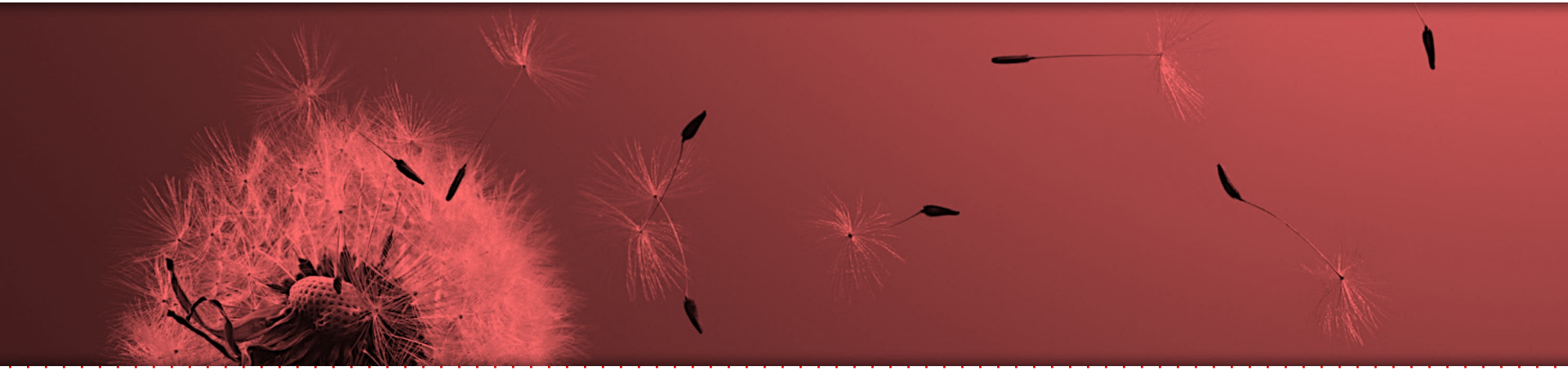

INDIA'S 2ND WAVE AND LESSONS FOR OTHER COUNTRIES

MAY 5TH, 2021

ANADACH GROUP

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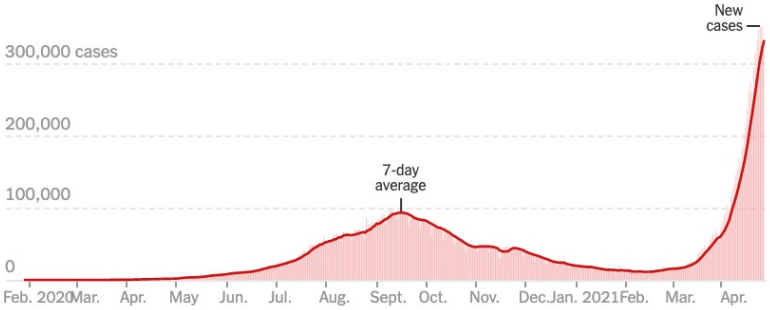
OVERVIEW OF CURRENT SITUATION IN INDIA (MAY 4TH 2021)

INDIA: COVID-19 PANDEMIC LANDSCAPE (1/2)

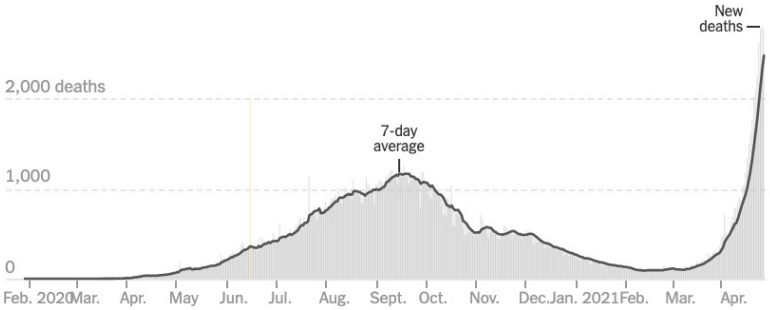
- India is currently undergoing a second wave of COVID-19
- The uptick in cases started with new daily cases fast approaching 20,000 at the beginning of March (an average of 11,500 cases were reported daily in February)
- New daily cases rose to 50,000 by the end of March
- At the peak of India's first wave in September 2020 India had recorded on average 97,000 new cases and about 1,100 deaths
- On May 3rd, India recorded approx. 360,000 new cases and about 3,500 deaths which is the highest number of deaths in a day from COVID-19 since the start of the pandemic last year (a new daily record is set each day in India as cases continue to rise)
- It would seem India has now become the epicenter of COVID-19 pandemic and has gone from being an important player in the fight against COVID-19 as a key contributor to the global supply of vaccines to being in dire need of help - a situation described by the DG of the WHO as 'heartbreaking'

New reported cases by day



Note: The seven-day average is the average of a day and the previous six days of data.

New reported deaths by day

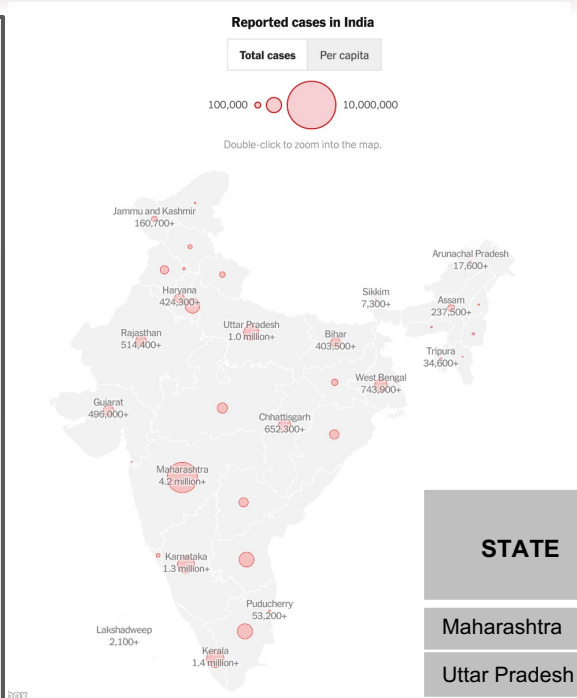


Sources::

OVERVIEW OF CURRENT SITUATION IN INDIA (MAY 2021)

INDIA: COVID-19 PANDEMIC LANDSCAPE (2/2)

- The spread of COVID-19 in India during the second wave follows the same pattern as during the 1st wave – upticks starting in urban settlements and then spreading to rural and remote communities as lockdowns are imposed, and low income workers flee the city
- Various serosurveys have consistently found that at least 50% of urban populations tested have antibodies to the virus
- The states of Maharashtra, Delhi, Uttar Pradesh, Kerala, Tamil Nadu and 5 other states account for a little over 75% of new COVID-19 cases recorded in India's 2nd wave
- Maharashtra has reported the highest daily new cases (over 70k) followed by Uttar Pradesh which is India's most populous state
- The region around India's capital - New Delhi is going into a week-long curfew as hospitals run out of beds and oxygen
- Lockdowns are being implemented in the cities most impacted such as Mumbai and Delhi causing tens of thousands to flee to their villages (last year, as lockdowns were imposed in cities all over India, it was tens of millions that fled and so a similar exodus can be expected during this much worse 2nd wave)



Migrant workers in Mumbai waiting for trains on Monday. Health experts fear that as large numbers return home, the spread of the virus could accelerate and devastate poorly equipped villages. Atul Loke for The New York Times

STATE	AVERAGE DAILY CASES REPORTED IN THE LAST 7 DAYS (i.e. 21st April to 27th April)
Maharashtra	72,056
Uttar Pradesh	38,365
Karnataka	29,697
Delhi	27,779
Kerala	26,874
Chhattisgarh	17,515
Rajasthan	16,608
Tamil Nadu	15,174
Gujarat	15,115
Madhya Pradesh	14,844

Sources::

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HOW AND WHY DID INDIA GET HERE? – COMPLACENCY AND HUBRIS

TIMELINE OF SELECTED KEY EVENTS THAT MAY HAVE LED UP TO INDIA'S CATASTROPHIC SECOND WAVE

- In January the Indian government proclaimed that India had beaten the pandemic and general sentiments amongst Indians was that herd immunity had been achieved even as vaccine rollouts began on January 16th
- Believing the worst was behind them, India became complacent – lockdown measures were relaxed, restaurants, markets and night clubs opened, businesses resumed, and people relaxed on wearing masks and also flouted social distancing protocols
- In February, the Election Authorities announced key elections in four states (Kerala, Assam, West Bengal, Tamil Nadu) and several large election rallies were held over March and April in the aforementioned states, as well as in Uttar Pradesh where assembly elections also led to campaigning although at a smaller scale
- In March an uptick in daily reported new cases began and yet over 130,000 fans, mostly unmasked were allowed to watch two international cricket games between India and England between March 12th to March 14th
- By March 25th things got so bad the government announced it would no longer export the vaccines made by the Serum Institute of India to deal with the sudden surge in demand ushered in by the second wave
- The activities leading up to and around the Kumbh Mela festival alone were linked to at least 1,700 positive cases reported between 10th – 14th April
- After not holding any meetings in Feb and March, the government appointed taskforce for COVID-19 met on April 15th and April 21st

Sources::

HOW AND WHY DID INDIA GET HERE? – MUTATIONS

THE FOUR VARIANTS IN CIRCULATION

- **The UK variant** is thought to be the variant driving India's second wave
- The UK variant is reported 60% more infective, is prevalent in India and thought to be responsible for the spike in Punjab
- However, on March 25th, amidst increasing daily new case reports and rising mortality, and just before the sharp up tick in cases that would send the country spiraling, India announced that a new variant had been found in saliva samples taken from people in Maharashtra, Delhi and Punjab – variant B.1.617
- This homegrown **Indian variant** had first been uncovered in Maharashtra as far back as October 2020 and has been dubbed a double mutant variant because it has 2 particularly dangerous mutations
  - One of the mutations is similar to the SA variant and increases transmissibility of the virus
  - The other mutation is similar to a variant found to be responsible for outbreaks in California, US and has been linked to increased infectivity by evading antibodies
- 38% of genetically sequenced samples collected in March in India and 61% of samples collected in Maharashtra in April, contained the Indian variant
- The Indian virus would be the 4th VOC or VOI to be announced in India - **the SA variant** which drove South Africa's second wave as well as **the Brazil variant** are also known to be circulating in India

Q: What makes it a "variant of concern"?

At least three thresholds must be met to determine whether a particular mutation (or series of mutations) leads to something meaningful or is "worrisome", Dr. Eric Topol, a leading virologist, Executive Vice President of of Scripps Research and Editor-in-Chief of Medscape.

(1) Infectiousness: greater ability to infect people;

(2) Virulence: More hospitalisations, severe cases and deaths;

(3) Immune-evasion: Reinfects previously COVID-infected, or renders vaccines less effective).

Sources::

HOW AND WHY DID INDIA GET HERE? – CONCLUSION

IN SUMMARY:

- India's second wave of COVID-19 has broken previously held global records for the highest new cases in a day and most deaths in a day to become the worst COVID-19 surge in the world
- It appears 3 main factors are responsible for this dramatic change barely 2 months after President Modi addressed Indians and spoke of India's contribution to the global fight against COVID-19 and how the country had saved lives all over the world with its vaccines
- The three factors were a population susceptible to infection, several failings by the government to uphold COVID-19 prevention protocols and the prevalence of variants of concern

LOW COVID-19 VACCINATION RATES

- Large amounts of susceptible people yet to be immunized against COVID-19
- Only 10% of the population has been vaccinated and only 1% have received 2 doses

POLITICAL & GOVERNMENT CHALLENGES

- The government signaled to the general public that it was okay to return to normal by opening businesses, schools, restaurants, and stadiums
- Consequently, the government allowed religious festivals, cricket tournaments and election rallies to take place - most likely super spreader events

CIRCULATING VARIANTS OF CONCERN (VOCs)

- Four variants of concern are circulating in India– the SA variant, the Brazil variant, the UK variant and the Indian variant aka the double mutant variant
- The UK and Indian variants are thought to be most responsible for driving the 2nd wave
- Variants typically have an impact on both the transmissibility and infectivity of the COVID-19 disease and has been linked to the resurgence even in Africa

Sources::

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WHY SHOULD YOU CARE ABOUT WHAT IS HAPPENING IN INDIA? (1/2)

RELEVANT IMPLICATIONS OF INDIA'S COVID-19 CRISIS

- Global focus and aid is going to India right now - France is sending oxygen, the UK is sending oxygen concentrators and ventilators, Germany, Canada, the EU and the WHO have also promised to rush supplies to India and the US is sending PPE and has lifted an export ban to send India raw materials needed to produce the AstraZeneca vaccine, for free while also
- This means less resources and attention going to other regions in need such as Africa
- Additionally, Africa has been significantly reliant on the COVAX facility for vaccine supply and the majority of the vaccines supplied have been Indian produced AstraZeneca vaccines, and hence a disruption in COVID-19 vaccine rollouts in the continent or outright shortages is a real possibility
- Africa is indirectly but disproportionately affected by the ongoing COVID-19 crisis in India compared to the rest of the world
- Several countries around the world have already banned flights to and from India including the UK, the US, Canada, the UAE, etc. Few African countries have yet implemented a travel ban against India. Africa has pockets of Indian expats and Indian communities and hence it is likely that the Indian variant will soon make its way here via travelers. Nigeria and Kenya have subsequently banned travel from India,.
    - Additionally, countries in Africa risk being imposed with further restrictions as well due to travelers from India wanting to get to the UK for example, deciding to land in Accra, Ghana and to travel to the UK thereafter
- India is the 3rd largest importer of crude oil and due to an anticipated crash in demand as lockdowns and curfews are imposed, oil prices have dropped. Countries whose economies are reliant on oil prices such as Nigeria will be impacted if prices continue to fall

Sources::

WHY SHOULD YOU CARE ABOUT WHAT IS HAPPENING IN INDIA? (2/2)

INDIA'S MISCALCULATIONS

- In retrospect it is clear that India had relaxed on monitoring and surveillance and that had created blind spots in their capacity to prepare for, or respond to the second wave.
- It is now apparent that India's surveillance system must have missed the real prevalence of the virus until it was too late.
- Reporting in January and February that India was out of the woods was dangerous as it caused people to flout COVID-19 prevention protocols such social distancing, hand washing and mask wearing – even President Modi held massive rallies which he attended sometimes not wearing a mask.
- India opened up businesses including restaurants, schools, and even allowed people watch cricket tournaments at the stadium – life went back to normal in a country with almost 1.4 billion people.
- India may have allowed political and religious sentiments take priority over public health concerns – election rallies and religious festivals constituted super spreader events in a country with 2 variants of concern circulating
- India's inoculation drive was to be based solely on their home grown vaccines (Covishield and Covaxin) but late in April it announced that states and corporations are now allowed to conduct bilateral purchasing discussions directly with manufacturers

LESSONS FOR OTHER COUNTRIES

- **Guard against blind spots**: Countries must ensure that they do not drop the ball when it comes to monitoring and surveillance or risk being taken by surprise by a second wave
- **Scale up genomic sequencing (if applicable)**: Genomic sequencing will aid in the timely detection of variants circulating within the population including any variants of concern before an uncontrollable spread
- **Strategic re-opening of businesses**: Suggest only essential services that can be compliant to COVID-19 protocols should be re-opened. Governments must carefully consider if re-opening of schools, markets, and places of worship is worth the risk
- **COVID-19 preventive protocols must be reinforced and upheld**: To prevent the need for total lockdowns and shutdowns which will lead to economic challenges both for the government and the people, as well as the displacement of low income workers who cannot afford lockdowns in the city and that will flee into the villages, taking the virus with them. Large gatherings must be banned, social distancing rules enforced and mask wearing mandated in public places
- **COVID-19 vaccinations must be prioritized and scaled up**: Stakeholders should ensure that the COVID-19 inoculation drive is prioritized and private sector participation invited to assist with either vaccine purchasing, cold chain storage and distribution, the administration of jabs, or monitoring and surveillance. Until herd immunity is achieved, there is always the risk of another wave worse than the ones before it, likely driven by mutations

Sources::

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THE SEVERAL COMMONALITIES THAT EXIST BETWEEN INDIA AND SEVERAL COUNTRIES IN AFRICA POINTS TO THE POTENTIAL FOR A SIMILAR CATASTROPHIC SEQUENCE OF EVENTS

SIMILARITIES BETWEEN INDIA AND SELECT AFRICAN COUNTRIES

- **Laxity from the government over COVID-19 prevention protocols** – India was in a hurry to return to life as normal and opened businesses, schools, markets, stadiums and places of worship. In several countries in Africa, a similar thing is playing out with mask wearing not being enforced, social distancing measures no longer being ensured, schools re-opening and a reduction in remote working as employers increasingly ask workers to resume in-office work
- **A young population** – The median age in India is 26.8 vs 19.7 in Africa. A younger population might have contributed to the surge in India as impressions around COVID-19 being a disease of the elderly or sick have lingered and hence young people have thought themselves invincible served as carriers. This is exacerbated in countries with high rates of COVID-19 denialism such as Nigeria (18% vs 6% in 14 other African countries polled)
- **Highly religious people** – Hindus in India probably compromised COVID-19 protocols to conduct religious festivals likely to have contributed to mass casualties it is currently experiencing. Islam, Christianity and Traditional worship are prevalent across Africa and each religion has festivals, holidays, and religious events that followers might be ready to flout public health measures to uphold
- **Multi-cultural people** – In many countries in Africa, just like in India, cultural rites dictate how people of varying ethnicities decide to bury their dead, conduct funerals, and even how marriage ceremonies are conducted. What custom dictates may be at odds with COVID-19 prevention protocols
- **Poverty** – Poverty is prevalent in Africa and in 2018, the country Nigeria overtook India as the country with the most extreme poverty. In both countries, and in many other countries in Africa, millions of people live below the poverty line and COVID-19 lockdowns and economic restrictions have been devastating and resulted in the movement en masse of low income workers from the cities to rural areas, taking the virus with them
- **Weak health systems** – Public health systems were ill-prepared to deal with a sudden increase in demand for bed spaces, ICU care, oxygen, etc. in India and in Africa, many countries will find themselves similarly choked by an onslaught of patients
- **Low vaccination rates** – Although India had the largest inoculation drive in the world and has administered almost 140 million jabs, due to the size of its population this equates to only 1% of their population and similarly only 1% of Africa has been vaccinated (as at May 10th, 2021)

Sources::

NEXT STEPS – 'IT IS BETTER TO BE SAFE THAN TO BE SORRY'

RECOMMENDATIONS

- **Ban flights from India immediately for countries which have direct flight links,** and others that do not have direct links may wish to consider focusing on close monitoring passenger travel. Some African countries e.g.. Kenya, Nigeria, Uganda have various levels.
- **COVID-19 screening at the airports as well as the land and water borders should be fortified** and staff there adequately trained and protected. Rwanda notably has gone as far as deploying robots to Kigali International airport to aid in the screening of passengers for fever
- **Frontline healthcare workers must also be supported** appropriately. There were strikes last year around the period of the first wave due to lack of adequate PPE and indemnity insurance
- **Prioritize the administration of any COVID-19 vaccine stock sitting on shelves:** In several countries across Africa, the rate of vaccination has been so slow that vaccines are expiring in storage. As at May 4th, Nigeria has only administered 1.1 million of the 3 million doses it received in March. Malawi and South Sudan announced in April they would bin over 70,000 vaccine doses that had expired before they could be administered. With the exception of South Africa that is using the one dose J&J vaccine, countries in Africa are solely using two-dose vaccines that need to be spaced apart by several weeks for maximal protection, which makes increasing the pace of administration even more so important
- **Prepare for a second or third (or fourth wave):** Although several countries in Africa have had 2 waves, Kenya notably is in its 3rd wave which peaked in April 2021. Each wave will typically be exponentially worse than the wave before it. Diagnostic capacity building should be carried out for example stockpile testing kits. ICUs must assess their oxygen capability and ability to support COVID-19 patients. The capacity for genomic testing to identify variants must be scaled up. National communicable disease centers (CDCs) and epidemiologists must be on the lookout for a new wave - watching daily new reported cases, weekly averages, and overall prevalence so as to not be taken by surprise by a wave
- **State and local governments must do what it can to protect their communities rather than waiting for a federal response given the nature of what is at stake with the COVID-19 virus:** Mask wearing, social distancing, and hand washing should be mandated and enforced with the seriousness of 2020. Leaders on every level must engage in efforts to protect their communities regardless of what federal interests might be
- **Large gatherings should be banned ahead of the Ramadan celebrations set to occur in several countries across Africa with large Muslim populations (e.g Egypt, Morocco, Nigeria etc.), from May 12th, 2021**
- **Large gatherings should remain banned across the country until at least 60% of people have been vaccinated**

Sources::

NEXT STEPS – ONE THING TO REMEMBER AS A STAKEHOLDER

KEY TAKEAWAY

UNLESS YOU HAVE THE RESOURCES TO IMMUNIZE 60-70% OF YOUR POPULATION, TO ACHIEVE HERD IMMUNITY AGAINST COVID-19 (AT SCALE, WITH SPEED, AND SAFELY), THEN **YOUR BIGGEST, STRONGEST, AND CHEAPEST LINE OF DEFENSE AGAINST COVID-19 IS MAINTAINING PREVENTIVE MEASURES** SUCH AS:

- MANDATING MASK WEARING
- ENFORCING SOCIAL DISTANCING IN ALL PUBLIC SPACES
- HANDWASHING OR SANITIZER USE
- LIMITING LARGE GATHERINGS FOR ANY REASON
- TAKING COVID-19 DENIALISM SERIOUSLY AND AVOIDING POLICIES THAT ENCOURAGE BAD BEHAVIOR FROM THE PUBLIC

Sources::

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APPENDIX – KENYA'S 3RD WAVE

Kenya is currently undergoing a 3rd wave of the pandemic which had started even before the country's vaccine rollout halted due to a lack of vaccines. This 3rd wave is worse than the first two and this seems to be a common phenomenon – **if you get another spike in cases, it is likely to be a worse spike than the one that came before it**