



# NFI BULLETIN

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## A Year of COVID-19 Pandemic: An overview

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### Introduction:

It is a year since Corona Virus Disease 2019 (COVID-19) caused by Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-CoV-2) was first reported from China. It crossed over from its suspected primary host 'Horseshoe bat' (Rhinolophus) to humans through an unconfirmed intermediate host causing the current pandemic. Pandemics of zoonotic viruses that jump species barriers and infect human beings is not a new phenomenon. The first two decades of this century witnessed two corona virus pandemics - Severe Acute Respiratory Syndrome (SARS) in 2003 and Middle East Respiratory Syndrome (MERS) in 2012. They were severe but not as pervasive and disruptive as the current one. Spanish flu pandemic, caused by an influenza virus H1N1 in 1918, which obtained the odious title of "Mother of all Pandemics", was the only other respiratory virus pandemic of similar high magnitude and severity. Repeated resurgence of COVID-19 in different countries, despite strong containment measures, highlights the ability of this minute (<140 nm) virus to upset all human efforts to control it and restore normalcy. The pandemic severely destabilized different sectors and disrupted all spheres of human life in all affected countries. Globally, many countries are experiencing second wave of the pandemic which is of greater intensity than the first. The cumulative number of cases is continuing to grow worldwide.

### Global scenario:

As of December 25, 2020, there were 77.53 million cases and 1.72 million deaths of Covid-19 globally (Table 1). Cases are reported from all but nine countries of the world as of 6<sup>th</sup> December 2020. Among them are seven Pacific island nations (total population of <4 lakhs) and two Asian countries - North Korea (26 million) and Turkmenistan (6 million). Resource rich and technically advanced countries of Europe and the USA were severely affected in terms of COVID-19 morbidity and mortality. Among individual countries, the USA has reported the largest number of both cases and deaths. India and Brazil are ranked 2<sup>nd</sup> and 3<sup>rd</sup> in

total cases. Population-adjusted figures as on 25<sup>th</sup> December 2020 (cases or deaths/million population) showed that cases in India were far lower (7334/million as compared to 58091/million in USA) (Fig 1); the difference was even more striking in terms of deaths (106/million in India as compared to 1020/million in USA) (Fig 2). Since August 2020, the USA and Europe are in the midst of third/second wave of the pandemic. In the second and subsequent waves, daily reported cases and deaths are several folds higher than in the first wave. New Zealand, Australia, Japan, South Korea, Singapore, and some Scandinavian countries have managed to keep the epidemic fairly under control (Table 1 and Fig 1 & 2).

### The epidemic and response in India:

India proactively initiated action even before World Health Organization (WHO) declared COVID-19 as an international health emergency and before the first case was reported in the country on January 30, 2020. The initial response was to screen, test and quarantine/isolate (if positive) international travellers from affected countries supported by a series of travel advisories. The initial three cases reported from Kerala, between January 30 and February 2, were all returnees from Wuhan. They were quarantined. The next two cases one from Italy and the other from United Arab Emirates were detected on 2<sup>nd</sup> March. The strategy at this stage was to test, isolate, track and quarantine the contacts of the infected person, coupled with health communication regarding public health measures for prevention of spread of COVID-19. The initial shortage of masks, sanitizers, and Personal Protection Equipment PPEs, were effectively addressed by the government. Overall,

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**TABLE 1 CUMULATIVE AND NEWLY REPORTED CASES AND DEATHS ON 25.12.2020**

	Cases - cumulative	Cases - new (24 hrs)	Deaths - cumulative	Deaths - new (24 hrs)
Global	7,75,30,799	6,62,825	17,24,904	13,061
USA	1,80,90,260	1,95,151	3,20,180	3,148
India	1,01,23,778	24,712	1,46,756	312
Brazil	73,18,821	55,202	1,88,259	968
Russia	29,63,688	29,935	53,096	635
France	24,63,379	14,836	61,602	276
UK	21,49,555	39,237	69,051	744
Italy	19,91,278	13,908	70,395	553
Spain	18,42,289	6,654	49,698	46
Germany	15,87,115	32,195	28,770	802
Argentina	15,55,279	8,141	42,254	257

India demonstrated high levels of political and administrative commitment and competence of health personnel.

On March 11, when WHO declared COVID-19 as a pandemic, India invoked the Disaster Management Act (2005) and Epidemic Diseases Act (1897); the epidemic response was jointly led by the Ministry of Home Affairs and the Ministry of Health & Family Welfare (MoHFW) supported by the Indian Council of Medical Research (ICMR) and the National Centre for Disease Control. In addition, eleven Empowered Groups were set up to advise the Government on containment strategies. On March 24, a countrywide lockdown was imposed to delay the spread of infections and flatten the epidemic curve and thereby prevent the health care system getting overwhelmed by the epidemic. India managed to delay the severe impact of the epidemic and buy time to revamp health care services by increasing the laboratory network for COVID-19 testing, providing training and PPEs for health care workers, earmarking number of hospitals/beds for care of COVID 19 patients including beds with ventilator support. A national lockdown was in place from 23<sup>rd</sup> March (cases 570) to 31<sup>st</sup> May 2020 (1.94 Lakhs) and did flatten the epidemic curve. However, once phase-wise relaxation of lockdown started, there was a rapid surge in infections, peaking by about mid-September (highest daily count of 97,860 cases on September 16<sup>th</sup> and 1281 deaths). A steep surge was witnessed during the Unlock phases in states like Kerala, Andhra Pradesh and Karnataka whose containment efforts during lockdown received wide appreciation. By 25<sup>th</sup>

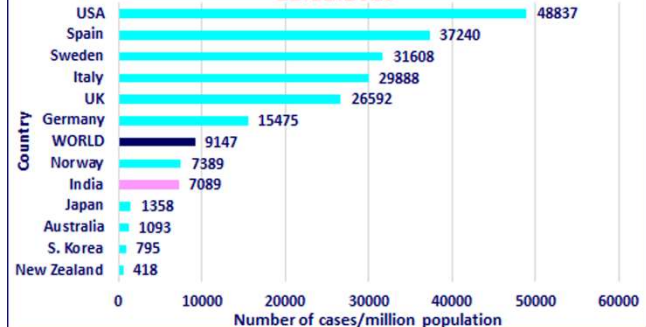
December 2020, India reported 10.12 million cases and 1.46 lakh deaths. Both morbidity and mortality rates varied widely across the country. Maharashtra, driven by caseloads in Mumbai, Pune and Thane had the largest number of cases and deaths in the country. These three cities accounted for half of the cases and deaths in the state. The states which were affected the most after Maharashtra were Karnataka, Andhra Pradesh, Tamil Nadu, Kerala and Delhi. Highest mortality was seen in the states of Maharashtra, Karnataka, Tamil Nadu and Delhi. In early June, five cities, viz. Mumbai, Delhi, Ahmedabad, Chennai and Thane accounted for over 50% of the cases in the country, highlighting the vulnerability of industrialized urban areas with high population density. Population-adjusted morbidity and mortality statistics indicate that tourist destinations were more affected (e.g., Goa had 32572 cases and 470 deaths per million Vs. the national average of 7334 and 106 respectively as of December 25 2020).

### Second wave:

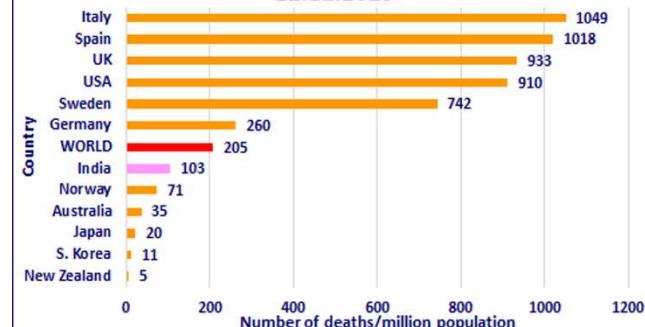
Europe and the USA are in the grip of their second/third wave of COVID-19, which is more severe than the first. Among the top 10 nations by 'total cases', all but India and Argentina are in the grip of second or subsequent wave (Fig. 3). Central and East European countries, which escaped the severity of the infection in the first wave, suffered high mortality in the second. In the USA too, the subsequent waves were more deadly than the first. The suspected reasons for the second wave in Europe include the reopening of internal borders leading to increased tourism within Europe, and hesitation to reintroduce strict lockdowns. It has been argued that some countries such as Finland, Iceland, Norway and Denmark kept the second wave at bay because they introduced strict restrictions well on time. However, it needs to be remembered that the population density in these countries is lower than in most other countries even in Europe.

In India too, the possibility of a resurgence of infections was looming large with the approach of the festival season (Dussehra, Deepavali and Chhat Puja) followed by winter. Around this time there was burning of farm stubble in the states around Delhi, a drastic impairment in air quality, a spurt in respiratory ailments, and there was a surge in

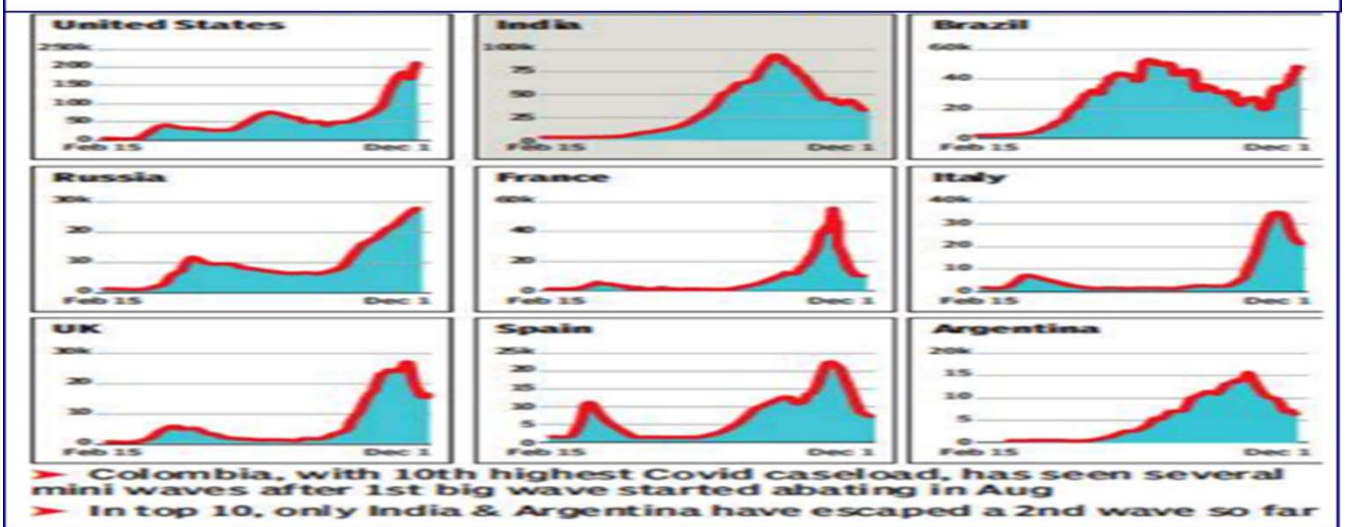
**Fig 1 Cumulative cases/million population as on 12.12.2020**



**Fig 2 Cumulative deaths/million population 12.12.2020**



**Fig 3 Second wave of SARS COV-2 infection daily rolling average of new cases**



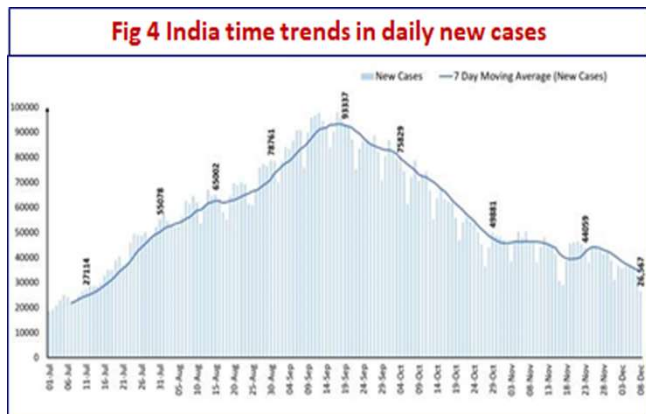
COVID-19 infections in Delhi and surrounding areas. This surge has currently come under control, with the incidence curve flattening. As of now, the epidemic is continuing its downward trend in India as a whole, (Figs 4-6). Most states had shown a decline in new cases; in states like Gujarat and Kerala this trend was not seen. The anticipated further fall in temperatures in coming months in many parts of the country, and the frequent emergence of new mutant strains of the virus, warn us against any complacency and highlight the need for strict adherence to COVID-19-appropriate behaviour.

**Virus mutations and the second wave:**

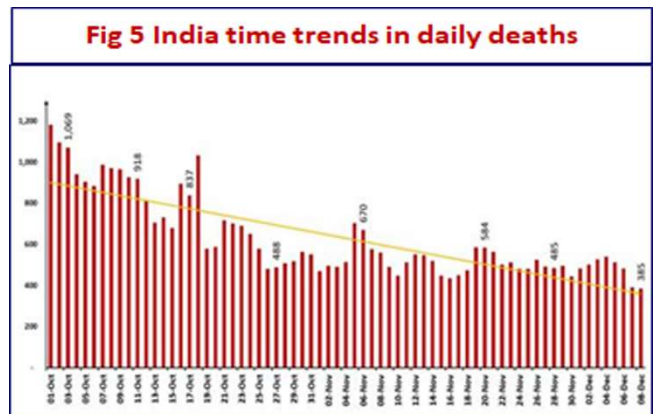
The second wave of a pandemic is usually triggered by changing temperatures such as onset of winter, increased population movement, or mutant strains of the virus. The second wave of the Spanish Flu of 1918 was caused by a mutant strain and was several times more infectious and deadlier than the first. It travelled across the globe with the movement of armed forces during the First World War. While the second wave of COVID-19 is primarily suspected to be due to the onset of winter and relaxation of restrictions on tourism and social movement in Europe, genetic variants of the virus have also been suspected to have had a role in the resurgence. A mutant 20A.EU1 (also designated as B.1.177), initially reported from Spain, spread

across Europe with the opening up of tourism. It has been reported that 80% of the cases in Spain, 60% in UK and 40% in France were attributable to this strain. D614G, a spike protein mutant, thought to be more infectious than the Wuhan strain, has also been reported to be dominating the second wave of infections. Since June this year, different mink-associated variants of SARS-CoV-2 were identified in Europe and the USA. In November, a unique strain, labelled as 'cluster 5' variant was isolated in Denmark from both humans and minks. It had a combination of seven unique changes not previously observed. The preliminary findings indicated that it had moderately decreased sensitivity to neutralizing antibodies. The implications of these changes are yet to be understood. A later update (Dec. 3) by the WHO reported that no fresh cases of the 'cluster 5' mutant had been detected. In all, SARS-CoV-2 in mink was reported from eight countries including the USA. A new mutant VUI202012/01 (designated B.1.1.7), detected in South East England, has become the cause of international concern leading to lockdowns in the UK and cancellation of flights from that country to several other countries. It has 17 mutations and includes changes in the spike protein. Recently South Africa reported a new genetic mutation of the virus (501.V2) which could have been responsible for the recent surge in infections in UK. These mutant strains have been suspected to have higher transmission rates;

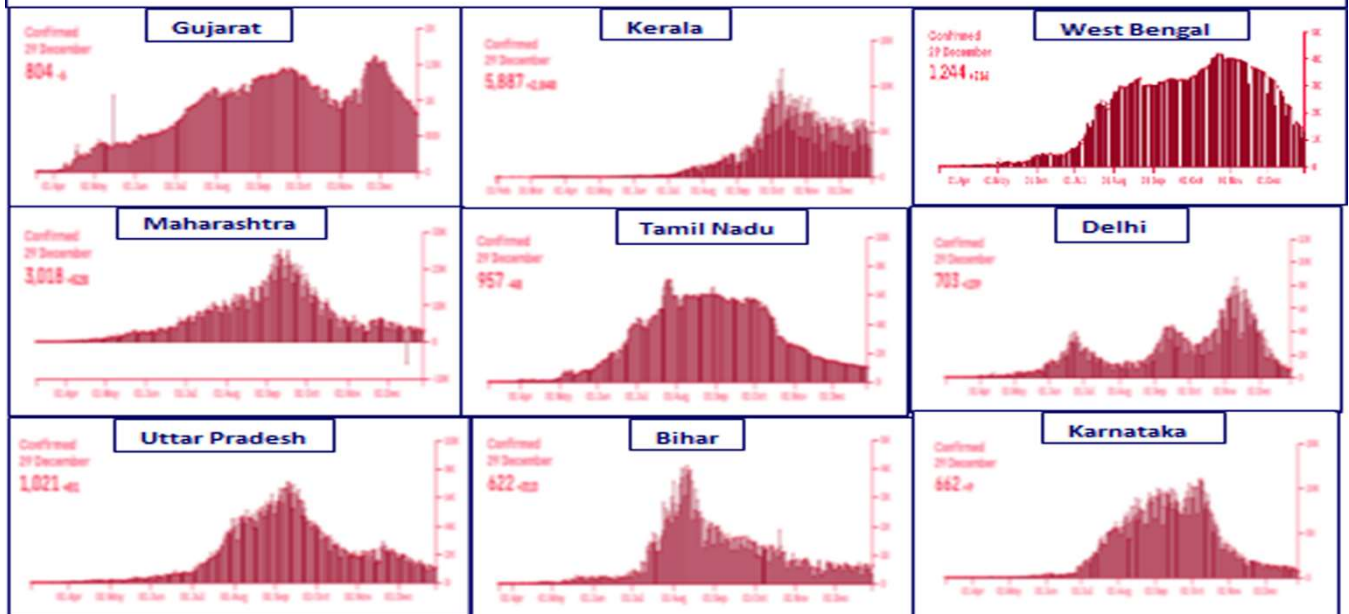
**Fig 4 India time trends in daily new cases**



**Fig 5 India time trends in daily deaths**



**Fig 6 Interstate differences in time trends in daily confirmed cases  
30.12.2020**



there is no data regarding the severity of infection in those infected with these mutant virus strains. The Defence Research and Development Establishment has reported several variants of SARS-CoV-2 including D614G from four districts of Central India. These mutations warrant increased alertness because they have the potential for causing repeat waves and perhaps to compromise the efficacy of vaccines. Cases of reinfection with genetic variants reported from some countries imply the need for adherence to protective behaviour even after recovery from COVID-19. This also poses questions about durability of immunity and whether there would be a need for booster vaccination. Mink-associated variants also signify the potential role of farm animals as intermediate hosts, with implications for persistence of this infection in the environment and the consequent need for intense surveillance using 'One Health' approach.

#### Lockdown or 'Herd Immunity'?

In the absence of effective treatments or vaccines, a majority of the countries responded to the rapidly spreading pandemic by restricting movement of people through lockdowns. But the lockdowns in different countries varied in planning, preparation, and stringency, as did their outcomes. Some public health specialists and epidemiologists were of the view that unrestricted movement, with focused protection of people at higher risk of mortality would result in 'herd immunity' through natural infection, and thereby end the pandemic. They argued that collateral damages of lockdowns would be worse than the outcomes without them. The impact of the stringent lockdown in India on economy, livelihoods of the marginalized and migrant populations was cited as a case in point. The group promoting the herd immunity approach came up with the 'Great Barrington Declaration' and in India

too some epidemiologists and public health specialists were in favour of this approach. However, an open letter published in The Lancet signed by 80 scientists, declared the concept of "herd immunity" to be a dangerous fallacy not supported by scientific evidence. The Director General of WHO also termed this concept as unheard of in public health and unethical. Unfortunately, the arguments in this debate reflect polarization rather than critical analysis of the ground realities. Sweden, the example often quoted by the proponents of herd immunity strategy, succeeded in demonstrating the feasibility of slowing the epidemic through focused protection sans lockdown till October when the entry of virus into care homes caused high mortality among the elderly. Some countries such as New Zealand and South Korea demonstrated the effectiveness of well-planned and targeted lockdown coupled with extensive testing in controlling the epidemic. In populous countries like India this may not be feasible.

#### Cases Vs. infections:

The millions of detected cases mentioned above constitute only a fraction of the actual numbers of those infected by the virus (infection to case ratio), as revealed by serological surveys carried out in different countries. In India, the ICMR undertook two linked cross-sectional national sero-surveys in a representative sample of 28,000 individuals from 70 randomly selected districts to assess the prevalence of IgG antibodies to COVID-19. The first survey, carried out in May, revealed that 0.73% of the adult population (18+years) was infected and the second survey, carried out in mid-August, showed an IgG prevalence of 7.1% implying a tenfold increase in the prevalence of infection. Infection to case ratio ranged between 82-130 in May, but reduced to 26-32 in August possibly owing to improved testing and case detection. There have been several city-level sero-surveys

in the country, reported prevalence rates range from 17.6% in Ahmedabad to 33% in Mumbai. Since methodologies and periods of survey varied between surveys they cannot be compared; however, all show that actual infection rates were significantly higher than the detected cases.

Population-based sero-epidemiological studies help in measuring the extent of SARS-CoV-2 infection and the impact of ongoing public health responses. They also indicate the possible immunity status in the population.

Results of these sero surveys in conjunction with some immunological studies on T cell response carried out in other countries throw light on issues related to herd immunity, and inform policy formulation for COVID vaccination.

**Socio-economic Impact of the Covid-19 pandemic:**

Travel restrictions, physical distancing, and self-isolation, all prerequisites for protection from the virus, resulted in closure of educational institutions, restriction on trade, and industry, leading to many negative outcomes.

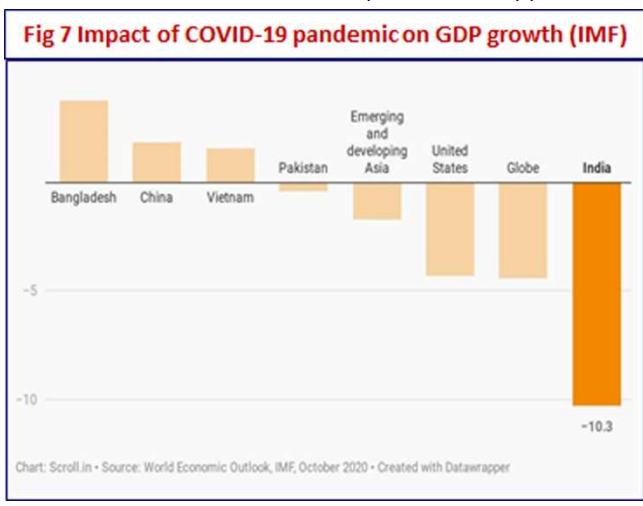
**Economy:** The major impact of the pandemic and consequent lockdown has been on the economy because shops, eateries, factories, transport, services, and business establishments were shuttered leading to job losses, particularly in the unorganized sector. Most of those affected from these sectors subsist on daily wages. Faced with hunger, a majority started to return to their native villages by every possible means of travel including on foot. The implications went beyond the economy, and had an impact on food security and health of these millions of workers. Added to this, the Indian economy contracted by 23.9% in the first quarter of the current financial year as compared to 9.1% in the US and 17.7% in Italy. The GDP growth projections for India as estimated by the International Monetary Fund (IMF) also support this (Fig 7). In response, the Indian government announced a relief package of Rs 20 Lakh crore. This was to assist the sectors most desperately in need of immediate assistance such as indirect support including credit guarantees and liquidity infusion to small and micro enterprises, and support to the

poor segments such as migrant workers economically hit by the COVID-19 pandemic through cash transfers and initiatives for food security. Other proposed steps included increasing MGNREGA to 150 days in rural areas and introduction of urban employment guarantee scheme.

However, there had been reports that the bulk of relief measures did not reach all the needy.

**Children:** Prolonged school closures and forced stay indoors at home have profound effects on children not only pertaining to education but also their nutrition and health. Children’s health and behavioural patterns are also of concern during these extraordinary times of forced indoor stay. Those who were getting nutritious mid-day meals in school have been deprived of this input. The dry rations or monetary allowances suggested instead have not been reaching large sections of these households. Also, physical exercise and mental stimulation are affected and could lead to various health issues. According to the World Bank, the impact of prolonged closure of educational institution will be profound in countries where education is grappling with low learning outcomes, high dropout rates, and low resilience to shocks. In the long run they lead to loss of human capital as well as economic opportunities. India falls in this category of countries. The need to adapt to changing way of life (‘New Normal’) is best realized in the education sector. One of the positive aspects is adaptation of technology and transition to online education. It helps to overcome the geographical borders and promotes equitable access to education, provided the governments invest to promote access to this medium to all sections of population. The one-nation-one platform facility through the PM E-Vidya platform and a dedicated channel for students from Class 1 to Class 12 will liberalize distance/online learning regulatory framework. In the short term, however, many children are missing out on academic inputs because they do not have the digital tools or connectivity necessary to access online classes.

**Health care unrelated to COVID-19 infection:** Faced with the rapidly increasing morbidity and mortality due to COVID-19 the attention of policy makers and health care providers was focussed on providing for the health care needs of COVID-19 infected persons. As a result there was a steep decline in access to health care for other health problems such as non-communicable diseases (NCDs), communicable diseases including HIV, TB, elective medical and surgical interventions, preventive and promotive services including immunisation antenatal care and delivery care. Hospitals had to divert their staff to care for the COVID-19 patients and consequently, outpatient services were closed down in many states and elective procedures were postponed. The public also stopped seeking care because of difficulties in transportation as well as fear of contracting infection in hospitals with COVID-19 patients. Elective procedures such as interventions scheduled in the early stages of cancers have been deferred; dialysis for chronic kidney disease had been skipped significantly



increasing the risk of progression of the disease and even mortality. Patients with Tuberculosis and HIV/AIDS could not receive their drug supplies regularly. It is said that “nearly 50,000 preventable TB deaths occurred during early lockdown”. Registration of new cases under the National Tuberculosis Elimination Program between January and June, 2020 dropped by more than 25% compared with the same period in 2019. It is stated, “this under-detection could result in an additional estimated 87,711 TB deaths in 2020”.

Despite this overall gloomy picture, there were some positive outcomes. Because of significant reduction in vehicular traffic, there was reduction in road traffic accidents and air pollution related morbidity. In addition, wearing of masks had resulted in reduction in respiratory illnesses including TB. Similarly, the closure of unhygienic eateries could have resulted in reduction in gastrointestinal infections such as hepatitis A and E, gastroenteritis and typhoid.

**Research and development of Interventions:**

As the virus spread across the globe, scientists of different disciplines came together to identify, develop or improve behavioural, biological and pharmaceutical interventions to prevent the spread of the virus and improve outcomes especially in severe morbidity. Research pertaining to the emerging problem of ‘Long COVID’, a term applied to post-COVID-19 sequelae, is also receiving due attention of scientists and public health specialists.

**Long COVID:** In a sub segment of COVID-19 patients clinical manifestations either persist or re-appear after the acute crisis is resolved and the person has become COVID negative. This syndrome, labelled as ‘Long COVID’, affects multiple organs. Manifestations of ‘Long COVID’ ranging from cough, shortness of breath, fatigue, headache, palpitations, chest pain, joint pain, depression, and insomnia. It affects people of all ages and may last for over 6 months. SARS-CoV-2 entry receptor ACE2 is expressed in multiple tissues, and this explains multiple organ involvement. Although it is drawing worldwide attention, response to it is still in infancy and knowledge is limited. Diagnosis, definitions, and phenotypes of illnesses grouped under this syndrome, the duration of persistence of symptoms, people at risk, the underlying causes and mechanisms, treatment, prevention and rehabilitation strategies are being evolved and investigated.

**Behavioural interventions:** In the absence of proven cure or effective vaccine, adoption of appropriate preventive behaviour is the best intervention to prevent infection and reduce morbidity and mortality. Aply, the Director General, WHO said, “there are things everyone should do to protect themselves and others. Your health is in your hands. That includes physical distancing, hand hygiene, covering coughs, staying home if you feel sick, wearing masks when appropriate, and only sharing information from reliable sources”. The importance of appropriate behaviour is not

limited to situations where cure and vaccine are absent. The success of contact tracing, quarantine or isolation, clinical management, and uptake of vaccine also depend on behaviours of beneficiaries. Despite its critical importance in the control of pandemics, behavioural research is mostly confined to 10% of the countries (more developed countries) and is not adequately supported in other countries where they matter the most.

**Vaccines:** Work on COVID-19 candidate vaccines began in January 2020, soon after the genetic code of SARS-CoV-2 had been shared. Vaccine development typically takes years. The fastest developed Mumps vaccine took four years to get regulatory approval. It has been possible to fast-track COVID-19 vaccines because of recent advances in technology, a supportive regulatory environment, and the currently ongoing rapid transmission of COVID-19 which shortened the duration of clinical trials. Currently, 56 vaccines are under clinical evaluation and 166 are in a preclinical stage. The front runners, who have approval or Emergency Use Authorization (EUA) or at an advanced stage of clinical trials are listed in Table 2.

The use of COVID-19 vaccines in prioritized populations was initiated in China, Russia (even before phase III trials were complete), UK (first to start vaccination using Pfizer vaccine) and some Latin American and Central Asian countries. Full approval has been accorded to the Pfizer vaccine in Canada and Bahrain. The US has given Emergency Use Authorization for both Pfizer and Moderna vaccines. Despite their reported high efficacy rates, there are still many uncertainties regarding the vaccines such as efficacy in preventing transmission, requirement of further boosters and long-term adverse events. It is aptly summarized in Dr. Fauci’s warning, “A vaccine right now is not a substitute for the standard public health measures ....., it complements it”. Personal protection measures will continue to be the primary mode of prevention of SARS Co-V 2 infection till ‘herd immunity’ is achieved.

**Vaccine scenario in India:** According to the MoHFW Government of India, about 30 vaccines are in different stages of development in India. Emergency Use

TABLE 2 COVID-19 VACCINES - CURRENT STATUS				
Developer	Candidate	Platform	Approval	Efficacy (%)
Pfizer & BioNTech	BNT162b2	mRNA	Canada, Bahrain, Saudi Arabia EUA:UK, USA etc	95.5
Moderna	mRNA-1273	mRNA	EUA: USA	94.1
Oxford-AstraZeneca	ChAdOx1 nCoV-19:	Chimp Adeno+ Spike Protein	Applied	62 & 90*
Sinovac Biotech	CoronaVac:	Inactivated	UAE, Bahrain Limited Use: China	N.A
Gameleya	Sputnik V	Adeno+Spike	Early use in Russia	92%
Johnson & Johnson	Ad26.COVS-2	Adeno	--	N.A.
Bharat Biotech*		Inactivated Whole cell	Applied in India	Ph 3
Cansinbio	Ad5-nCoV	Adeno	Limited Use in Chinese Military	NA

Authorization has been sought for Covaxin (Bharat Biotech) and Covishield (Astrazeneca and Serum Institute of India) while Phase III trials will be launched for Sputnik V (Dr. Reddy's Lab) and Zy Cov-Di (Zydus-Cadilla).

India's preparation for vaccination against COVID-19 was initiated in August 2020 with the constitution of a National Expert Group on Vaccine Administration for COVID-19 (NEGVAC) with Member (Health), NITI Aayog and Secretary MoHFW, Government of India as co-chairs. The objectives of the Committee include (a) provision of guidance on prioritization of population for vaccination, and (b) vaccine selection, procurement, inventory management, delivery and tracking. NEGVAC is supported by state and district level committees for decentralized decision making and monitoring. As per NEGVAC recommendations, initially health care workers (HCW, 1 crore), frontline workers (2 crore) and individuals aged 50+ years and those with comorbidities such as diabetes and chronic respiratory ailments (27 crores) will be vaccinated. Line listing of HCW has already started and is being uploaded on to a digital platform "Co-Win", developed for managing the vaccination program. Part of the existing infrastructure and workforce under the Universal Immunization Programme will be utilized with necessary additional support.

**Varying treatments in COVID:** The treatment protocols for COVID 19 have seen numerous changes over the last 12 months. The initial medical treatment consisted of anti-retrovirals, anti-malarials, anti-helminthics, anti-influenza drugs and newer antiviral drugs such as Remdesivir, which was developed as a treatment for MERS. Severe COVID disease was treated like any other Acute Respiratory Distress Syndrome (ARDS) with early intubation as a norm, as soon as SpO<sub>2</sub> dipped below 90%. But the initial data from different parts of the world showed high mortality with this protocol and it was subsequently discontinued. Many post-mortem reports showed that there may be presence of micro-thrombi in the lung tissues, causing ventilation perfusion mismatch. This led to prone ventilation and use of High flow Nasal Cannulas as a standard treatment with mechanical ventilation becoming the last resort.

Several therapeutic trials were initiated in different countries, including the SOLIDARITY and DisCoVeRy trials. The SOLIDARITY trial is an international clinical trial by WHO, evaluating the efficacy of Remdesivir, hydroxychloroquine, lopinavir/ritonavir and interferon, with endpoints being mortality, need for assisted ventilation and duration of hospital stay. Most of the drugs were found to be ineffective and were dropped. Although Remdesivir was found to be ineffective in this trial, other studies have shown it to be useful and recently US FDA has given clearance for the use of Remdesivir in the treatment of COVID-19. Hydroxychloroquine is also still part of guidelines for COVID-19 prophylaxis in India based on the findings of a retrospective study. Anti-helminthic drug, Ivermectin has also been tried by a few countries and some states in India. It was also identified that the end organ damage was due to

cytokine storm rather than the virus per se and this led to the use of steroids and tocilizumab, an IL6 blocking immune-modulator, in the treatment. Convalescent Plasma became another modality of treatment and plasma banks were setup. ICMR's PLACID trial, the first randomized trial for convalescent plasma, found that it was ineffective. But many continue using it. USA is conducting further trials on plasma therapy and is also introducing monoclonal antibodies.

Finally, the RECOVERY trial from the UK found that dexamethasone (steroids), if used in patients on oxygen support or on mechanical ventilation, did provide a benefit and thus steroids and oxygen therapy have become the mainstay of treatment. Anticoagulation therapy has also been part of this protocol. The RECOVERY trial is still studying Tocilizumab, Convalescent Plasma, Aspirin and, recently, Colchicine.

#### **Conclusion:**

The COVID-19 epidemic in India is declining while the West is reeling under the second or third wave. However, with the onset of winter, the approaching Christmas, New Year and Sankranti festivals, and the emergence of new mutant strains of the virus, the possibility of a second wave in India cannot be ruled out, and personal protection measures should be strictly adhered to. The economically weak and marginalized segment bore the brunt of the impact of the pandemic and the associated lockdown - economic and food security. A safety net of universal support, including an employment guarantee scheme subsidised food through the PDS and essential primary health care for all is necessary.

Despite considerable improvement in patient management, a proven remedy for cure COVID-19 has eluded us so far. Research needs to be intensified on this front. Aided by the scientific and technical advances and encouraging political environment, vaccines have been developed and vaccinations have been initiated in some countries. India too is preparing to launch vaccination soon. However, we have to recognize that availability of vaccines may not translate into the end of the epidemic. Everyone needs to heed the warnings of public health experts that we have to continue with COVID-appropriate behaviour.

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#### **Recommended update sites**

1. Coronavirus disease (COVID-19) Weekly Epidemiological Update and Weekly Operational Update <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>
2. Coronavirus disease (COVID-19) SEAR Weekly situation report (07-13 Dec 20) <https://www.who.int/southeastasia/outbreaks-and->

emergencies/novel-coronavirus-2019/sear-weekly-situation-reports

3. India situation report COVID 19 [https://www.who.int/india/emergencies/coronavirus-disease-\(covid-19\)/india-situation-report](https://www.who.int/india/emergencies/coronavirus-disease-(covid-19)/india-situation-report)
4. NCDC <https://ncdc.gov.in/>
5. Provides updates in COVID 19 Dash board, Standard operating procedure for prevention of SARS CoV2 infection, National Guidelines
6. MOH&FW <https://mohfw.gov.in>
7. COVID 19 updates on cases and deaths, SOP for surveillance and response, SOP for prevention of infection, operational guidelines for vaccines
8. ICMR <https://www.icmr.gov.in/> IJMR special issues I, II, III on COVID 19, SARSCoV2 testing kits, lab details, testing status, Vaccine portal, National Clinical Trial Registry

#### Recommended reading:

1. Report of the WHO-China Joint Mission-on-coronavirus Disease 2019 (COVID-19). [https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-\(covid-19\)](https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-(covid-19))
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## FOUNDATION NEWS

### Dr C Gopalan Memorial Webinar

The NFI -NAMS C Gopalan Memorial Webinar on “Nutrient requirements of Indians” was held on 03.10.2020 from 10.30 AM-1:00 PM. The objectives of the webinar were to update nutrition and health professionals about:

- energy requirements of Indians,
- energy requirements of Indian mothers during pregnancy and lactation, and
- micro-nutrient requirements of Indians

There were three presentations

- Energy requirements of Indians by Dr Anura Kurpad
- Energy requirements during pregnancy and lactation by Dr. Prema Ramachandran
- Micro-nutrient requirements in Indians by Dr. R Sankar

Each presentation was followed by a question and answer session. Over 300 persons from India and abroad attended the webinar. There was excellent audience participation during the Q&A sessions.

### C Ramachandran Memorial Lecture

The 20<sup>th</sup> C Ramachandran Memorial Lecture (webinar) was delivered by Professor HPS Sachdev, Senior Consultant, Paediatrics & Clinical Epidemiology, Sitaram Bhartia Institute of Science and Research, New Delhi, on Friday, November 27<sup>th</sup>, 2020 at 3:00 PM on “**Primordial prevention of adult chronic disease in the first 1000 days**”. The webinar was very well attended, with participants from India and abroad. There was a lively question and answer session after the lecture.