



Current Affairs of the Day

GS Paper III

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ICMR: Weathering India's coronavirus storm

The govt.-funded body that has been at the centre of the fight against the virus is under the spotlight as a second wave is sweeping through the country

The Indian Council of Medical Research

1. The ICMR has 26 national institutes and six regional research centres to investigate and suggest policy measures for communicable and non-communicable diseases
2. These institutes have expertise in TB, leprosy, cholera and diarrhoeal diseases, and viral diseases including AIDS
3. One of its labs, the Pune-based National Institute of Virology (NIV) that traces its origin to 1952, sequenced the virus in February 2020, almost as soon as the genome sequence of the virus was made globally available by China.
4. The lab developed the assays needed to detect the presence of the virus by targeting specific regions of its genome.
5. Soon enough, the organisation was able to grow the virus in the lab, a necessary step to being able to develop a vaccine. This strain was eventually transferred to the Hyderabad-based Bharat Biotech from which COVAXIN eventually came to be.

Niche expertise

1. Infectious diseases lie at the heart of the conception of an organisation such as the ICMR. It has, over the years, nurtured several laboratories and research organisations with niche expertise in several other aspects of disease spread.
2. The organisation's other lab the National Institute of Epidemiology (NIE) undertook another important endeavour. The NIE epidemiologists conducted what was perhaps among the largest such serology surveys in the world.

Criticism:

1. Its critics say the ICMR is an extremely bureaucratic organisation. Being almost entirely dependent on government funds, its scientists do not have the independence to share their knowledge and expertise without being overtly controlled by the government in power and this was on display through the pandemic.
2. In the early days of the pandemic, the ICMR leadership, sought to play down — and actively encouraged the impression — that India would not see the



kind of devastation the pandemic had wreaked on many other countries of comparable size.

3. Independent scientists recently petitioned Prime Minister Narendra Modi to get the ICMR to be more forthright with sharing data. As a government organisation, the ICMR has access to a trove of medical data, patient history, test results from surveys and much of these, if made available more widely, would have aided a better understanding in the trajectory of the coronavirus, these scientists say.

Currently, India is in a pandemic nightmare without enough vaccines and the ICMR is largely silent on the evolution of the second wave. What portion of the blame it must shoulder will be known only in the years ahead.

Public buildings and fire safety rules

The story so far:

1. Fires occur in many public buildings in India every year, killing a large number of people and injuring many. Over the past year, there have been deadly fires in hospital buildings, including those treating COVID-19 patients.
2. The National Crime Records Bureau (NCRB) says 330 people died in commercial building fires in 2019, while fatalities for residential or dwelling buildings were much higher at 6,329.
3. Electrical faults are cited as the leading cause of fires but State governments are widely criticised for being lax with building safety laws and for failing to equip public buildings with modern technology.
4. Hospital ICUs (intensive care units) are a great fire risk because they are oxygen-suffused, and need to meet high standards.

Fire safety protocols

1. At the centre of all standard-setting is the National Building Code of India.
2. The National Building Code (NBC), published by the Bureau of Indian Standards, is a “recommendatory document”, and States have been asked to incorporate it into their local building bylaws, making the recommendations a “mandatory requirement”.
3. Evidently, fire safety rules exist in every State, but the provisions of the Code are ignored in practice, and even mandatory certifications do not reflect compliance.



4. The National Disaster Management Authority (NDMA) has also stipulated requirements for fire safety in public buildings, including hospitals, which incorporate elements of the NBC, besides design guidelines on maintaining minimum open safety space, protected exit mechanisms, dedicated staircases, and crucial drills to carry out evacuations.

What does the Code specify?

1. At the macro level, the NBC recommends the location of buildings by type of use in specific zones to ensure that industrial and hazardous structures do not coexist with residential, institutional, office and business buildings.
2. It specifies, among other things, the technical requirements for special buildings, high rises, educational and institutional buildings higher than 9 metres, and those with an area of over 300 square metres.
3. Next, the Code drills down into the specifics of fire resistance based on the materials used — exterior walls, interior bearing walls, floor, roof, fire check doors, fire enclosure exits, and so on.
4. Technologies to sound alerts in case of a fire and also to fight it are expected to be incorporated into buildings. Examples given in the Code are automatic fire detection and alarm system, down-comer pipelines connected to a roof tank, dry riser pipelines that fire-fighters can use to douse upper floors, automatic sprinklers and water sprays, fireman's lift, fire barriers, escape routes, markings, and so on.
5. Incorporating these into a proper design and ensuring that certified fire-resistant materials are used in the construction can avert deadly fires, giving occupants sufficient time to exit safely.

However, the NBC also says that for various types of buildings, “in case of practical difficulty or to avoid unnecessary hardship, without sacrificing reasonable safety, local head, fire services may consider exemptions from the Code”.

Do State governments follow the Code?

1. However, reports in the wake of recent fire accidents indicate that the authorities have been unable to keep up with inspection requirements for thousands of buildings.
2. A Comptroller and Auditor General (CAG) report for the period 2010 to 2015 noted that in Maharashtra, revealed that only fire extinguishers were installed



in 11 of 53 buildings and the remaining 42 buildings were not equipped with any of the fire-fighting installations.

3. Fire department professionals had earlier demanded third-party audits by licensed professionals.

What is the future course?

1. In December last year, the Supreme Court directed all States to carry out fire safety audits of dedicated COVID-19 hospitals. It has become evident that State forces lack the manpower to inspect and ensure compliance with safety codes, including the NBC, where it is mandatory.
2. One option is to make heavy fire liability insurance compulsory for all public buildings, which would offer protection to occupants and visitors and bring about external inspection of safety.

Coronavirus: What are variants of concern?

Variants of concern, widespread relaxation of COVID-19 appropriate behaviour have kicked off new waves of transmission.

Keeping track: Why So many mutations

1. Detecting variants relies on whole genome sequencing. Globally, over 1 million SARS CoV-2 genomes have been sequenced to date.
2. If manuscripts are copied by hand repeatedly, spelling errors are common. Similarly, when 'genetic scripts' encoded in DNA or RNA are copied repeatedly for virus replication, errors do occur.
3. RNA viruses are more error-prone than DNA viruses. SARS-CoV-2 genome is single-stranded RNA, and errors — in biology, mutations — occur frequently.
4. SARS-CoV-2 is new in humans and as it spreads, mutations are very frequent. Emerging variants with higher transmission efficiency become dominant, tending to replace others.
5. Such frontrunners emerge in different geographic communities where the virus is epidemic, spreading widely. Variants were detected in the U.K. and South Africa because genetic studies were systematically done. Brazil variant was discovered in Japan, in travellers from Brazil, and its origin traced back.



The Indian SARS CoV-2 Genomic Consortium (INSACOG)

1. As the importance of 'variants of concern' (VOC) was appreciated, the Indian SARS CoV-2 Genomic Consortium (INSACOG), a network of ten competent public-sector laboratories for genomic surveillance, was established, and the genetic variant landscape is being surveyed in India.
2. There are three different schemes of nomenclature of SARS-CoV-2 variants. The widely used one is the 'Phylogenetic Assignment of Global Outbreak Lineages' (PANGOLIN) that uses a hierarchical system based on genetic relatedness – an invaluable tool for genomic surveillance. It uses alphabets (A, B, C, P) and numerals starting with 1.
3. Variant lineages are at the emerging edge of the pandemic in different geographies. Lineage B is the most prolific. The variants in circulation are B.1; B.1.1; B.1.1.7; B.1.167; B.1.177; B.1.351, B.1.427 and B.1.429. Lineage P.1 has deviated from the original B.
4. For convenience, the three most frequent ones are named by their geography of origin — 'U.K. variant' for B.1.1.7; 'South Africa variant' for B.1.351; and 'Brazil variant' for P.1.
5. Variants in India include the so-called double mutant B.1.617 spreading in Maharashtra and B.1.618 spreading in West Bengal.

Matters of concern

1. The 'concern' in VOC comprises three sinister properties – transmission efficiency, disease severity and escape from immunity cover of vaccination.
2. Fortunately, mRNA (Pfizer and Moderna) vaccines have broader immunity for different reasons, and they protect better against these two variants.

Lessons learnt

1. An important lesson the pandemic has taught us in India is the critical importance of biomedical research and capacity building – for saving lives and economic growth.
2. We need a foundation of broad-based research, in universities, medical colleges and biotechnology companies, all of which must be funded, encouraged, appreciated, and talent rewarded.
3. While some endeavours have been initiated, they must take off in a big way, and India must invest heavily in biosciences. After a decade, its products and profit will make us healthier and wealthier.



Our COVID-19 connection with primitive cavemen

Hosting a virus: Understanding the host genome is paramount to studying both susceptibility and protection against the virus in a given population. Some genes inherited from Neanderthals help defy the virus, others carry a risk of getting critically ill.

Host Cells:

1. Viruses can only survive and multiply in host cells. Therefore, studying SARS-CoV-2 virus will require studying the host. As the viral genome takes the help of host machinery, understanding the host genome is paramount to studying both susceptibility and protection against the virus in a given population.
2. This is the main aim of multiple groups and international consortia of researchers like the Severe Covid-19 genome-wide association study Group, the COVID-19 Host Genetics Initiative, and the Genetics of Mortality in Critical Care (GenOMICC).
3. Studying the genomes of individuals in a group (for example, a particular genetic population group in India) can make us predict whether the individuals in that group are more or less likely to develop severe disease.

Crucial genes

1. Interestingly, evolutionary biologists in Sweden and Germany showed that the regions of host genomes that increase the risk of getting severely ill and protect against the virus were inherited from Neanderthals.
2. Once, Neanderthals and modern humans came in contact with each other, and they interbred. As a result, genetic content between Neanderthals and humans got mixed in their offspring.
3. In their first paper, published in Nature, the researchers showed that modern-day humans share a stretch of nucleotides with Neanderthals.
4. It is this stretch that increases their risk of getting severe COVID-19. They predicted that having a copy of this region of chromosome 3 nearly doubles the risk of getting severe COVID-19.
5. The same researchers published a second paper showing that a part of host chromosome 12, previously shown to protect against the virus, also was inherited from Neanderthal genomes.



India and Neanderthals

1. These studies have special significance to India. About 50% of South Asians carry the region in chromosome 3 from Neanderthal genomes, the same region that makes us more prone to getting severely sick with the virus.
2. On the good Neanderthal gene front, nearly 30% of South Asians bear the chromosome 12 region that protects us from getting severely ill.

WHO approves Moderna vaccine for emergency use

Highlights:

1. The World Health Organization has given the go-ahead for emergency use of Moderna's COVID-19 vaccine.
2. The mRNA vaccine from the U.S. manufacturer joins vaccines from AstraZeneca, Pfizer-BioNTech and Johnson & Johnson in receiving the WHO's emergency use listing.
3. Similar approvals for China's Sinopharm and Sinovac vaccines are expected in the coming days and weeks, WHO has said.
4. The greenlight for Moderna's vaccine took many months because of delays that WHO faced in getting data from the manufacturer.
5. Many countries without their own advanced medical regulatory and assessment offices rely on the WHO listing to decide whether to use vaccines.
6. The announcement, however, wasn't likely to have an immediate impact on supplies of Moderna's vaccine for the developing world.

1.5 lakh doses of Sputnik V land in India

Highlights:

1. India moved a step closer to having a third vaccine in its immunisation drive against COVID-19 when the first consignment of Russia's Sputnik V landed
2. Based on the human adenoviral vector platform, the Russian vaccine received emergency use authorization in India last month. The efficacy of Sputnik V has been reported to be 91.6%.
3. Clarity on the price at which Sputnik V will be made available is yet to emerge. The two-dose vaccine sells at around \$10 a shot in other markets globally.



SII plans to manufacture vaccines abroad

Highlights:

1. The Serum Institute of India, which manufactures the AstraZeneca COVID-19 vaccine, is planning to start vaccine production in other countries, its chief executive officer Adar Poonawalla said.
2. On the charge of profiteering as the cost of Covishield was recently hiked, he termed it “totally incorrect”, and added that Covishield will still be “the most affordable vaccine on the planet” even at a higher price.

U.S. clears sale of six P-8I patrol aircraft to India

Eye in the sky: The US State Department approved the proposed sale of six P-8I patrol aircraft and related equipment, a deal estimated to cost \$2.42 billion.

Highlights:

1. In November 2019, the Defence Acquisition Council, chaired by Defence Minister Rajnath Singh, approved the procurement of the long-range maritime surveillance aircraft P-8I manufactured by Boeing.
2. With India having signed the Communications Compatibility and Security Agreement (COMCASA) foundational agreement with the U.S., the six aircraft will come fitted with encrypted systems, as reported by The Hindu earlier.

First instalment of SDRF released

Highlights:

1. The Centre has released the first instalment of the State Disaster Response Fund (SDRF) to the States, in the wake of the second wave of COVID-19 that has claimed thousands of lives since April.
2. The Union Home Ministry, in a statement, said ₹8,873.6 crore had been released, an annual exercise usually done in June.
3. The Ministry said the funds might be used for meeting the cost of oxygen generation and storage plants in hospitals, ventilators, air purifiers, strengthening ambulance services, COVID-19 hospitals, COVID care centres, consumables, thermal scanners, personal protective equipment, testing laboratories, testing kits and containment zones, among others.
4. Maharashtra, Karnataka, Kerala and Uttar Pradesh, one of the first COVID-19 hit States, were allocated ₹1,288 crore, ₹316.4 crore, ₹125.60 crore and



₹773.2 crore, respectively. Since Delhi is a Union Territory, the fund is released by the Ministry and included in the Union Budget.

5. The allocation to each State depends on its population and utilisation of the fund in the previous year.

Immediate relief

The SDRF is the primary fund available with the State governments as part of their response to notified disasters to meet expenditure on immediate relief to victims. The Centre contributes 75% of the allocation for general category States and Union Territories and 90% for special category States (northeastern, Sikkim, Uttarakhand, Himachal Pradesh and J&K).

Record GST mop-up of ₹1.41 lakh cr. in April

News: Gross revenues from the Goods and Services Tax hit a record high of ₹1.41 lakh crore in April, suggesting that economic activity may not yet be as badly affected amid the ongoing second wave of the COVID-19 pandemic, as last year.

Highlights:

1. The GST collections surpassed the previous highest collections of ₹1.24 lakh crore in March by 14%, and mark the seventh month in a row since October last year that GST revenues have crossed ₹1 lakh crore.
2. In April last year, as economic activities ground to a halt amid a national lockdown, the indirect collections had dipped to ₹32,172 crore. This April, revenues from domestic transactions, including services imports, grew 21% over March 2021.
3. Tax experts expect some moderation in revenues in the coming months due to the gradual imposition of partial and full lockdowns across all the States.
4. The government, on its part, said the steady increase in GST collections over recent months clearly indicated that a “sustained economic recovery” was under way.
5. The all-time high GST collections seem to be the outcome of uptick in economic recovery, anti-evasion measures such as e-invoicing, data analytics-led investigations, and also year-end audit and financial closure of the companies as of March.
6. Closer monitoring against fake-billing, deep data analytics using data from multiple sources including GST, Income-tax and Customs IT systems and effective tax administration have also contributed to the steady increase in tax revenue.