



## Message from the NSTF Executive Director

### Why India and Brazil?

Recently the world watched as first Brazil and then India endured unprecedented waves of the COVID-19 pandemic sweeping through their populations and running up cumulative death tolls of 462 092 and 331 607 respectively (as at 29 May 2021), in a short space of time. Only the United States surpasses these numbers. Why did this happen to India and Brazil? What did they do wrong, or right? How much blame should be ascribed to politicians, and how much to new variants of the coronavirus? Why was Brazil hit harder than India? (Or was it the other way around?) What are the implications for those countries that have not experienced such devastating waves?

The Brazilian and Indian tragedies are somewhat personal to me, as I am sure they are to many South Africans – particularly that of India. My brother-in-law and his wife lived in Brazil for a number of years, learnt Portuguese and grew to love the people. Both of them South Africans, he is of English/Scots/Swiss descent, and his wife of Indian descent. This meant, of course, that the couple lived in exile during the Apartheid years, and raised their four children in England. They returned with their teenage children to South Africa as soon as they were allowed to, and stayed. In recent years they visited the country of her roots, India, before she sadly passed away last year. Many South Africans have historic and family ties to people in India. We all probably want to see India succeed. Its people have shown us how to be innovative and resourceful, and rise above poverty through one's own efforts.

### COVID fatigue

Possible reasons for the accelerated spread of the virus in the two countries include mismanagement and 'COVID fatigue' – desperately wanting the pandemic to end, and even denying that it is still ongoing. Brazilian President [Jair Bolsonaro](#) denied the existence of the pandemic from the start and for a long time, and discouraged and ridiculed mask-wearing. He refused to listen to and support local governments in Brazil that wanted to implement restrictions including lockdowns.

India on the other hand, did relatively well in their handling of the pandemic until about two months ago. There had been a decline in numbers of infections and deaths from their first peak in September 2020. Prime Minister Narendra Modi and India's ruling Bharatiya Janata party then boasted in a [resolution](#) in February: "It can be said with pride, India ... defeated COVID-19 under the able, sensible, committed and visionary leadership of Prime Minister Modi ... The party unequivocally hails its leadership for introducing India to the world as a proud and victorious nation in the fight against COVID." They then lifted restrictions entirely on all public gatherings. Elections were held in five states, with campaign rallies that involved thousands of people crowded together, and the month-long Hindu pilgrimage was held on the banks of the Ganges River. There probably were other super-spreader events, but the aforementioned may be the major contributors.

The virus is deceptive. When you don't witness directly how people are getting severely ill and dying, it is tempting to think that it is harmless. Why wear a mask with people you know well? You don't see any sign of illness and they seem carefree...and so we jump to the conclusion that there is no threat.

Everywhere in the world where people have failed to use their imaginations and heed the science, notably the US, Brazil and India, (but many other places besides) the consequences have been dire. The worst is when the imaginations, and logic of the politicians fail them, and they decide to disregard sound scientific advice.

I mention imagination, because where something is undetectable by human senses, people tend to disregard it – e.g. climate change and global warming, market forces, the true character of corrupt individuals who act in a way that inspires trust, and all kinds of 'germs' (bacteria, fungus, viruses...). The list goes on. A questioning attitude is the key to getting behind appearances, as well as the imagination to conceive of a reality that is not apparent to the senses.

An [article in Bloomberg](#) said on 5 March, that state governors had criticized Brazil's federal government for spreading false information and "prioritizing conflict, creating images of good-versus-evil and undermining cooperation." Towns in Brazil are making their own rules to manage the pandemic (or not). Some are imposing strict lockdown while others do nothing, in the interest of continued business and earning livelihoods. The toss-up between lives and livelihoods is a cruel one.

### **Comparison of India and Brazil**

[Investopedia](#) advised in April 2019 that India and Brazil both have enormous potential – they "are both important developing economies, part of the BRIC nations, with large populations and a wealth of natural resources". (It omits the important 'S' in BRICS which stands for South Africa. The R stands for Russia and the C for China). This is still true despite the ravages of the COVID-19 pandemic, although the challenges to realising their potential are now even greater.

India has a huge population living on a small surface area. Its population is about 1.4 billion, similar in size to that of China, or six and a half times that of Brazil, or four times that of the USA. The area of India is only 40% of that of Brazil and a third of the area of the USA. Its population density stood at 416 per square kilometre in 2019. That is eight and a half times the population density of South Africa at the time. Although the surface area of Brazil is larger, most Brazilians live in urban areas, and substantial parts of the country is sparsely populated. The five most populous states, which are along the coast, range from 100 people to 493.5 people per square kilometre. Therefore population density as an indicator could be misleading.

India and Brazil thus have this in common: that large portions of their populations live in crowded conditions. 87% of Brazil's people live in urban areas, compared to 34% of India's population. (See [Urban population \(% of total population\) | Data \(worldbank.org\)](#)). 34% of India is of course a very high number of people.

India looks like a rich country if only comparing its GDP (Gross Domestic Product), which is about nine times that of South Africa, and almost double that of Brazil. However, the large population means that per capita GDP is dismally low, at \$1 982, or less than a third of that of Brazil. Health expenditure per capita in India is a mere \$19 per person.

India has a younger population than Brazil, with the average age being 26 years, compared to Brazil's (also young) population averaging 33.5 years.

## Comparing COVID-19 figures

The actual number of COVID-19 infections are greater in India than in Brazil, at about 28.2 million vs 16.5 million respectively (at 29 May 2021). However, the infections *per million of the population* show that the proportion of infections is much lower for India, again because of the size of its population (20 226 for India, vs 77 197 for Brazil). Comparing total deaths from COVID-19 in the two countries, India's figure is 70% of that of Brazil. The figures should be seen in perspective. In both countries it is likely that the number of infections and deaths are many times more than the official statistics, making it futile to compare the official death toll of each of the countries.

India and Brazil have done something right in relation to COVID-19: they have both done a substantial number of tests. In India's case the total number is enormous, with the result that their number of tests per million of the population is similar to that of (or actually greater than) Brazil (247 688 and 230 930 per million, respectively). But testing is of little use if it doesn't lead to the containment of the spread of the virus.

India also got its vaccination programme onto a sound footing before the devastating spread of the virus in May. The number of COVID-19 vaccine doses administered monthly increased from 3.7 million in January, to 10.1 million in February, 50.6 million in March and more than 90 million in April. By 6 May, more than 162 million doses had been administered – the third highest number in the world after the US and China. India has done 70% of the number of full vaccinations of the USA. This is also double the number of complete vaccinations done in Brazil. However, India was of course overtaken by super-spreader events in May, and the deadly new strain of the virus. Despite the substantial progress of the vaccination roll-out, only about three per cent of the country's 1.4 billion people have been fully vaccinated.

## Variants of the SARS-CoV-2

Our bodies produce antibodies in response to infection or vaccination, and this is the actual ammunition that fights the coronavirus inside of us. However, there are now more than a thousand known variants of the SARS CoV-2 virus. As the new strains increasingly adapt to our bodies, so our existing antibodies will become ineffective, the tests will no longer detect all new variants, and the available vaccinations will no longer work as effectively.

The only way of developing effective vaccines, is to analyse the variants. Scientists can detect "minuscule changes in the genetic make-up of the virus". Developments in genomic sequencing have made it possible to decode the entire viral genome, and to study it in astoundingly great detail.

The [World Health Organisation \(WHO\)](#) has now introduced a new naming system for the variants based on the letters of the Greek alphabet. The UK/Kent, South African, Brazilian and Indian variants will now be named by the letters Alpha, Beta, Gamma and Delta respectively.

The WHO says that the B.1.617 COVID-19 variant, that was first detected in India, and is now called the Delta variant, is currently prevalent in 53 countries. [Virus variants in Asia threaten the whole world \(msn.com\)](#).

The speed of transmission can be ascribed to the variants Delta, or B.1.617, originating in India, and the Gamma, or B.1.351, variant from Brazil. These variants are more infectious than the Alpha variant. In our country, a new strain was identified, namely the Beta variant. Since there are more than a thousand variants identified thus far, chances are high that virulent strains of SARS-CoV-2 may emerge in any country.

Included in the other countries now experiencing the devastating spread of the Delta variant are Nepal and Vietnam. The disaster is compounded by the indications that the BioNtech/Pfizer and AstraZeneca vaccines are not as effective against the Delta variant.

Genomic sequencing by the Indian National Institute of Virology has identified eight mutations within the spike protein of the Delta variant. One of them has even been associated with 'immune escape', which enables the pathogens to evade the human immune system.

In Bangladesh, by contrast, the Beta variant (B.1.351) is responsible for the rapid rise in cases. Again, the AstraZeneca vaccine has been reported as offering only 'minimal' protection against this strain. As with India and surrounding countries, the main vaccine available in Bangladesh is Covishield, the name for AstraZeneca manufactured in India.

### **Availability of vaccines**

The second wave of the pandemic in India is a tragedy in another sense: the volumes of medicines produced by the pharmaceutical industry in India is "the third largest in the world and the 11<sup>th</sup> largest in terms of value. It contributes 3.5 per cent of the total drugs and medicines exported globally and about 20 per cent of the global exports of generic drugs". (See [Commentary: India's COVID-19 crisis has larger implications for the world - CNA \(channelnewsasia.com\)](#)) The second wave has disrupted the manufacture and export of Indian pharmaceutical products, including vaccines.

From the [Commentary: How did India go from exporting vaccines to reeling from COVID-19? - CNA \(channelnewsasia.com\)](#): "Although India produces 60 per cent of the world's vaccines, the government took no steps to scale up production of the two COVID-19 vaccines cleared for manufacture in the country. Nor did it permit the import of foreign vaccines, help expand available manufacturing facilities or license other Indian firms to produce doses.

"The world's richest countries have secured some 70% of supplies of the five top COVID-19 vaccines despite having less than 16% of the globe's population. (According to a recent study in the medical journal *The Lancet*). According to the WHO, only 0.2% of the population in poorer countries have been vaccinated against SARS-CoV-2. *The Economist* estimates that mass vaccinations will not start there until 2024 at the earliest, if programs continue at this pace."

### **Conclusion**

It looks like the deadly waves of the coronavirus pandemic that are currently getting weaker in India and Brazil could happen anywhere in the world. Although the numbers of those affected and the speed with which it spreads are unprecedented, the tragedy of doctors and nurses being unable to assist many patients and watching them die, has played out across the world since early in 2020. The tragedy of mortuaries not being able to dispose of the dead has likewise happened before, for example, in Italy at the start of the pandemic last year. Another example is Gqeberha (Port Elizabeth) in the Eastern Cape during both the first and second waves.

Densely populated areas seem to be at greater risk of disastrous increases in the number of infections.

The speed of transmission can be ascribed to the variants (Delta, or B.1.617, originating in India, and the Gamma, or B.1.351 variant from Brazil) which are more infectious than strains with which we are familiar. Since there are more than a thousand variants identified thus far, chances are high that virulent strains of SARS-CoV-2 may emerge in any country, at any time.

However, it is not the emergence of new strains alone that is responsible for the carnage. What triggered the galloping spread of the new variants in both countries was the failure of their governments to prevent or limit direct contact among their people, especially super-spreader events. In India, the government did not ensure that manufacture of vaccines was scaled up, nor did it allow vaccines to be imported. It is imperative that governments should be effective and efficient, now more than ever, and that political leaders should have the will, and work together to deal with ongoing disasters such as the current pandemic.

Life-saving oxygen as well as vaccines are not readily available for all people in most countries, including India (where vaccines are manufactured).

Both the politicians and the new variants of the novel coronavirus are thus responsible for the Brazilian and Indian tragedies. We can only hope that our government can continue to initiate measures to prevent such tragedies, although it is constantly distracted by combative politics, and now by the imminent downfall of our Minister of Health.

### Key figures summarized for Brazil, India, South Africa and the USA:

	Brazil	India	South Africa	USA
<b>GDP - 2020</b>	\$1 434 080 million	\$2 708 770 million	\$302 114 million in 2021 (about \$350 000 previously)	\$20 936 600 million
<b>GDP per capita - 2020</b>	\$6 824	\$1 982	\$5 067	\$63 742
<b>Health expenditure per capita</b>	\$389 (2017)	\$19\$ (2017)	\$499 (2017)	\$9 386 (2019)
<b>% budget</b>	10.26% (2017)	3.38% (2017)	13.34% (2017)	22.55% (2017)
<b>Population</b>	<u>213 934 926</u>	<u>1 392 345,967</u>	59 622 000 (2020)	<u>332 770 250</u>
<b>Surface area</b>	8 515 770 km <sup>2</sup>	3 287 259 km <sup>2</sup>	1 219 090 km <sup>2</sup>	9 831 510 km <sup>2</sup>
<b>Population density /km<sup>2</sup></b>	25 (2019)	416 (2019)	49 (2020)	33 (2019)
<b>Life expectancy</b>	75.67 years	69.42	63.86	78.54

### Covid figures (as at 29 May 2021)

	Brazil	India	South Africa	USA
<b>Total Covid infections</b>	16 515 120	28 161 668	1 662 825	34 043 573
<b>Total cases per million</b>	77 197	20 226	27 719	102 304
<b>Total Covid deaths</b>	462 092	331 607	56 439	609 556
<b>Total deaths per million</b>	2 160	238	941	1 832
<b>Vaccinations completed</b>	21 540 640	42 419 560	480 665	135 087 319

<b>Doses administered</b>	61 961 410	208 902 445	700 904 (at the beginning of June 2021, the one million mark was passed)	294 928 850
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## Sources

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[covid-19 infections by country - bing](#) (see the graphs comparing countries)

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***The opinions expressed above are those of the Executive Director, Ms Jansie Niehaus, and do not necessarily reflect the views of the [Executive Committee](#) or [members](#) of the NSTF.***