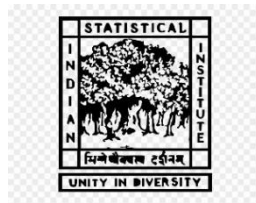FIFTY-FIFTH

CONVOCATION ADDRESS

by

Dr. Soumya Swaminathan

Chief Scientist, World Health Organization

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Indian Statistical Institute

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Greetings from the World Health Organization, I'm Soumya Swaminathan, the chief scientist and first of all, I would like to start by congratulating all the graduating students of the Indian Statistical Institute, for this year, those who are getting their degrees and going out to pursue their future careers. It's a moment of great excitement for all of you, but also of some anxiety and trepidation, particularly as you're stepping out at a time when there is a global pandemic, when there's a lot of uncertainty out there. But I want to reassure you that along with challenges in life, usually there are opportunities and this is a time when young people like you can really face up to the challenges that are facing society today as a whole and think about how you can contribute, how you can use your skills to address problems. In fact, in my own life, I find that I have been happiest when I've had a problem that I need to work on and to resolve, which keeps me up at night, which keeps my brain active and thinking which makes me talk to people about it, work with colleagues with different people from different parts of society to help solve that problem. So in a way it stimulates you to do your best and to come out of difficult situation.

I would like to spend a little bit of time describing my own experience over the last year or so, at the WHO where I've been sitting in a sort of position which has an eagle's eye view over what's happening across the world. It has been a time of huge challenge. It's been a time that's been very humbling because of the lack of knowledge we had about this virus, when we started off early in January 2020. The amazing scientific collaboration and cooperation that I've seen globally, across the world in order to develop new tools and technologies and also learning from the successes and failures that we've seen around the world. So I'd like to touch on some of those aspects. But let me go back to January 2020. We first heard on the 31st of December 2019, that there was a cluster of atypical pneumonia cases- and of course, the WHO has through its emergency program, a very well designed mechanism for focal points in every country, which all report according to the International Health Regulations to WHO when there is some suspicious activity. In addition to that we also have ways of collecting data from non-governmental sources, from lay media, from press, which is then looked at by an artificial intelligence algorithm, that about 9 million of these alerts that come out every month and then out of that, there are a few 100 of them, which need to be further investigated, because they seem to be serious. So that's something that goes on day in and day out. And the fourth of January last year was when the WHO first issued what we call the disease outbreak news to the world, warning people that there was this outbreak, that it looks serious, and that we will be working on it and providing more information. So that's the day. That you know, focal points for International Health Regulations around the world. Every country has a focal point. We're alerted, and ministries of health actually got into action and started following what was happening in Wuhan.

Now, at that time, we knew very little about this virus. But on the 10th of January, Chinese scientists actually published the whole genome sequence. And it was clear that this was a virus that was very similar to the SARS COV I virus which caused the severe outbreak in 2003, which also spread around the world, but ultimately was controlled in a matter of eight months, with about 8000 people being infected and 800 lives being lost. This virus turns out to be quite different from the SARS one in that it's much more easily transmissible. People who don't have symptoms can transmit this virus, it tends to result in Super spreader events. So one individual in a particular setting can actually lead to a lot of infections. Research done in India, that was published a few months ago showed that 15% of infections were responsible for over 80% of secondary transmission. We're still trying to understand where and how and when this happens, but it's clear that not everyone is transmitting to others equally. We also know now that most transmission occurs within either households, or within settings, where people are spending a lot of time together, and especially if it's a closed environment. So we talk about the three C's: the close contact with people, the closed environment, and being in close proximity.

Now, all of that knowledge started coming up over time. So on the 14th of January, when we first put out the technical guidance documents on how countries must start acting to prevent what surveillance needs to be done, what are the things that need to be done in terms of taking care of patients, the infection prevention and control, all of that was done basing our guidance on other similar respiratory viruses and this is where the Science Division that I lead in WHO comes into the picture. We are responsible for quality assurance of all the normative guidance. WHO is a normative agency, we do standards, we do guidance, we do recommendations. And all of that needs to follow a process, which is standardized, which is responding to the end user needs. It's timely, it's relevant, it's based on the best available scientific data and evidence, it's quality assured through a review process, which is also standardized. We make sure that there are no conflicts of interest amongst the members who develop the guidelines, and involve the right stakeholders in the discussions. So there is a process which needs to be followed. And we ensure that that's done. We set up a Publication Review Committee, which would turn around within 48 hours, documents that were being produced, because in an emergency, it has to be done quickly. But at the same time, we needed to ensure that it meets the standards of rigorous science-based advice. So this is a balancing act. Always on the one hand, you have to be as fast as possible. On the other hand, you have to ensure that your quality is not suffering.

The other major thing we did right in January was convening researchers, academics, as well as the private sector, working on new tools. The first diagnostic test was described on February 12. This was the RT-PCR test. At that time, there was a huge shortage of reagents of diagnostics, there were a few companies that were responsible for most of the reagents. And, in fact, we had a situation where in the whole continent of Africa, there were only two labs that could do this test- in South Africa and Senegal. In India, there was only one lab, the National Institute of Virology. But very quickly, of course, this got scaled up in India. Today, I think there are over 2000 Labs both in the private and public sector that can do the RT-PCR. And I know that we do approximately a million tests a day in India. So that's been a huge expansion of capacity, as well as of manufacturing the reagents and kits that you need within the country. But there was during February, March, April global supply shortages and the supply chains had broken down. And that's when it was really very sad to see the huge number of infections and deaths that occurred among health care workers. Globally, 7% of all infections have occurred among health care workers. And in the beginning, when there was a shortage of personal protective equipment, we saw a number of deaths among nurses and doctors and other paramedical staff. And this continues because

they get exposed a lot more than others. And so we continue to see deaths of health care providers. But over time the supply chains have improved.

So going back to the science, this global convening led to a research road map in February that we prepared, which identified the knowledge gaps, and laid out the research priorities and be divided into nine thematic areas. Starting from the origin of this virus, you know, which animal did it come from, most likely, we believe it came from a bat, because it has a very close similarity in the genetic sequence to some bat Corona viruses and bats have lots of Corona viruses. But how and when and where it jumped into humans, whether there was an intermediate animal or not---that is one whole area of work and as you know, there's a team now in China that's investigating that. Then there was a team looking at transmission, at epidemiology, at infection prevention and control, at the development of diagnostics, therapeutics and vaccines, and also social and behavioral research---very, very important for public health programs. We often think, at least doctors tend to think in a biomedical way of an intervention, whether it's a drug or some other product, But very often it is not easy for the community to take it up, especially if it's a behavior change. You ask people to stop smoking- it's not just a question of providing them with the right knowledge or guidance. That often doesn't do the trick. What you have to do to bring about behavior change is much more complex. It requires a multidisciplinary approach. It requires an individualized approach, it requires messaging in different ways.

Around that time, we also coined the term infodemic, to describe the huge amount of information that is out there: credible and good information, but also a lot of misinformation- rumors and myths. And we see that continues to occur. All kinds of absolutely outrageous ideas linking the virus with 5G, linking the vaccine with chips being embedded in people and so on, just creating a lot of confusion and fear and anxiety. We were working on the science and the guidance, and so on, which public health experts can understand and implement. At the same time, we had a huge emphasis on communication to the lay public and to the media. The Director General, and several of us would have daily press conferences for the first three or four months. And following that, we now moved to a twice-weekly press conference schedule. And this is an opportunity for journalists from around the world to connect and ask questions and then learn about the latest. We do events on Facebook Live. Many of us are active on social media. So that's been a change from the past. We've been really trying to reach out to people. We have created a WhatsApp bot, which can answer questions in many different languages, including several Indian languages. We worked with the technology companies- with the social media companies- to ensure on the one hand, that misinformation was being removed from their websites, and on the other hand, to provide useful, credible and practical information for people.

So, that has been equally important, I think, in this response. For countries that have responded better, there are certain characteristics and qualities. The first one, of course, is political will and leadership. And there, it's often said that countries that have been led by women leaders have done remarkably well. And, you know, quoting the example of New Zealand, of Finland, and a few other countries. But what is needed is really a leader who's willing to take on board scientific advice, given to him or her by the experts in the country, and have a science-based approach, have humility, have compassion, look at people's problems and understand what they need. It's very easy to tell people you have to go into a 14 days isolation or a 14 days quarantine. But what is not recognized is that it's not everyone who can do that easily. There are people for whom a daily wage is important, otherwise, they're not going to be able to feed their family. So it's only when governments recognize that and support people to go into isolation, taking care of the family, making sure they have food, making sure they have their

essentials, ensuring that the environment you provide is conducive, it's pleasant, - that is the way to get cooperation. The point is: without engaging the community, without empowering them, without explaining, without getting their buy in, it's very hard for a massive public health program to be successful.

I think these are lessons that we learn from this pandemic, which we need to apply to other disease control programs. We have many public health priorities. Tuberculosis is something I've worked on all my life, we have a half million people who die of TB every year in India- a much higher death toll than we've had from COVID-19. Luckily, we've kept our mortality rates very low,- (despite the fact that we have lost 150,000 people)- relatively low compared to what some of the other countries have faced in terms of deaths per million population or even cases per million. We have huge public health problems like non-communicable diseases, including hypertension, diabetes, (all going up), mental health disorders. And we need to take the lessons from handling the pandemic, into those areas.

I think one major lesson that we've seen is that countries that have invested in public health and primary health care over a period of time, have succeeded. This doesn't happen overnight. There needs to be a sustained investment- in infrastructure, in human resources, in data systems, in digital health, in supply chain, logistics, in continuous training, in the community engagement component, in regulatory systems, in building institutional strengths and capacities. All of this needs to be in place in order for the system to be able to really respond effectively when there's a sudden emergency. This is also what we call resilient health systems that should have the capacity to withstand the shock, and still be able to do a good job.

We did a survey in the summer looking at essential health services and how those were impacted. And it was quite dramatic, that 90% of countries that were surveyed, came back and said that their essential health services were disrupted in one way or another and the lower the income of the country, the more the impact. So 44% of lower middle income countries had severe or partial disruptions in at least 25 essential health services, including immunization, antenatal care, tuberculosis diagnosis and treatment, cancer treatment, essential surgery, blood transfusion services. All of those were affected.

What that results in is really a setback to other health needs of the population, people not getting diagnosis, not getting treatment in time, leading to definitely a negative health impact. And while many state governments really made efforts to try to fill that gap, it was for several months that- people were not able to get to health centers. Health centers were either closed or dealing only with COVID. For example, in tuberculosis, India normally has something like 2.2 million cases, being notified every year to the central government- to the TB control program. And this number has been going up because the private sector has been also notifying cases. You can see over the last few years, the notification for TB has been consistently going up. But this year it's shown a dramatic decline of over 50%. Hopefully this will recover at some point, but that's an example. Patients who had suspected cancer, couldn't get their diagnosis on time, and so on. So it's important for health systems to also look at how to maintain essential health services while dealing with an emergency.

And then of course, you have the non-health impact. And that is something as economists, as demographers and statisticians, you understand much better than I do.

- What's been the impact on livelihoods. The estimate is that a 100 million people just in India alone could be pushed into poverty- a lot of jobs lost.

- Impact especially on girls and young women, because they've had to do more of caring at home for the children who have been out of school.
- In poor families, this may be the time that girls don't go back to school because they've been out of school now for several months. There's a higher chance of being trafficked and there are already reports of increase in trafficking of young women and girls, globally.
- The impact on children who have been out of school. 1.6 billion children were out of school, but many countries prioritized school education and got their children back in school, even while restrictions were placed on other activities.

In India, now, the schools are beginning slowly to open up but certainly the impact on children has been more than just missing out on classes. It's for a child's physical, mental and cognitive development, they need that environment and for many children, the midday meal and just being away from the family environment for some hours in a day is very, very important. We are going to see all that play out over the next couple of years. There will be a period of catching up to do. The projection is that there's been a massive setback in the Sustainable Development Goals. Not only in the SDG for health, but also on the other SDGs. We will have to think about a concerted effort to overcome that. And that's where I think innovation, young people play a role, because we've seen the enormous innovations that had already been occurring. Our ecosystem for innovation had been growing, but the pandemic forced an acceleration perhaps, and in some cases, a leap frogging. Take the example of digital alternative. We do everything now virtually. Normally, one would be thinking about my flying to Kolkata to deliver this lecture. And that would have made it quite difficult. And we would have had to negotiate a time and a date and so on, apart from adding to all the air miles of flying and to the global warming. So some aspects are good, I think we are more efficient now,- we get a lot done this way. Of course, meeting and personal interaction is a different feeling and one needs that as well, you can't only be always on Zoom, it's very different to have that personal interaction. So that needs to continue, for sure. But a lot of work can be done this way. A lot of health care is now being delivered through telemedicine, Many parts of the country, which lacks specialist services, can use telemedicine and specialists who are sitting in cities, big hospitals, or district hospitals, to provide their services to people who are in rural communities, maybe with having a health worker in between as an intermediary and the eSanjeevani Clinics have been trying to do that in India. And I understand that they're going to scale that up massively. So there have been some experiments that have happened, which have enabled the leapfrogging and hopefully providing better quality health services. But at the same time, we have to remember that technology cannot solve all our problems.

Technology is a tool that should be used with and under the guidance of humans, in order to solve our problems, We have to use them smartly, We have to see where they help us. But ultimately, we have to keep the goal in mind, which is improving health outcomes of people.

The last point I'd like to make is that rigorous monitoring, evaluation and research are really important and critical. I think we need to learn how to be a learning system, We need to be constantly, not just experimenting with new ideas and innovations, but learning from them. Some will be successful, some will not be so successful. And we need to make sure that we are self-critical, that we look at the evidence and see how we can do things better and improve health. Again, I'm thinking about health, but the same applies to other programs as well. You take education. There's a huge need to improve education standards, in schools and colleges across the country. Think about ways of doing that, of mentoring other people. As young people, you can mentor people who are less fortunate, who have not had the exposure or the opportunities to have the kind of studies and the teachers and the facilities and infrastructure that

you've had. A lot of people do want to help. We need to find a way. This is where I feel very encouraged when I see a lot of social entrepreneurship happening everywhere and young people particularly with brilliant ideas on how you can actually crowdsource and make things better, without necessarily having to invest a huge amount of money.

So I think the idea of data would appeal to all of you, as well as the need for decisions being data driven, being science driven, and evidence based. I think that also needs to extend to scientific literacy in the community. I think institutions like the Indian Statistical Institute, have a role here. It is a very well respected institution that has had many, many stalwarts and giants of statistics and demographics, working in India has a long tradition of statistics and data. And we need to maintain that. We need to ensure that we educate people. That people who understand the details of a particular discipline are able to communicate that in a way. I said, there is need for building up scientific literacy and health literacy so that people do not have irrational beliefs, but rather focus on evidence based and data based communication and messaging. That, is something that we, as, technical experts, need to make a conscious effort to do more of and to do it better, and to communicate in a language that people understand and appreciate. it's a skill that can be built over a period of time. I'd like to congratulate all the graduating students, I'd like to congratulate their parents who I'm sure are watching and are extremely proud of their sons and daughters. And I'd like to congratulate also Dr. Sanghamitra, the director, and others in the Indian Statistical Institute- the faculty, and staff, and wish you a very, very good convocation. Thank you so much for this opportunity to speak to you. Bye.