable Development Goal targets of 2030 are concerned.

But nevertheless, there is much to be achieved even after that, particularly for example, when we look at the current indicators of child under nutrition, we still are haunted by the fact that even the latest National Family Health Survey (NFHS), whose results are available from 2018-19 are showing a stunting of about 35.3 percent among the under-five, 19.3 percent of wasting, 32.1 percent of underweight children.

Given this scenario, we have a specter not only of undernourished children having a greater threat to their own life because of likelihood of infectious diseases but also a huge loss of cognitive brain power which threatens the demographic dividend that we are hoping to achieve over the next two decades because of a younger population.

Apart from of course the fact that undernourished children with some degree of rebound adiposity as they grow are much more likely to have early onset of adult cardiovascular disease and diabetes which already are major threats. We do have a challenge in terms of infectious diseases which is not a closed chapter. In terms of tuberculosis, we have currently about a quarter of the world's cases and the fair threat of anti-microbial resistance as far as tuberculosis is concerned in terms of drug resistant and extremely resistant and multi-drug resistant tuberculosis.

We still have several pockets of Malaria and HIV AIDS. While we have achieved a considerable degree of reduction, it is still a continuing threat, and we have several other infectious diseases especially a number of zoonotic diseases coming up not just COVID but many others as well in terms of zoonotic diseases as well as a whole host of vector-borne diseases. But the threat of non-communicable diseases is rising fast and as has been very clearly pointed out. We have obesity and overweight happening now in adults particularly in women and we also know that in terms of hypertension a recent survey by Indian Council of Medical Research (ICMR) documents that 1 in 4 adults are hypertensive but only 10 percent of them are treated with adequate control.

So, there is much that remains to be done in the area of health where we need to achieve results by 2030 for the Sustainable Development Goals (SDGs) but certainly we need to look at what we hope to achieve by 2047. There I believe public health has a great role to play and even in terms of population health, we recognize that one of the major challenges that we have had in terms of our large population and the rapid growth of population which was a threat in

the last century and even in the early part of the century, now seems to be less menacing because our total fertility rate ratio rate at this point in time is about 2.

Therefore, at this point in time, we have actually reached lower than the net replacement rate of about 2.1. Though there are variations that we see across different states. Similarly, there are variations across different states even in terms of the health indicators. If we are really talking about infant mortality rate of about 30 as the average now, we have to compare 48 in Madhya Pradesh with 6 in Kerala. So, there is a huge disparity in India which we need to correct as well.

But while we are dealing with all these problems the question is what is the capacity of our health systems and what is the capacity of our public health institutions to address many of these challenges and help us attain our goals? There I will have to first start off with what I mean by public health. I believe that public health involves identifying and influencing the determinants of health at the population level to impact upon health and improve health at the individual level and there, I believe it is important for us to operate through policy level interventions which have a population wide impact, system level changes, programs which are effectively implemented as well as strong community engagement.

All these areas have been relatively weak because we have not had investments in public health capacity building in terms of institutional capacity building. Barring Tamil Nadu since independence and Odisha until which recently joined the group, we do not have established public health in our health services. Our public training institutions have been very few as a result and therefore we have had a very medicalized approach to health including public health.

And that is where I believe we need to correct it but recently there has been a decision taken that each state and the central government as well will have a dedicated public health charter as well as a health management charter and they will bring greater strength to the design delivery monitoring and implementation of public health programs.

And that requires us also to build institutional capacity for training people in public health with the right kind of multi-disciplinary knowledge which can be translated into multi-sectoral action because we recognize that public health and health in general are influenced by multiple determinants -social, economic, environmental, and commercial determinants.

We recognize that the origins of public health formally as Jon Snow started with Public Health Engineering but now, we have talked about public health law in terms of how we can actually influence to regulatory and legislative measures, sufficient protection for public health and promotional public health measures. Whether it is food systems or climate change, public health has a wide outreach.

Therefore, the agenda of public health extends from molecules to markets, from risk factors to rights and we do need to focus on the social determinants of health to promote equity in all dimensions. So, it's not just a question of equality of opportunity that is offered but equality of circumstances that is required which extends from the girl child to the mother whose

pregnancy is delayed optimally and not rushed into premature pregnancy, maternal nutrition, early child nutrition, the whole intergenerational connection of health which also has to be viewed to the equity lens and that has to be promoted as well through public health.

These are elements that need to get into public health training. Unfortunately, public health institutions even as they are developing now and the large number of public health institutions first governed have emerged with investments in public health schools now, they are still siloed.

Traditional universities are still focusing only on social and some environmental elements of public health training, others are focusing on health system and others now currently are focusing on technologies and digital health, but all disconnected from one another. Whereas public health must become a converging platform where all of these can be knit together to provide a complimentary approach which provides ultimately a combined solution to many of our present problems.

We need to produce more public health professionals as well as public health practitioners who not only do elucidatory research to find out what the problem is but also implementation research to have solutions for the problems effectively implemented. And the purpose of research driven by public health institutions would be to generate evidence-informed, context relevant, resource optimizing, culturally compatible and equity promoting recommendations for policy and practice and for this we need to bring in an understanding of complexity science.

Health system is also a complex adaptive system. It also has to interfere with multiple other complex adaptive systems – be it food and agriculture systems, be it environment, be it urban development and design. Amidst all that complexity, we need to bring in an understanding which is clear that we can still find segmented solutions, but which can be ultimately knit together to have a very complementary approach to solving India's public health problems.

One of the most important elements that we need to address is how best we can promote equity in terms of all our achievements because having an aggregate indicator, whether it's maternal mortality or infant mortality improve, will not serve the purpose unless we look at the disaggregated indicators of urban-rural, tribal-non-tribal, male-female – all of these across different social, demographic groups and see that the gaps are bridging.

Therefore, that is an element that I would like to see by where we will have in India where many of the inequalities that exist now in the social sphere which are reflected in the health inequalities a bridge and we will have India which is capable of providing health across the lifespan in an assured manner.

In India which can build a health system which can bring together the full potential of the public private and voluntary sectors together not as a commercially oriented public private partnership but as a partnership for public purpose by redefining PPPs (Public Private Partnerships) and then ultimately committing it to a public purpose goal and holding it accountable as well.

Ultimately it will have to be judged by each of these indicators in terms of the equity component that has been achieved. For that what I believe is very critical is that we must in our public health institutions of training develop t-shaped individuals – those who have a lot of depth in a particular area of expertise, but who also have the breadth of vision and orientation to other disciplines so that they can actually collaborate when required to provide that kind of multidisciplinary or transdisciplinary approach to knowledge generation and which can be translated into effective, multi-sectoral implementation pathways.

It is that kind of public health education that I believe as being required for India and international partnerships of institutions which share the same vision would be greatly helpful in moving us in that direction towards 2047.

Cate Dewey:

I am very impressed by this panel staying on time. Thank you so much and I am very inspired with these very big goals, and I am feeling very energized by the enthusiasm of getting to where we want to be. Last but not least, I would happily invite Dr. Radhakrishnan to the podium.

Radhakrishnan:

I will directly go into the challenge of institutionalizing One Health in everyday public health. Public health needs and challenges, just like our Professor Srinath was mentioning. Tamil Nadu was one of the oldest states where lieutenant colonel King talked about public health as early as 1920s since when we used to have a Public Health Act and all, but now we are challenged with this kind of situation.

I have mentioned in these earlier slides basically the concept of One Health and directly earlier slides about specific diseases which all of us particularly in this audience are aware, so there is no need to repeat it. But when we look at the challenge of human health, environmental health, animal health - continuous neglect of this or, for example, people looking at One Health with a focus basically only centered on human beings and ignoring the animal health or the environment aspect of it is one area where we have to think as a policy maker.

The second one is radical One Health approach where we look at an overall balance of living ecosystem and the environment from a broader perspective. I obviously know apart from preventing outbreaks of zoonotic diseases, improving food safety and security, reducing antibiotic-resistant infection, improving animal health, ultimately global health security is the issue.

When we talked of swine flu, when you talked of bird flu, when we also talked of Middle East Respiratory Virus and much earlier the SARS, nobody thought that this thing from Wuhan market ultimately from Wuhan will spread so far. Two years later than that still we are battling the Omicron variant.

One Health in fact has come back to focus on the public health officials very rightly here our Professor Srinath was mentioning that you know we are looking more unfortunately health is

being dealt from a medical point of view, not from a public health preventive promoting point of view. One Health apparently was aimed at recognizing the health of the fact that everybody who is a stakeholder needs to appreciate that all of them are interlinked and especially including environment when you talk of factor-borne diseases.

All of us know about the zoonotic infection - the kind of that circle itself shows whether it is bacterial, viral, antimicrobial, vector-borne, parasitic, food safety, bio threats, global health, and the interventions with regard to vaccine and therapeutics. We all need not go beyond these 2 years. The Comparative medicine and Translation medicine is on the other side but when you look at on the One Health part of it - environmental, ecology, veterinary medicine, public health.

I myself am a post-graduate in Veterinary Science and Human Medicine and with the Genetics background. So I find that failing to acknowledge it is the challenge which we face every time even in India we have done a lot of work groundwork in this next when you look at again education prediction detection control I will go to the actual issues you will take because these again are the challenges when you look at Kyasanur forest disease, which is very common in Karnataka and borders of Ooty, this thing is basically because we have gone inside the forest and we have been interacting with the monkeys.

Similarly, illegal animal trade or live animal trade is what one and market in Wuhan was an example. And this is not just that example - you look at Chennai, the trade going on with regard to the kind of animals being slaughtered, whether a veterinary person is certifying them and looking at challenges.

Then the other challenges are having the commercial animal farms – whether they are having adequate protections and not all the steps have been taken to ensure that the species-to-species movement is protected. Again, ultimately zoonotic everybody recognizes nobody has to be reminded about zoonotic issues but once an outbreak and spillover happens there is a common thing again Coronavirus, I don't have to repeat this right everybody knows.

This underlined the validity of One Health concept for people and the biggest challenge for all of us is that this reinforces whether these emerging or re-emerging diseases or new diseases or a variant of an existing disease are here to stay and fighting new disease threats require a very serious collaboration across human, animal, and environmental health organizations. The reason I am saying this is many a times from 2000, late last decade this concept was started. In 2012-2013 we had a very close shave when MERS was there.

In 2002 there was a challenge, but we ignored these challenges. Even today, people tend to forget that there is a huge animal human interface happening and surprisingly, we are all masked and the animals on the road are not mass the reverse movement is not happening. So, this is one area where One Health has also to look into research. That is why I am saying that what are the relevant work that we all need as far at the policy level cutting edge we have to deliver, whenever there is a search, we have to bring it down - so what challenges which we face in One Health is it is not one disease-centric.

Whenever we talk of One Health, people talk immediately of Rabies, we talk of Ebola in Congo area or we talk of COVID now, but we all need to understand that there are numerous viruses whether it's bacterial fungi which have that capacity to move on. Ultimately it all can be related to Darwin's *survival of the fittest* - the way they mutate. Our law enforcement agencies - it is one thing to recognize it but whether policy makers are coming out with a clear-cut policy on it and while we have got a huge list of work on it.

Similarly, whether individual departments which are or the stakeholders understand that we are interlinked rather than linking ourselves only when an outbreak of blood flow happens or only when an outbreak of COVID happens or only when somebody talks of swine flu even though pigs are not directly related to it. And ultimately the communities recognize it - pet owners know what again there's a huge amount of ignorance among pet owners and even with regard to street dogs, with regard to the challenges with rats, on leptospirosis and all - these are all existing diseases which we ignore.

No one person, organization or sector can address this, and we all have to leave ourselves. We should work in our fields but collaborate - that's the concept of One Health. What are the benefits? Everybody talks about World Veterinary Day, which was recently celebrated, I think the last Saturday of April and we have various days in human health and all. But our main focus has to be preventing an outbreak of zoonotic disease. Every time when a disease happens people respond - the recent challenge in Kerala and Tamil Nadu like Dr. Srinath said these are one of the better developed states in India.

Everybody says that when Nipah virus was found or Nora was found, Zika was in Kerala or Zika was identified in Tamil Nadu - but without acknowledging the fact that here people do a surveillance and they come back. Once an outbreak happens, the surveillance and how do you control it becomes a challenge. With globalization, rapid travel, it is not going to be very easy for us to control. When we talk of the new strains in South Africa, we have to be alert.

Now that we have started living with COVID we need to understand that surveillance is going to be the key, interaction is going to be the key and research is going to the key, development of medicine is going to be the key, vaccination is going to be a key. Many times, the angle people only look at One Health is from a disease point of view, but they don't understand that you know even in the consumption point of view it is an issue.

Look at the neighboring Kerala - they've a very colloquial kind of dish which was imported from abroad - people start a semi-cooked kind of meat which is heated over and it led to shigella infection as it was not properly cooked. I mean they don't have a proper storing facility and a lady had to pay a price of her life that brought back the focus.

One Health should not be a concept which comes back into focus only after a death or only after an outbreak – that is where I think we all need to do greater amount of surveillance and monitoring of new disease can definitely facilitate detection of new infectious sessions. Ebola control is an example of how very effective exit control has prevented it from spreading whereas COVID control is an example where we have continuously not been able to do.

Finally, I think India has recognized it even now the present union government has taken a lot of initiatives. We will come back and in India there are many simple initiatives in Tamil Nadu - we have successfully implemented state fight multi-sectoral Rabies control initiative where public health surveillance, animal census, dog licensing, waste management, animal birth control, anti-rabies vaccine awareness campaign - all of that got put together.

This is perhaps one disease but in all other diseases this replication is required. The current challenges, lack of policy frameworks that everybody talks of - One Health mentions about the UB resolutions, even statements you have a system people recognize it but ultimately there is no clear-cut policy to take it forward, or to enable cross-sectoral collaboration. Then clustering of sectoral expertise in different organization they are working in respective silos.

We meet, but we don't tend to collaborate. In Chennai itself, we have a very beautiful Veterinary University which is doing research, we have got a very beautiful medical university we have IIT, we have Madras University - all these are historic. We need to collaborate - each unit has distinct mandates and responsibilities, and that strategic approach has to come and ultimately funding for research and human resource stream for satellite specific activities equally important and it cannot be ignored. It's not just that we meet recognize and just leave back.

Finally, emphasis on professional specialties as opposed to just an understanding broader understanding. Nobody denies One Health requirements, but everybody tends to ignore when a crisis is over. We are to rejoin.

Of course Tamil Nadu India is enrolled with agencies like Public Health Foundation of India, we have researchers working on it, but ultimately the world over we all need to understand that in future as emerging and re-emerging diseases come, rare diseases come and with over 70 percent zoonotic diseases coming in and with microbes and viruses and all mutating and trying to create their own scope of survival need for clinical translational research taking over One Health is here for all of us to stay and we have to selflessly join together without overlapping on each other but collaborating in a very complimentary fashion and not a competitive fashion.

Cate Dewey:

Thank you so much! I feel I might have rushed our speakers, but they did a wonderful job of sharing information with us and also, I think stimulating us to think about a better future across health in India. I would just like to remind the audience that if you have a question or a comment, please feel free to put it in the chat. We do have a couple of questions.

I am going to take the Chair's privilege if I could possibly ask Dr. Amin if you would be willing to share with us some of the things that are already being done in India to help towards these lofty goals for women and girls.

Avni Amin:

I think I will not be able to do justice to the full spectrum – there's a lot of things happening. The ones that I am quite familiar with are - one is in the area of comprehensive sexuality education. Despite the challenges as there's a lot of cultural resistance to teaching young boys and girls about sexuality, about their bodies, about menstruation and many more things, there are successes in states like Bihar and Jharkhand.

This is coming through the National Adolescent Health Program where you're bringing people and different stakeholders together at the district level and thinking of how to reach kids both in school and out of school because a lot of children are out of school with the sexuality education. I would say this is one example.

Another example would be the work that's being done in Maharashtra - in these 250 schools through sports-based programs which is called project 'Parivartan' where you're using sports as a way to really challenge equitable gender norms and attitudes working not just with the children but also with teachers as role models and as coaches to really dispel these sorts of what we call harmful norms and attitudes, and this is showing progress.

Again, opportunity for scaling, there are hospital-based interventions that we have been involved with in Maharashtra again with NGOS like Sehat Foundation, where they are training medical schools particularly to really address gender-based violence but also provide respectful care to women clients this is called the Gender in Medical Education Curriculum Initiative that was started in seven hospitals and seven teaching hospitals in Maharashtra.

The Department of Medical Education and Research took that pilot project and sort of put in a directive for all medical colleges in Maharashtra to scale up this curriculum, which again thinking about how we are institutionalizing the change in mindsets at that level rather than kind of trying to do in service training or training adult people not that this is not valuable but really working with young people and changing the attitudes towards gender equality in the health system and the education systems and in the way we are changing young minds is I think very concrete and very promising examples of how we could shape the future.

Cate Dewey:

Thank you so much, that is very encouraging. I think first I will go to John Harris and then I will ask a question that is in the chat for Dr. Reddy.

John Harriss:

I think this is really a question for Dr. Reddy or perhaps a couple of questions for Dr. Reddy. First off, I am sort of so struck by the disparity in performance in regard to health between India and Bangladesh and I am sort of wondering rather you know why this disparity has arisen especially given that I believe I am right in saying that public expenditure on health as a share of GDP is even lower in Bangladesh than it is in India.

So, I am sort of wondering what your thinking is or what thinking is generally about why Bangladesh has done so much better?

My second sort of question which in some ways is in kind of contradiction to the first is to say well I think that the vision that you have laid out for 2047 is really a very exciting one but is it possible to envisage the accomplishment of that agenda without a great deal more public expenditure on health than is the case at present? I mean I think only yesterday something I was reading I said out of 191 countries, India is the in 184th in terms of spending on health.

Now I need to go back and look and check exactly what the author I was reading meant or talking about spending on health. I think we all know that public expenditure on health in India is comparatively very low, by comparison with the competitor countries. It has always been a little bit of a puzzle to me is why there isn't more public pressure for stronger public support for the health system in in India?

Srinath Reddy:

Firstly, it is true that Bangladesh has better health indicators and has achieved a great deal in recent decades than India has. Even though India has had some successes, Bangladesh has certainly done better. And you're absolutely right in saying that the overall health expenditure certainly is lower in Bangladesh than in India. But still the gains have been very good. So, we do require much greater health expenditure in India - our health expenditure as a percentage of GDP is pretty low and we do need to improve it.

There's a national commitment at this point in time to try and increase it to 2.5 percent of the GDP from 1 to 1.2 percent. By 2025, we are still to wait and see what the trends will be but more importantly it is not just that we need more money for help, but we also need more health for the money, which means that we need allocative and utilization efficiencies. There I think Bangladesh has done well by emphasizing primary health care.

India did not emphasize primary health care; they went in for a very strong medical model of urban based tertiary care and neglected though while there was a primary healthcare model for rural India, it was not adequately resourced by way of financial resources or human resources. It was still very selective, focusing only on certain programs almost like the Millennium Development Goals (MDGs) but did not have a comprehensive primary health care agenda as well.

Even secondary care was like substantially neglected at the district hospital level. Community participation, engagement of civil society, community-based NGOs has been a strong feature of Bangladesh. Women's participation in health has been very strong in Bangladesh. These have not been strong features except in a few places in India, again, Kerala, Tamil Nadu being among the exceptions. India has now recognized the need for strengthening primary health care, they are bringing in the model of comprehensive primary health care to address all of that through health and wellness centers.

The million strong accredited social health activists in villages who are focusing previously only on antenatal care and immunization now are likely to have additional tasks assigned and possibly their numbers would also be enhanced to bring in non-communicable diseases and

many other conditions which were previously neglected. There is a greater determination to strengthen district hospitals and make them also good centers for secondary care.

Bringing in greater connectivity between different levels of care is an important element and of course there is also an investment in greater financial protection and what is evolving towards the universal health coverage system, though it is not yet happening but I would say that if we had to learn lessons from Bangladesh it would be civil society engagement, community engagement, women's participation – particularly these are going to be absolutely critical for India to adopt as well.

Cate Dewey:

Thank you, Dr. Reddy. Dr. Reddy, I would like to ask you another question that was put in the chat earlier and although I am not going to read the whole question, I think the fundamental question is quite interesting.

Does doing intervention research at the rural level require affiliation to a university or is there scope for community-based research through public health support? And they go on to say that "my vision is rural populations having the capacity to do their own interventional research." This question is from Nicole.

Srinath Reddy:

Nothing prevents a community-based organization from doing research, especially if it involves participatory research with active community engagement as well. It depends upon the nature of research - a lot of observational research can be done; a certain amount of interventional research or implementation research can be done.

It does not necessarily require an academic institution or a university to participate, though certain rigor of the research design could be brought in if people who are trained in conducting research are also brought in in terms of sample sizes, the selection of the sample through appropriate randomization and so on. But a good deal of research has been done by community-based organizations and more can be done. Clinical trials of course will have to be registered and even there we can still have non-university institutions doing clinical trials if they can demonstrate the strength of the desired design.

Cate Dewey:

Thank you. Now we do have another person with their hand up and I don't know how to pronounce your name, but I will try and it's Shmuel.

Shmuel Yerushalmi:

I do have a question to ask – what new funding and opportunities has the pandemic created in India in terms of health system in the country?

Radhakrishnan:

At the policy level I can honestly tell that the pandemic was a brutal shock to everybody and the earlier public health economics point of trying to link it to the percentage of GDP and all became serious - of course that doesn't mean that such a huge increase has been done but definitely there has been a huge amount of pumping of resources to develop intensive care units, ventilators, oxygen tanks and again like professor Reddy, the president of Public Health Foundation has said is that the recognition that in a health and wellness center concept and our slightly weaker structure, I am talking about India not necessarily about a few states even in states like Tamil Nadu we have intra-district and inter district challenges and this funding has definitely opened up the funding not only was the requirement with regard to infrastructure is one of the better equipped states even this had to rapidly increase the both oxygen and ICU beds and ventilators and other facilities.

But in addition, we had to also rapidly recruit, we had almost 160 thousand people working for Tamil Nadu health infrastructure. Even here, we had to increase our human resources by almost 30 percent. So, definitely the pandemic has opened the eyes of everybody that it should not be one-off, it has to be in a sustained manner and again in a systematic manner. The other positive development has been the finance commission has for the first time; I will give you a comparison - almost 250 crores was what was given in for health in 2011.

Today every year 805 crores that's roughly 80 million is the amount of additional funding which has come to each state. Definitely that has opened up funding but there is still a long way to go. Like we have said, quite a lot of investment has got focused on tertiary care and quaternary care. Also, we have state of art facilities where international people come and take advantages of low-cost tertiary care, but secondary and the primary care is the area where we need to again rededicate ourselves that is what has been being done through the recent policy changes.

Cate Dewey:

Thank you very much. If I could just add a quick question to that - it sounds to me that money was made available due to the pandemic and your understanding is some of that money will continue to flow for public health and maybe One Health. Is that right?

Radhakrishnan:

Yes, your understanding is correct, and I think the recognition that health cannot be neglected, or it cannot be just on an incremental kind of funding. Professor Reddy has very rightly pointed out that the programs were more focused on maternal and child health and on disease prevention and control. I still feel there is a huge amount of investment requirement to be done and luckily that is coming - the recognition that we need to invest even again in preventive and promotive disease prevention aspects has definitely set in among the various policy makers.

Cate Dewey:

Thank you so much and Sharada you're next.

Sharada Srinivasan:

Thanks Cate and it was great to hear three wonderful speakers on issues that are very close to my heart and my research. I have a question and I would like all the three speakers to share their thoughts on this. There are two correlated questions.

The first of course is - the PPP (the Public Private Partnership) or as Dr. Reddy said Public Private Voluntary Partnerships in delivering help kind of resonated, comes across in all the three presentations. But at the time when the majority of people have such low faith in the public health system, how do you regain or rebuild that trust, so people actually start demanding more from the public health infrastructure?

Your example of why Bangladesh has been relatively more successful in terms of the grassroot demand or involvement in health care - so how do we bring that about? How do we rekindle, re-establish the trust in the public health system so people feel that this is my right, this is my entitlement, and the government needs to do better? That's my first question.

The second question related, again, it is sort of a contradiction that in all the three presentations I see that social science is so vital in advancing the goals of public health, health for all, violence free and health goals for women, yet social science as a field of study didn't occupy a great status earlier but it looks like it is on the decline. How do we make sure that this critical social science is actually an integral part of the process and procedures through which we actually reach the public health goals and vision that the three of you articulate?

Srinath Reddy:

Firstly, from the point of view of the two components of the question as to social sciences which are the second component of the question and the question of trust in the public system. In terms of the public system where the public system has been reasonably well resourced and fairly efficiently functioning, the expectations of the public being met builds the trust. We have seen that in Tamil Nadu where the primary and secondary care systems are functioning very well and have the public trust.

The tertiary care has had more of the private representation but still there is a fair amount of trust overall. In Kerala there's been a substantial revamping of the primary care in recent years and that again has a substantial amount of now public trust and footfall. Even in Rajasthan when there were free drugs being administered in a particular district because of intervention by a collector, the footfall increased immediately.

If you can actually ensure that your allocated health personnel are actually stationed in the primary health centers, they are working, essential diagnostic services are being provided, essential drugs are being provided, then the trust builds up. Now the idea of getting health and wellness centers but also mid-level healthcare providers there will be also providing essential diagnostic services and distributing drugs that may actually be the game changer if it functions well.

The public system has to be much better resourced but also much more present at the local level in order for the trust to be built up. Even with the urban local bodies and the panchayats

now getting money from the finance commission, the local partnership model and local accountability model may also improve that.

Coming to the question of social sciences, I believe it is absolutely important that social sciences should be fostered but it can't be done in a vacuum, in a purely academic university environment - it has to engage with real life problems, move beyond theoretical constructs and try to find the right kind of solutions, provide a very strong analytic framework. Even in COVID, why are some people wearing masks and why are others not wearing masks? Why are some people getting vaccinated but others not getting vaccinated? What are the disparities in access to services?

All of these are important questions, but social sciences cannot confine themselves to providing commentaries, they have to engage and provide problem solving solutions. There you have to contextualize, for example, how is the health of adolescent girls? What are the social determinants? What is their access to education? What is their access to clean toilets and schools? What is the level of gender discrimination, gender violence? All of these nutrition-based.

Therefore, you contextualize social determinants to the issue of adults and girls or to migrants - how have the migrants fare during the perfect pandemic? If you are actually bringing the sharp lengths of good, critical social analysis to specific problems and finding out implementable solutions? Then social sciences will get a big leg up. On the other hand, if it is going to function in a very sterile environment of informed commentaries, it's not going to really work because people are looking for solutions.

Cate Dewey:

Thank you so much. And I would perhaps move to Dr. Radhakrishnan because certainly we believe firmly the key role of social scientists in One Health. So, I would like to hear your thoughts, I am not telling you to answer the question but if you could share with us your thoughts on social science and the One Health agenda.

Radhakrishnan:

I think Professor Reddy has covered the entire gamut, but I will add on one thing is that health somewhere instead of supply driven approach, the social sciences have helped us in making it a demand driven approach. In Tamil Nadu we have one of the best public health models, in spite of that, we find this challenge in fact COVID is surprisingly found in the first wave, the faith in the public health system and the government set up that is the public health care system was much better.

It was the second wave that the private sector came in and even in the second where there were a lot of ethical issues with private sector challenges for that. But when you talk about the faith in the public health system, the quality of medicine, we have a Tamil Nadu Medical Service Corporation which gives the latest medicines. That is why the footfalls increase so that freedom with regard to the demand of whether it is a non-communicable disease or a communicable

disease and the availability more than the accessibility in the public health system improves the faith in the public health system.

Secondly, in the public health system, the involvement of people not just on maternal child health but also on disease prevention - what has happened is there is a gradual reduction health inspector was a carrier created in 1921. Unfortunately, there has been a gradual reduction and the reinduction started only after COVID. These are there are just like atoms and molecules for an organ system or a body to develop these cannot be sacrificed. So public system structure has to be protected and has to be expanded.

As far as social science is concerned, somewhere down the line we need to hit that the cynicism among people. When you look at dengue, dengue is very common in these areas. Most of the time people do not even appreciate that it is within their own houses the fresh water has caused and not the garbage or the contaminated water that may not breed - that level of understanding so we need constant communication to make these social sciences help reviving back the public health system and create the confidence.

Every challenge is an opportunity - COVID ultimately was a very sad event for all of us to agree on certain things which should have been agreed anyway. Whatever our Public Health Foundation of India has been propounding for years together got attention only after COVID, that perhaps should not happen, and I am sure with the world over the learnings are that it should not happen. Last but not the least, people demand translational research and solutions so there again we all need to work together so that will also increase faith in the public health system.

Cate Dewey:

Thank you so much. I think I heard you talk about communication, and I think we rely on social scientists for communication and understanding social determinants of health. I firmly believe that.

Avni Amin:

In response to Sharada's question about both the issue of trust in the public system and the social sciences I mean certainly working in the field of gender and women's health and just building partnerships with researchers in India - that has not really actually been one of the challenges we faced, maybe it's the nature of the field because a lot of the researchers as well as community-based organizations working with women have in fact excellent skills in doing research using social science methods informed by very thorough theoretical background for sure.

This is something that I have been involved in terms of research capacity strengthening in this field since the 1990s. But I just also wanted to point out and I am happy to share the publications but the civil society in India has up until even now has been extremely active in building models for holding public sector accountable.

There is one for example in Gujarat that I can send where you have NGOs who are working with community members to do maternal death audits, teaching community members to look at why you have maternal deaths happening, what is the nature and quality of care being provided in the public sector services to women and certainly this whole notion of social accountability for public health has become sort of well-known now in the sexual reproductive health field.

A lot of the examples on how to do social accountability with the public sector systems are coming from India so it's great to know that. I would definitely say that more than the theory, of course theory is important, but a lot of the NGOs, the researchers coming from the civil society have been exceptional in doing and leading on the social science research front and using participatory research methods as well as other types of social science methods in building knowledge around gender and women's health in India, particularly in the feminist field of violence against women where we've had some really amazing examples from NGOs like the Center for Health and Inquiry into Allied Teams, which is a feminist research NGO based in Mumbai that we've been collaborating for a long time.

Cate Dewey:

Thank you so much. If I could just expand a little bit on this question about social sciences - the question revolves around social science education generally, are we in India building sufficient critical capacity in social science so that with the that social sciences can be an integral part of getting towards our health goals that we've talked about today? And maybe I would go back to Dr. Amin if you wouldn't mind answering that question for us because clearly you had good experience working with social scientists at the ground level.

Avni Amin:

I think Dr. Reddy has commented on that our medical education, our public health education systems largely haven't entirely been very strong on balancing both the public health, epidemiological and the social sciences. But I certainly feel that there are good examples that can be used to scale the social science research education up. I definitely feel that there's a lot of learning to be done from the civil society in India that has really been pioneers in this field.

And I think that one of my hopes is that we can actually import internally from the civil society into the academia. All of the social science research methods and methods of activist research, particularly in this field for gender equality and women's health, there are some excellent examples. I would definitely urge that this be scaled up in the formal education and research institutions.

Tata Institute of Social Sciences is a very good example of an institution that does both social science research as well as public health research and has in fact now master's degrees that kind of focuses on that and a lot of good research has come out of this. These are good models to scale up indigenously already.

Cate Dewey:

Thank you so much. Unfortunately, we are now out of time. I am sure we could carry on having these conversations for a long time because it has been a very interesting discussion. I would like to thank our three speakers very much. I would also like to thank the Canada India Research Centre for Learning and Engagement (CIRCLE) for bringing the panels together and opening our eyes for a better future.

[End of transcript]