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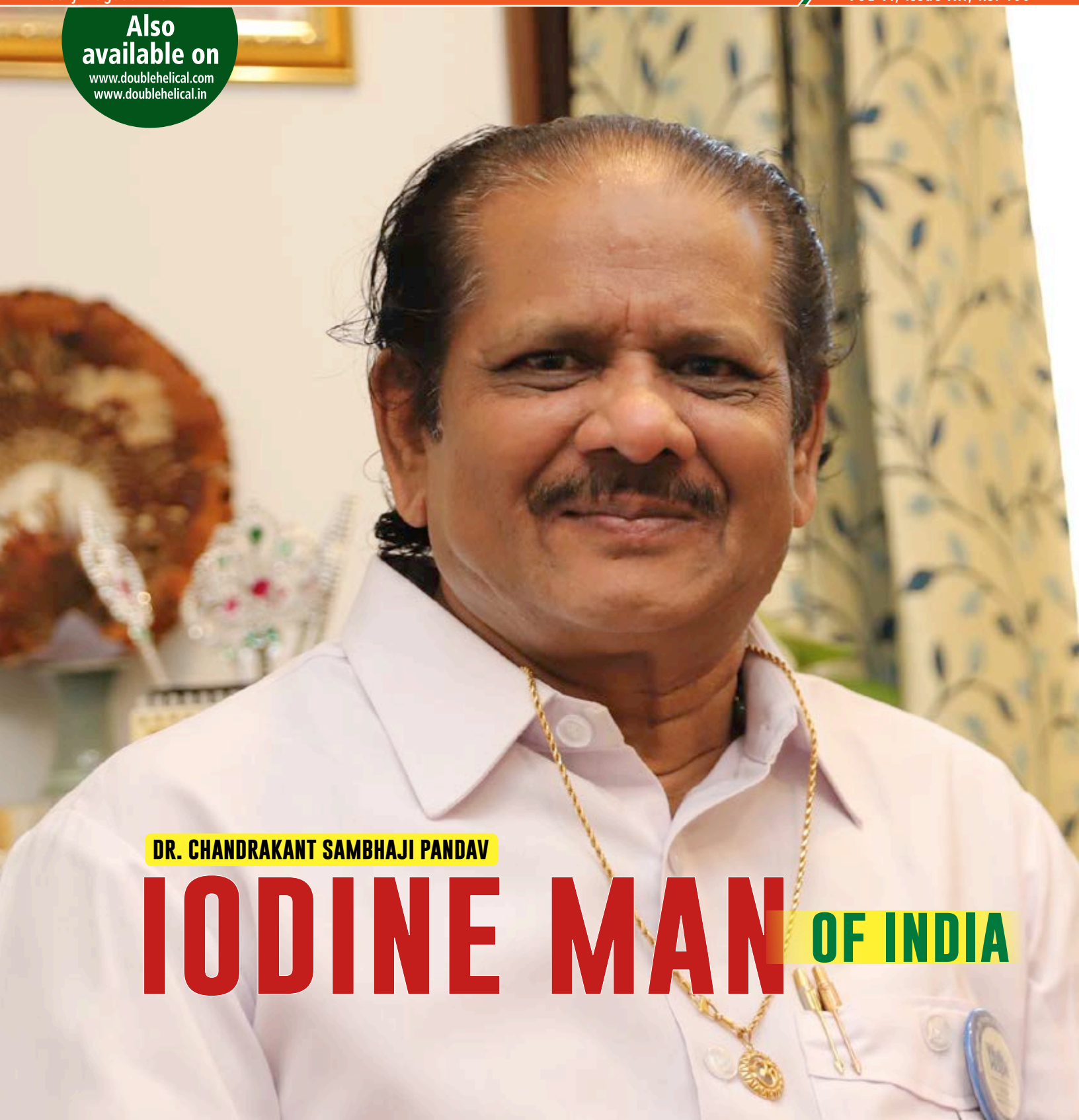

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DOUBLE HELICAL

A COMPLETE HEALTH MAGAZINE

Volume VI Issue XII
July-August, 2021

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Are we ready for third wave of Covid-19?

Dear Readers,

Thanks a lot for your kind support. We are humbled to place on record our infinite gratitude for your uninterrupted, unwavering support to us in bringing out edition after edition on pertinent health issues.

As you know that our country is all set heading towards another wave of the COVID-19 due to the lack of access and inadequate coverage of immunization, direct or indirect contact with an infected persons, are the probable possibility of causing the disease

A lot amongst our citizens take our life for granted amidst the emergence of various deadly corona virus variants. Many of them are not even following the Covid-19 appropriate behaviour including physical distancing, wearing masks, avoiding crowded areas, but nowadays we often see the ignorance of these behaviours which would exacerbate the situation at large.

According to Ministry of Health and Family Welfare, the declining trend in daily COVID infections has slowed, with a modest increase in the positive rate. This is concerning since there has been an inflow of visitors to tourist locations who have shown little or no COVID-appropriate behaviour.

Maharashtra has issued a warning for the third wave of the Covid-19 pandemic, just as India is recovering from the havoc of the second wave. The second wave of the Corona virus pandemic was blamed on a delta version of SARS-CoV-2. Last year, Maharashtra was the first state to report the Delta variant. It's unclear whether the Delta Plus version is more contagious or deadly than the Delta type. The Delta form has been discovered to be more lethal and capable of generating more severe Covid-19, resulting in a higher rate of patient hospitalisation.

India's vaccination speed looks impressive compared to other countries, but not in terms of percentage. A vaccinated person may produce antibodies that neutralise the virus and interrupt the transmission cycle. Once a substantial population has been vaccinated and has circulating antibodies for the disease, herd immunity develops.

Following the Covid-19, appropriate behaviour is crucial to stop spread of the virus, despite of what be the fast spreading variants or new mutants that propel, if we avoid crowds by maintaining physical distance, wearing a mask, and thoroughly washing our hands, interrupting super-spreading events of explosive transmission. If we realize the significance of public health measures, and act appropriately we will overcome the tough times. Prime minister has also urged more people to come forward for vaccination. Because the greater the number of people who can be vaccinated, the lower the risk of transmission and viral replication, and the lower the risk of mutants emerging.

The vaccination is something that we vigorously provide to our youngsters and it is the only solution to handle the emerging crisis. If young people don't get vaccinated it could leave every one vulnerable. Sometimes apprehensions regarding anything new especially about vaccines is there, but it is important for all to get vaccinated during this critical time. It is overwhelming to think about it but we cannot be denial. Children are still at risk of getting and spreading of coronavirus,as cases of MIS-C, or multisystem inflammatory syndrome in children, are on the rise.MIS-C is a condition that happens when "the virus induces your body to make an immune response against your own blood vessels," that can cause inflammation of the blood vessels. As we have seen in the older variants and the delta variant, the Delta variant is far more infectious and produces massive increase of deaths that we witnessed in the second wave.

The pandemic of Covid-19 pushed scientists to produce vaccinations as quickly as possible. The efficacy of lab-developed vaccines varies depending on the candidate and the mutant forms of SARS-CoV-2. Covid-19 appropriate behaviour, on the other hand, provides the best protection against all SARS-CoV-2 subtypes. Immediate stringent measures should be taken to control the congestion in public places to prevent the third wave. We must be fully prepared to protect our toddlers and young children. High risk is involved for infants and children in the projected third wave. Functioning of neonatal and paediatric intensive care units are need in an hour.It is important to strengthen our IT, system, control rooms, and call centre networks offering phone numbers.

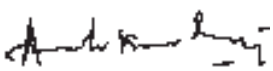
As much as two third of population is still unaware of need of vaccination. More focus is needed on villages and remote rural areas. Youngsters with access to information should create awareness, explain to rural people how vaccines help, talk to senior citizens, in their vicinity and help them to get the jabs. Availability of the services of tele-consulting platforms where the people can avail unlimited free consulting services of Doctor's from morning to night 7 days a week who would support them not just in COVID care, but also specialists in other fields are needed.

India should impose strict covid-19 restrictions and also people should take this tiny virus seriously and not for granted. For overall well being of the society government already gear up and put a well designed system for effective management of Covid-19 to fight the possible third wave. It's not only government responsibility, every individual; every organisation must come forward and contribute their services to strengthen the hands of government machinery Following non-pharmacological interventions like Physical distancing, wearing masks and hand washing could result in reducing risk of infection.

Apart from taking precautions, we must get our jabs done as early as possible so that we can combat this virus more effectively. Saving our and others lives by getting vaccinated should be our priority. Let us all work together to win this war and save mankind from this Covid crisis.

Let's know about current issue of Double Helical there is more such interesting and thought-provoking stuff to savour. So, happy reading!

Thanks and regards



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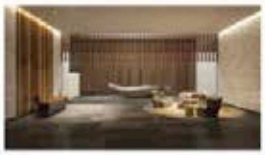

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Inauguration of Community Health Facility of School of Allied Health Sciences, DPSRU

The Community Health Facility of School of Allied Health Sciences (SAHS), Delhi Pharmaceutical Sciences and Research University was inaugurated by former Union Minister of State for Culture and Tourism and Member of Parliament Shri K.J. Alphons. The Distress Management Collective India (DMCI) in association with India Canada Association of Kingston, the voluntary service organisations donated five Oxygen Concentrators of 10 litres capacity and pulse oxymeters. The team DMCI donated the masks made by the rehabilitated inmates of GB Road promoted by Kat-katha and DMCI to the community health facility of the University. The inaugural function was chaired by Prof. Ramesh K Goyal, Vice Chancellor DPSRU in the presence of Shri O.P Shukla, Registrar, Prof. Harvinder Popli, Director, SPS, Prof. P.K Sahoo, Director DIPSAR, Prof. Geeta Aggarwal, Dean Academics, Prof. Rajiv Tonk, Dean Students Welfare, Dr. Jaseela Majeed, Head SAHS, Dr. Priyanka Sonam, Medical Officer, Dr. Shilpa Jain, Head Physiotherapy and senior faculty of the University. During the inaugural speech Shri K J Alphons congratulated the team to initiate the Community Health Facility as University being an integral part

of the community and also being a Pharmacy and health related University has a major role to play towards the society at large. Prof. Goyal addressed the gathering that the Community Health facility in collaboration with likeminded organizations, will facilitate the responsibilities towards the society. The inaugural function was attended by Shri. Babu Panicker, Delhi Coordinator and executive members of DMCI Dr. K C George, Dr. Sakhi John, Shri. Jobi Joseph, Shri Joseph Koovachal and Shri. Sudheernath acknowledged the student volunteers who are working for Praan Vayu Project which saved the lives of hundreds of people during the second wave of pandemic, with certificates of appreciation and momentos. The facility would also cater the health related needs of the University and the neighbouring communities in preparation of a third wave of pandemic.

COVID-19 PANDEMIC

"TIME TO QUIT TOBACCO"

World health organization launched a yearlong campaign for World No Tobacco Day 2021 (WNTD) with the theme of "commit to quit" on 8th December 2020. The Covid-19 pandemic motivated millions of people to quit tobacco consumption. However, only 30% of the population around the globe has quality tobacco cessation services available to them…….

BY DR.SUNEELA GARG/ DR. PARAG BHARDWAJ/ DR. CHETANA DESHMUKH

Welcoming robust tobacco cessation policies, increasing access to cessation services, and raising awareness about the tobacco industry's tactics are some of the pertinent components of this campaign. This campaign will focus on the smokers who motivated themselves to quit tobacco consumption. Coronavirus disease 2019 (COVID-19) is an infectious disease which is caused by novel Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), this virus mainly affects the lungs. Nicotine which is available in the form of tobacco along with other harmful chemicals is associated with many fatal diseases such as emphysema, chronic obstructive pulmonary diseases, risk of stroke, etc and it is an immunosuppressant that acts through peripheral and central mechanisms. Smokers are more likely to have severe symptoms of Covid-19 or else they are more likely to admit to the hospital with mechanical ventilator support compared to non-smokers.

The prevalence of Covid-19 amongst smokers was compared in the severe and non-severe cases of Covid-19. The results showed that the percentage of current and formers smokers were higher in severe cases as compared to non-severe cases. However, the association between smoking tobacco and the severity of Covid-19 should not be limited to smoking tobacco because smokeless tobacco could also be a potential source of transmitting the virus and worsening health. Smokeless tobacco (SLT) is consumed in more than 140 countries. Consumption of smokeless tobacco leads to increased salivation in the mouth results in spitting at public places unbridling the series of saliva droplets to the commuters. Furthermore, smokeless tobacco is placed in the mouth using fingers or hands.

Thus, leads to the increased chances of Covid-19 transmission from hands to mouth. Angiotensin-Converting Enzyme (ACE2) receptors are the neurotransmitters that facilitate the SARS-CoV-2 entry into the host cells. Studies have shown that ACE2 receptors are present in the oral epithelial cells of the tongue, buccal mucosa, gingiva. Moreover, consumption of SLT increases the expression of ACE2 receptors which reveals that the addiction of SLT can increase the progression of COVID-19 by nicotine-induced ACE2 receptors.

An opportunity to quit tobacco consumption

Many of the tobacco consumers believed that they are at a higher risk of Covid-19 and severe complications associated with it which resulted in increased attempts to quit tobacco consumption by them. In a study conducted recently showed that every third of the smokers were willing to quit tobacco due to a higher risk of contracting Covid-19 as a smoker. A study conducted in China compared the smokers between the pre-Covid-19 era and after the Covid-19 outbreak, results showed that smokers reduced their cigarette consumption after the COVID-19 outbreak because they felt a higher level of satisfaction with their current health after reducing or quitting tobacco. However, a study conducted in Bangladesh to explore the change in tobacco use pattern during the pandemic showed that there was an increase in consumption of smokeless tobacco in the rural participants and the probable reason was stress and anxiety during COVID-19 due to inadequate healthcare facilities, less or no information regarding COVID-19. Another study that discovered the tobacco consumption pattern in five countries (Italy, India, South Africa, the United Kingdom, and the United States) during Covid-19 showed an increased frequency of tobacco consumption during the Covid-19 pandemic which is a cause of concern in turning pandemic into the opportunity of quitting tobacco.

An encouraging aspect of a pandemic was the public health interventions such as lockdown which slightly helped in quitting tobacco consumption. A study-based result

showed that almost two-thirds of tobacco users whether smokers or smokeless tobacco consumers, reported a reduction in tobacco use during the lockdown in India. Unavailability and increased prices of tobacco products for an extended period during the lockdown in India led tobacco consumers to take long-term decisions to quit tobacco. The Italian population was surveyed during the lockdown period. Observations showed that there was decreased consumption of tobacco during the time which included many factors such as lack of daily routine in smokers related to consumption of cigarettes, lack of socialization, spending more time with family members and children reduced the consumption of tobacco to respect the family members.

The social role of smoking was explained in a study conducted in Italy and showed that smoking amongst youth ended up due to social isolation because of the lockdown and there were successful quit attempts by the youth.

Changes in the physical environment, social distancing, wearing of mask in the public, restriction in the movement of people are some of the factors responsible which led tobacco consumers to quit tobacco attempts. Furthermore, higher rates of enrolment to tobacco cessation services were found statically, after the pandemic.

As recommended by WHO, the promotion of proven tobacco cessation services is necessary to help tobacco users during this period. Thus, the availability of tobacco cessation services to tobacco consumers is important during the pandemic. Awareness of the risk association of tobacco and Covid-19 amongst tobacco users should be increased. Along with awareness, toll-free tobacco quit line numbers, mobile-based cessation applications or cessation programs should be provided to tobacco consumers, motivating them to quit tobacco. Furthermore, mental health issues rising due to this pandemic and leading people to increase their tobacco consumption should be addressed and studied. Adequate measures have to be initiated such as easy accessibility of mental health counsellors along with tobacco cessation services to the people.

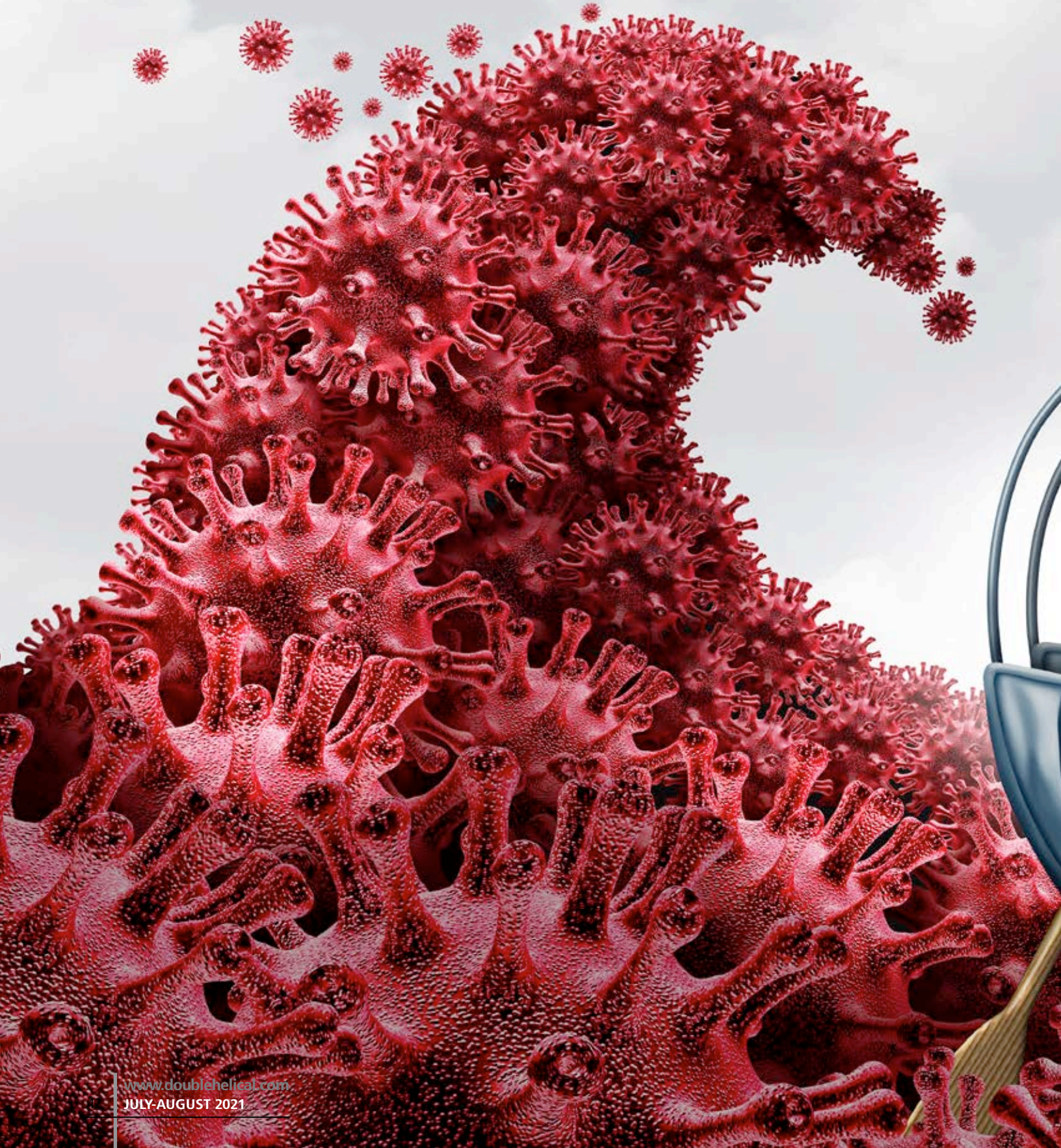
A way ahead and measures

The world has been fighting against the global tobacco epidemic and a report released by WHO (Report on Global Tobacco Epidemic 2019) stated that progress has been made in evidence-based and cost-effective tobacco control strategies over the last decades. Moreover, tobacco cessation services, banning of public smoking in some of the countries, health warnings on tobacco packets, packaging of tobacco packets, higher taxes on tobacco products, etc have already reduced the affordability and availability of tobacco products to the general public. Covid-19 19 pandemic has given a chance and motivation to quit tobacco consumption and for that doctors and other health care workers have to play their role by helping tobacco consumers to quit through various tobacco cessation services such as nicotine replacement therapy, toll-free tobacco quit helpline numbers, etc.

CONCLUSION

There is a relation between COVID-19 disease severity and tobacco use. The extent of awareness regarding the association of COVID-19 and tobacco should be increased. Tobacco use could be a potential risk factor in contracting COVID-19 as nicotine which is present in tobacco is an immune suppressant and linked to many cardio and pulmonary manifestations. Awareness programs such as “commit to quit” which is initiated by WHO on World No Tobacco Day 2021 should be promoted and more robust ideas have to be provided to prevent the consumption of tobacco and containing the spread of Covid-19.

(The authors are Professor of excellence and president of IAPSM/ Research Assistant/ Post-doctoral Fellow, Maulana Azad Medical College, New Delhi)



ARE WE READY FOR THIRD WAVE OF COVID-19

COVID-19 has already been confirmed in about 160 million people all around the world. India, which has also been devastated by a second wave caused by the premature relaxation of public health safeguards and more transmissible forms of the virus, has reported more than 20 million cases……..

BY DR N.K. PRASANNA/
DR S.K. VARSHNEY

India is all set heading towards another wave of the COVID-19 due to the lack of access and inadequate coverage of immunization, direct or indirect contact with an infected persons, are the probable possibility of causing the disease

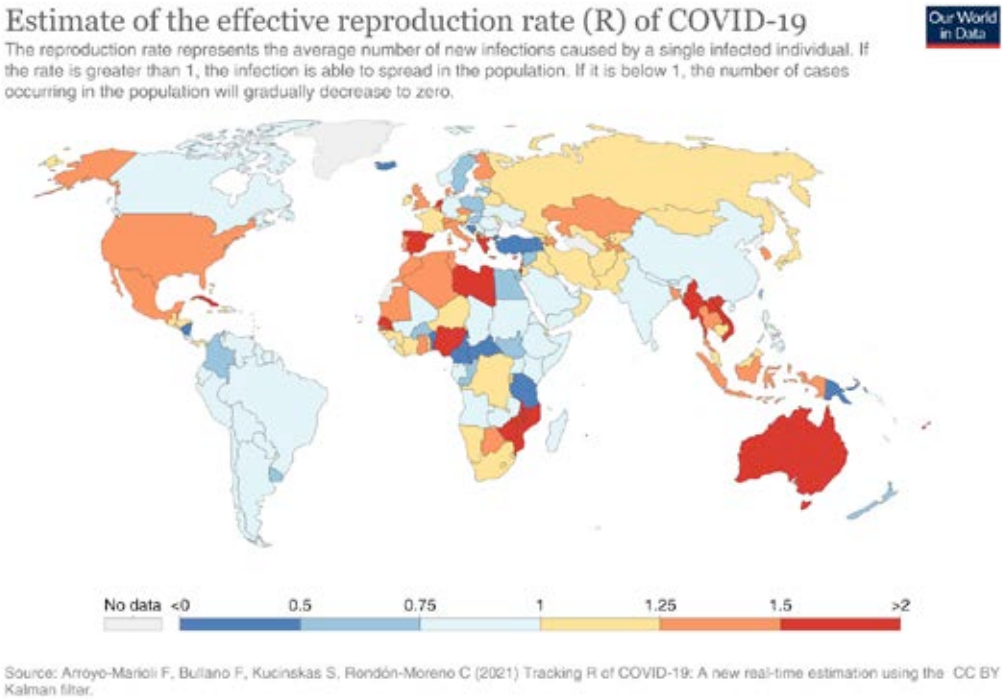
A lot amongst our citizens take our life for granted amidst the emergence of various deadly coronavirus variants. Many of them are not even following the COVID appropriate behaviour including physical distancing, wearing masks, avoiding crowded areas, but

nowadays we often see the ignorance of these behaviours which would exacerbate the situation at large. According to statistics provided by the Ministry of Health and Family Welfare (MoHFW), the declining trend in daily COVID infections has slowed, with a modest increase in the positive rate. This is concerning since there has been an inflow of visitors to tourist locations who have shown little or no COVID-appropriate behaviour.

According to Dr.Randeep Guleria, Director, All India Institute of Medical Sciences (AIIMS), the third wave of the COVID-19 pandemic may not occur if individuals exercise caution and India can vaccine a significant number of people. Also, according to the NITI Aayog Vice-Chairman Rajiv Kumar, India is better prepared to deal with a hypothetical third wave of coronavirus. The chairman of the think tank, focusing on the progress in Covid-19 management, stated that states have learned their lessons in dealing with the pandemic.

R-VALUE: ALARMING UPCOMING FUTURE

R is the number of people infected by a single Covid-19 sufferer. For active instances to decrease and the epidemic to stop, R should remain below one. India's Covid-19 effective reproduction number or R-value – a measure of how quickly the pandemic is spreading — remains at 0.82, unchanged from the previous week. However, other indicators such as the number of new infections, fatalities, hospital admissions, and maybe survey data to estimate how many people in a group have the disease or have previously recovered must be closely monitored to provide a complete picture of infection transmission. According to Bhramar Mukherjee, a biostatistician at the University of Michigan, states like Maharashtra, Kerala, and the national capital Delhi have crossed the R-value



Dr N K Prasanna

barrier of one. Professor Mukherjee and her colleagues have been closely monitoring the outbreak in India.

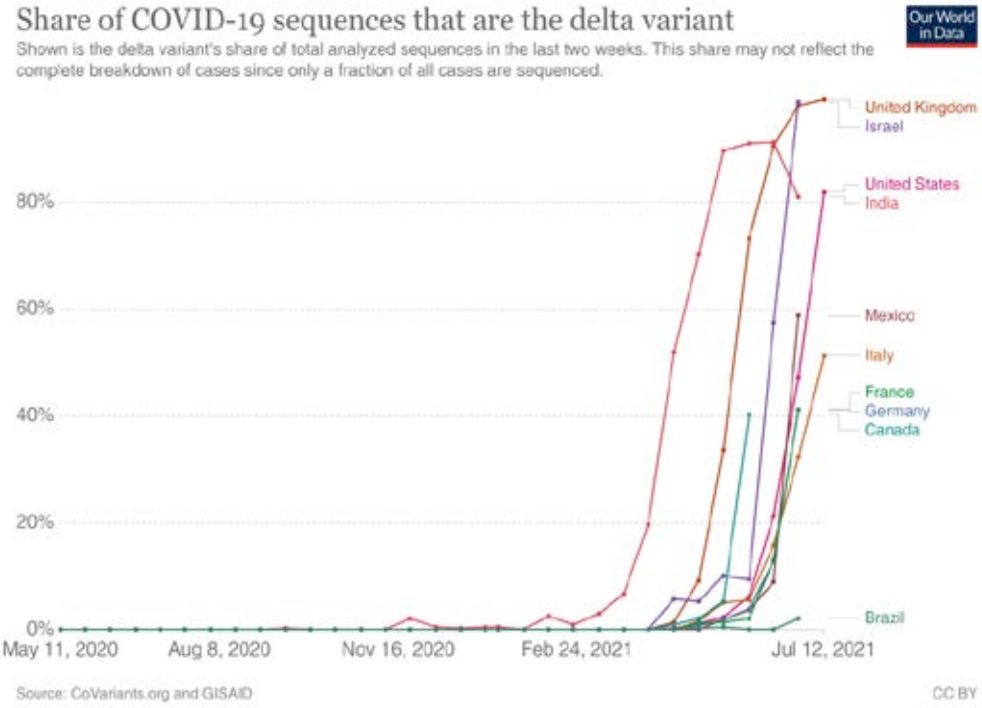
DELTA VARIANT:

Maharashtra has issued a warning for the third wave of the Covid-19 pandemic, just as India is recovering from the havoc of the second wave. The second wave of the coronavirus pandemic was blamed on a delta version of SARS-CoV-2. Last year, Maharashtra was the first state to report the Delta variant. It's unclear whether the Delta Plus version is more contagious or deadly than the Delta type. The Delta form has been discovered to be more lethal and capable of generating more severe Covid-19, resulting in a higher rate of patient hospitalisation.

India was the second-worst-affected country by Covid-19, and also the worst-affected during the second wave of Covid-19. However, according to the report released by Washington Post, India ranked 102 in genetic sequencing for SARS-CoV-2 in April. The discovery of a novel variation is thought to be critical in reducing the risk of a new Covid-19 epidemic. India's issue is a lack of infrastructure to do genomic research. This problem should be solved in upcoming months to mitigate the current pandemic. By facilitating the recent ongoing genome sequencing in India, we can fight back towards this deadly virus.

VACCINATION: A VITAL LIFELINE

Pandemics or epidemics are known to peter out when a population



develops herd immunity, which means the virus no longer has room to spread. Vaccines, despite regular debates over their efficacy and usage of specific components, as well as rumours sweeping the internet, remain the greatest chance against Covid-19, according to health professionals.

India's vaccination speed looks impressive compared to other countries, but not in terms of percentage. India has roughly provided vaccination coverage to the 38,14,67,646 (as of July 12, 2021) population. With the advent of the second wave of the Covid, vaccination is our best hope. COVISHIELD and COVAXIN are the two vaccines that have been authorised for usage in India. A vaccinated person may produce antibodies that neutralise the virus and interrupt the transmission cycle. Once a substantial population has been vaccinated and has circulating antibodies for the disease, herd immunity develops.

CONCLUSION

The most important lesson that we learned from the first and second waves will aid in the prevention of future waves. Following the COVID-19, appropriate behaviour is crucial to stop spread of the virus, despite of what be the fast spreading variants or new mutants that propel, if we avoid crowds by maintaining physical distance, wearing a mask, and thoroughly washing our hands, interrupting super-spreading events of explosive transmission. If we realize

Sanjeev Kumar Varshney

the significance of public health measures, and act appropriately we will overcome the tough times. Prime minister has also urged more people to come forward for vaccination. Because the greater the number of people who can be vaccinated, the lower the risk of transmission and viral replication, and the lower the risk of mutants emerging.

The vaccination is something that we vigorously provide to our youngsters and it is the only solution to handle the emerging crisis. If young people don't get vaccinated it could leave every one vulnerable. Sometimes apprehensions regarding anything new especially about vaccines is there, but it is important for all to get vaccinated during this critical time. It is overwhelming to think about it but we cannot be denial. Children are still at risk of getting and spreading of coronavirus,as cases of MIS-C, or multisystem inflammatory syndrome in children, are on the rise.MIS-C is a condition that happens when "the virus induces your body to make an immune response against your own blood vessels," that can cause inflammation of the blood vessels. As we have seen in the older variants and the delta variant, the Delta variant is far more infectious and produces massive increase of deaths that we

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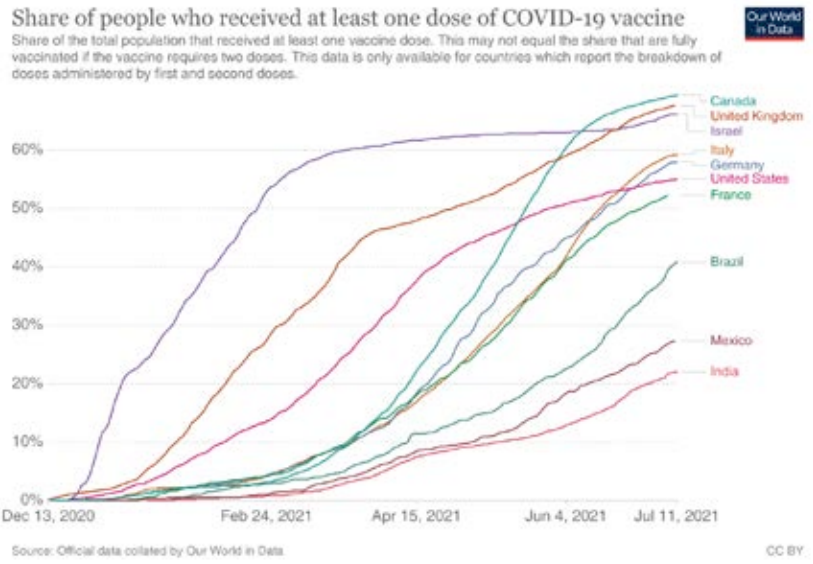
The pandemic of Covid-19 pushed scientists to produce vaccinations as quickly as possible. The efficacy of lab-developed vaccines varies depending on the candidate and the mutant forms of SARS-CoV-2. Covid-19 appropriate behaviour, on the other hand, provides the best protection against all SARS-CoV-2 subtypes.Immediate Stringent measures should be taken to control the congestion in public places to prevent the third wave. We must be fully prepared to protect our toddlers and young children. High risk is involved for infants and children in the



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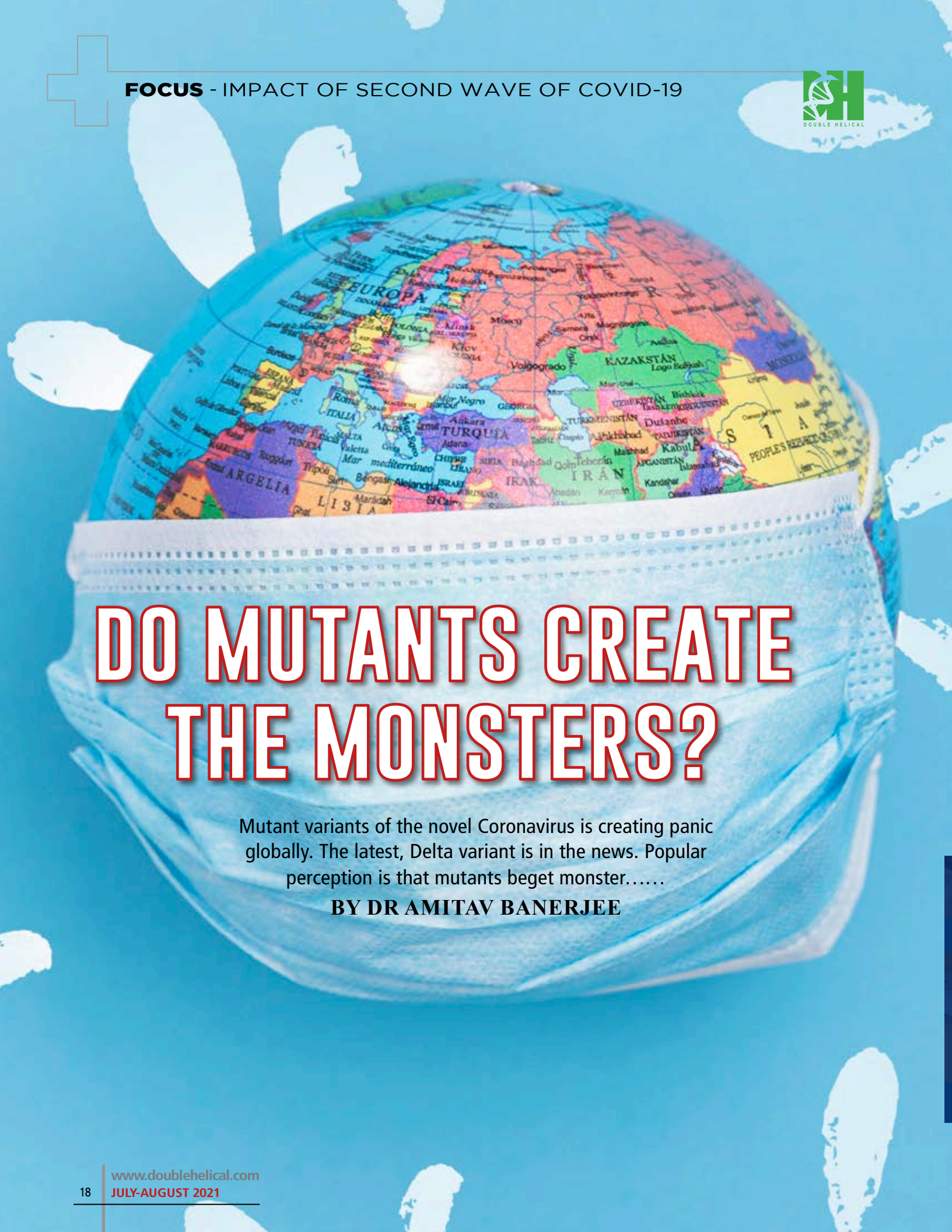
Since the beginning of the outbreak, health care providers and health systems are under immense pressure. The critical role played by health care professionals and their traumatic stress are indescribable. Now it's a time to strengthen our health care infrastructure. One of the most consistent challenges to overcome any public health crisis is the shortage of healthcare workers. There aren't enough doctors and nurses. In view of the need, increasing the availability of trained human resourcesto tackle the Covid-19 pandemic, government should hire medical and Para-medical staff including doctors and nurses. It provides way to reduce pressure on health care workers for the future. A good data is required for Policy formulation and effective implementation apart from uncertainties and time lag.

India should impose strict covid-19 restrictions and also people should take this tiny virus seriously and not for granted. For overall well being of the society government already gear up and put a well designed system for effective management of Covid-19 to fight the possible third wave. It's not only government responsibility, every individual; every organisation must come forward and contribute their services to strengthen the hands of government machinery Following non-pharmacological interventions like Physical distancing, wearing masks and hand washing could result in reducing risk of infection.Apart from taking precautions, we must get our jabs done as early as possible so that we can combat this virus more effectively. Saving our and others lives by getting vaccinated should be our priority. Let us all work together to win this war and save mankind from this Covid crisis.

(The authors are Scientist at CSIR-National Institute of Science Communication and Policy Research, New Delhi and Head, International Cooperation, Department of Science and Technology, New Delhi)



DO MUTANTS CREATE THE MONSTERS?

Mutant variants of the novel Coronavirus is creating panic globally. The latest, Delta variant is in the news. Popular perception is that mutants beget monster……

BY DR AMITAV BANERJEE

A former Chief Minister of an Indian State got into trouble when he remarked, "Coronavirus also has a right to live!" He was trolled heavily on social media. David Deutsch in his provocative book, "The Beginning of Infinity," states that when we seek explanations, we lean towards anthropocentrism, explaining things parochially from the human perspective.

To balance this is "The Principle of Mediocrity," which assumes that there is nothing significant about humans in the cosmic scheme of things. One does not know whether the former Chief Minister had read this book. Politicians have little time for reading. But he had made a point keeping with "The Principle of Mediocrity,"

Darwin's laws of natural selection tell us otherwise. Coming back to the "faux pas" of the former chief minister, viruses also have a right to live. Whether we like it or not nature grants them a fair chance. To survive they follow nature's way of adaptation – Darwin's Law. These adaptations are by way of mutations, natural phenomena, not new, due to errors during replication, and occasionally due to selection pressure.

According to principles of successful parasitism, this adaptation is beneficial to both the virus and humans. Errors that make the virus fittest for survival propagate while others lose out due to natural selection. Lethal or virulent strains perish with the host leading to a dead end infection. Lesser virulent ones which do not kill but cause symptoms also do not go far because patients resort to self isolation.

The mutant strains, which survive, are less virulent which do not kill the host, produce very mild symptoms or none at all. People infected with such mild variants will mix with others and transmit widely. The high contagiousness does not necessarily translate to high lethality directly. Such strains promote population immunity with minimum casualties. Towards this goal the novel Coronaviruses is also constantly mutating leading to variants even as this piece is written.

A note of caution, while it may be reassuring that variants may be less lethal in spite of high transmissibility, rapid surge in cases overburdening the health infrastructure may cause higher fatality due to inadequate care. How does mutation take place? The novel Coronavirus SARS-CoV-2 is a RNA virus, which has about 30, 000 base pairs of nitrogen compounds, about 3000 to 4000 are in the spike protein. These base pairs can be considered as the building bricks of the virus. Addition, deletion or changes in sequence within these building blocks lead to mutation.

What can be the implications of mutation? There are a number of possibilities. Most mutations have no impact on virulence or infectivity. They are used as fingerprints for tracing the path of outbreaks. Some mutations will become less virulent but more infective, with better chances of survival and propagation by law of natural selection. And rarely, they may become more virulent, such outliers would also lose the evolutionary race. The following are the concerns related to mutation.

Will vaccine work? Will immunity obtained after recovery from natural infection work? Will RT-PCR detect the mutant variants? Antibodies and immune cells generated by natural infections or vaccination act on some of the building blocks known as epitopes. As mentioned the novel Coronavirus has about 30,000 base pairs or building blocks of nitrogen compounds. During mutations only a few of the building blocks undergo change. So antibodies and immune cells primed against the whole virus as on recovery from natural infection or immunization by a vaccine derived from the whole virus have very good chance of neutralizing these

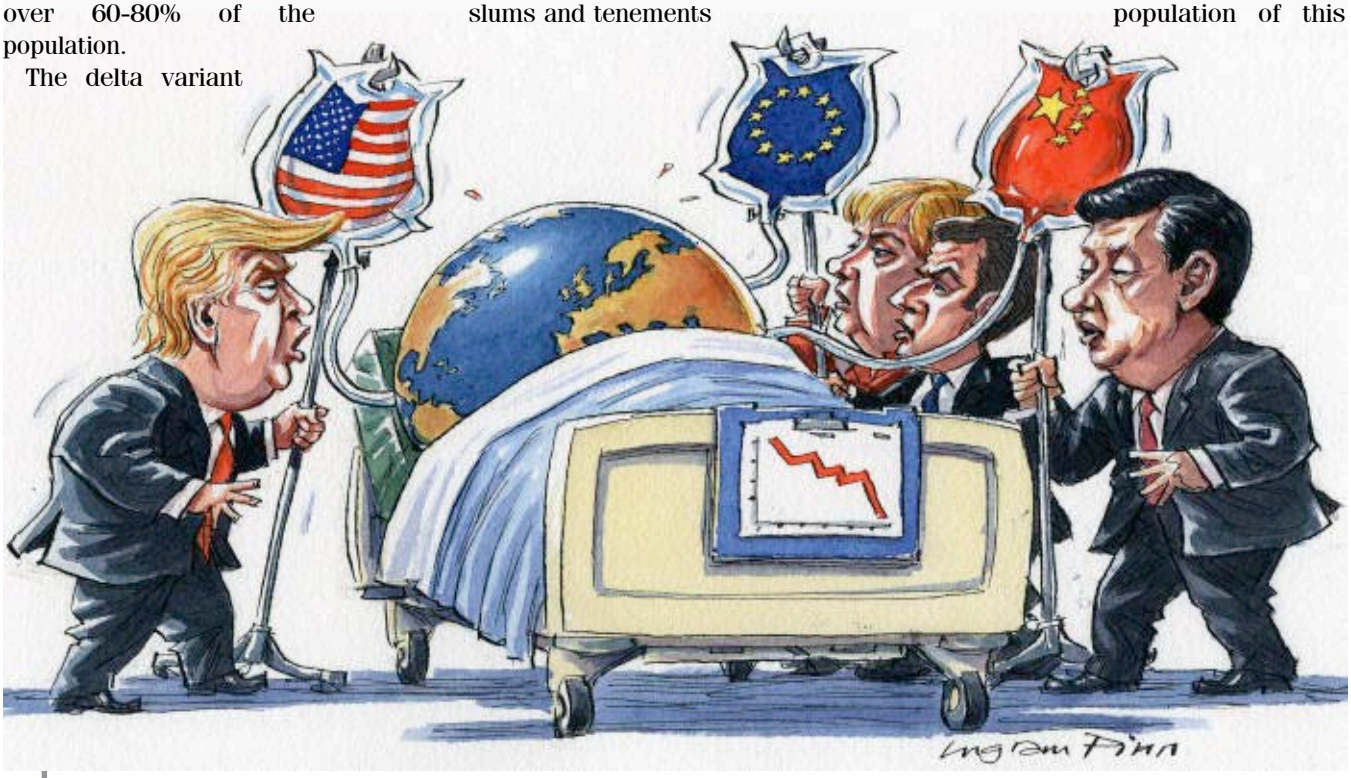
variants.

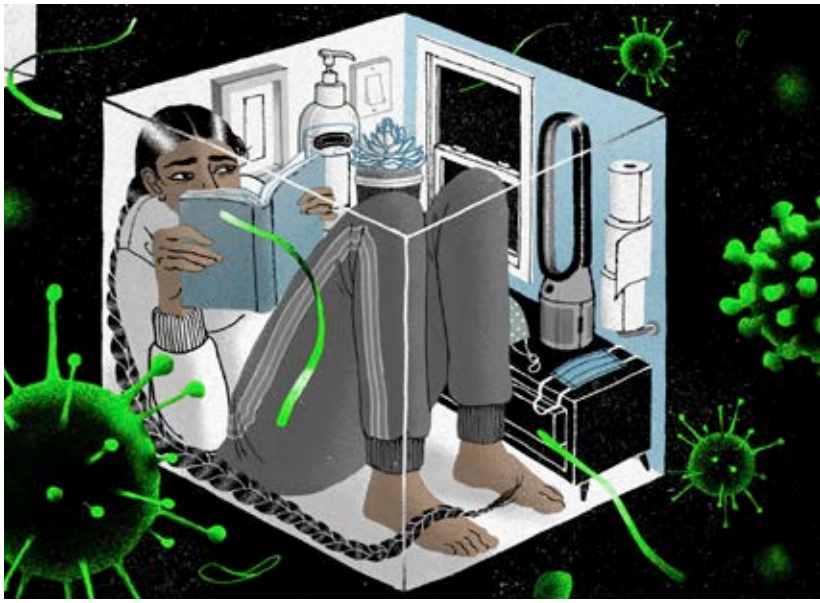
Conceptually vaccine derived from whole virus like the Covaxin should offer protection against the variants. However, this has to be confirmed by actual performance against present and future variants. Some vaccines target only the spike protein or more specifically few of the building blocks in them. These targets are known as epitopes, out of 3000-4000 of these base pairs in the spike protein. If mutation occurs in an epitope in the spike protein there is slightly more chance of 3 antibodies and immune cells hitting a blank on a mutated epitope. However, as many epitopes are involved in the process, such vaccines will also confer some protection against the mutants. The RT-PCR tests which target a number of epitopes should also detect variants. Against these principles we may consider the impact of the currently circulating variants. While the delta variant was circulating for past few months in India, it is making headlines now because it is presently circulating in UK causing a small surge in cases in spite of vaccine cover to over 60-80% of the population.

The delta variant was first detected in Maharashtra in October 2020. It has 50% more transmissibility with higher viral load shedding facilitating this. We may assume that this caused the vicious second wave in India. This may explain its very steep rise, infecting four times more people than the first wave at its peak, and an equally sharp fall due to rapid exhaustion of the susceptible (those who had not encountered the virus before), and perhaps widespread and quick generation of herd immunity. Within a couple of months the RT-PCR positivity rates came down from 25% to below 5%.

Vaccination cannot explain this phenomenon as it had no time to catch up, with less than 5% of Indians fully vaccinated during the rise and fall of this wave. Was the population level immunity acquired during the first wave adequate to withstand the onslaught of the second wave? The Covid experience in two big cities in Maharashtra, the frequent epicentres of the pandemic in India, would suggest so based on ecological and individual level data. In the first wave, the worst affected were mostly the slums and tenements while the middle class and affluent who could observe "Covid appropriate behaviour" and "work from home," were spared.

According to a news, sero-prevalence after the first wave in three slums of Mumbai demonstrated high levels of IgG antibodies around 57% compared to 16% among residents of middle class housing societies. During the second wave, the occupants of the middle class housing societies were mostly affected, while the slum dwellers reported few cases. This suggests that, in the cities, antibodies developed after the first wave protected the people from the lower socioeconomic strata from the fury of the 4 second wave. The second wave also took a toll of the rural hinterlands which were spared in the first wave leaving villagers vulnerable. The same pattern was observed in the industrial twin townships of Pimpri-Chinchwad, in Pune District. Just at the end of the first wave in October 2020, our team undertook a serosurvey on a random sample of 5000 individuals over 12 years of age representative of the 27 lakh population of this





town in Pune.

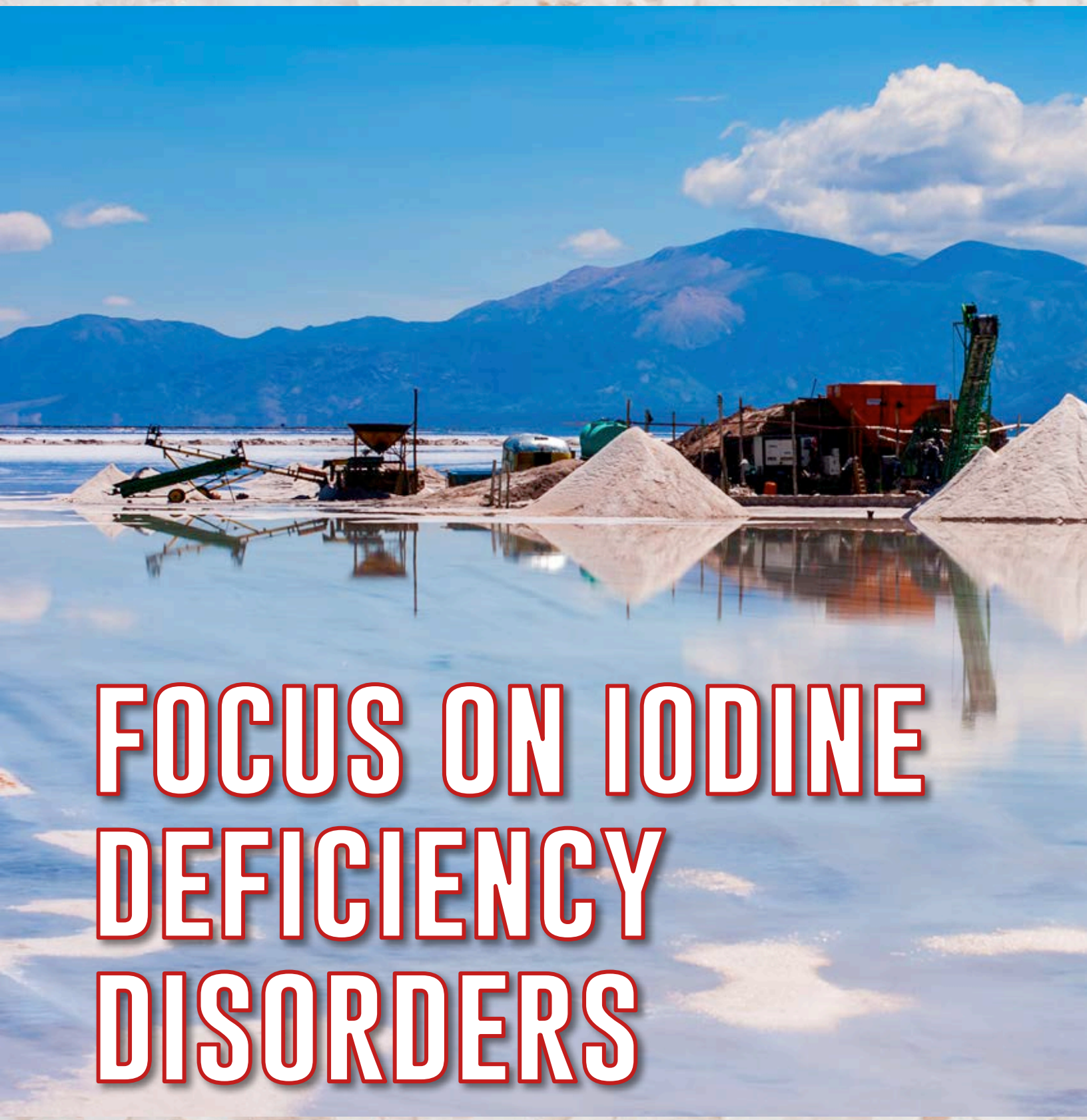
We found overall 34% of the population had antibodies against the Coronavirus. However, this was not homogeneously distributed. There was wide variation of seropositivity between slum dwellers and residents of housing societies. Some of the slums had 70-75% seropositivity while few housing societies had as low as 4-8%. During the second wave we noticed that the regions which had the highest seropositivity after the first wave had the lowest reported cases. In June 2021, we contacted 1081 participants who had IgG antibodies to ascertain reinfections. Out of these only 13 (1.2%), got re-infected with Covid-19 during the second wave, in spite of most of them living and working in densely crowded conditions.

The preliminary findings are reassuring that prior infections with the earlier variant gives sufficient protection against the delta variant. What about lethality of the delta variant? According to a report in first post dated April 07, 2021, the case fatality rate in the second wave at 1.3% was lower than the case fatality rate of 3.6% in the first wave during April 2020. While one reason may be better understanding of clinical management with time, the lethality of the delta strain appears to be lower than previous strains. This is also what one might expect according of evolutionary theory of natural selection as described earlier. What about efficacy of vaccines against the delta variant?

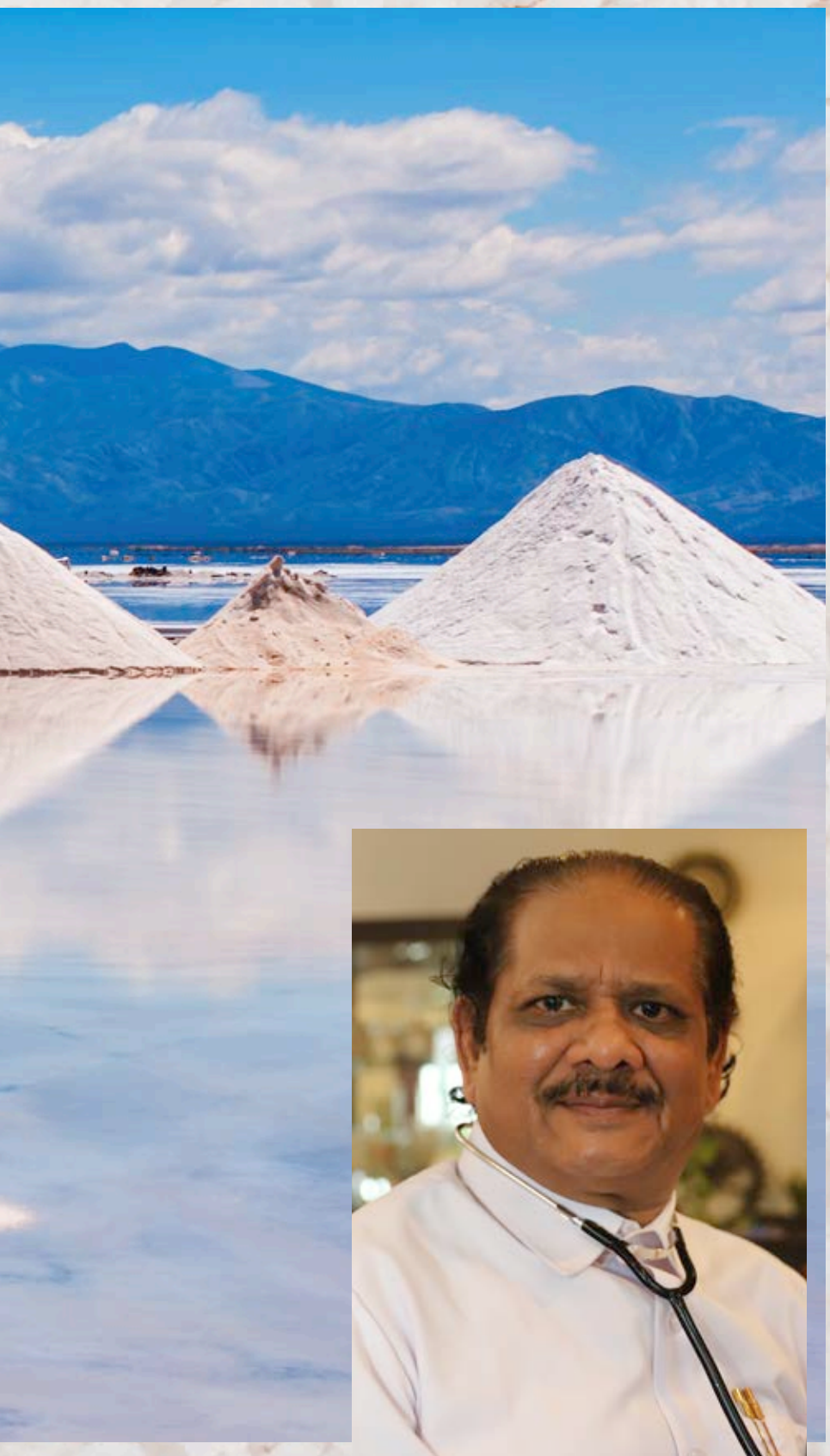
As mentioned above whole virus vaccines may theoretically confer better immunity against present and subsequent variants as mutations occur in only few epitopes. Extensive mutations will kill the virus. However, long term monitoring and follow up should continue to confirm this presumption. 5 Presently, vaccines have been rolled out to less than 15% of our population. The UK experience, with vaccination coverage in the range of 60-80% with the delta variant circulating in the country, may offer some clues. Daily cases in UK are slowly rising in spite of high vaccination coverage. On 02 May 2021 only 1621 new cases were reported. This has risen to 11007 as on 17 June 2021 with last 7 days increase of 33.7% compared to previous 7 days. From 11 June to 17 June 2021 there were 78 deaths showing an increase of 41.8% compared to preceding 7 days. Closer monitoring of the unfolding trends in UK would provide vital clues about the potential of vaccine escape due to the delta variant.

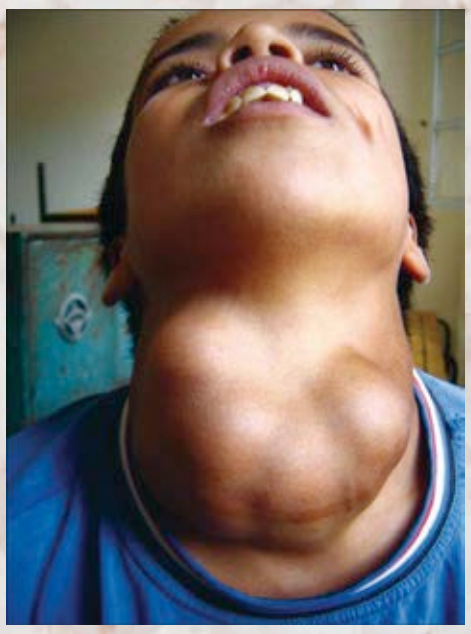
If cases and deaths keep rising in UK in spite of widespread vaccination, other countries should pause to reconsider whether to go for mass vaccination at huge cost or go for focused vaccination of high risk and vulnerable groups. Mutations and variants will be an ongoing phenomenon, thousands of them have already occurred since the origins of this virus. Only few of them are considered "variants of concern" as these may have potential of escaping the vaccine and rarely, immunity acquired from earlier infections. However, these mutants will be less virulent. This is the way of all pandemics. Over time they become seasonal minor illnesses.

(The author is MD, Clinical Epidemiologist, Professor and Head, Department of Community Medicine, Dr D Y Patil Medical College Hospital and Research Centre, Pune)



FOCUS ON IODINE DEFICIENCY DISORDERS



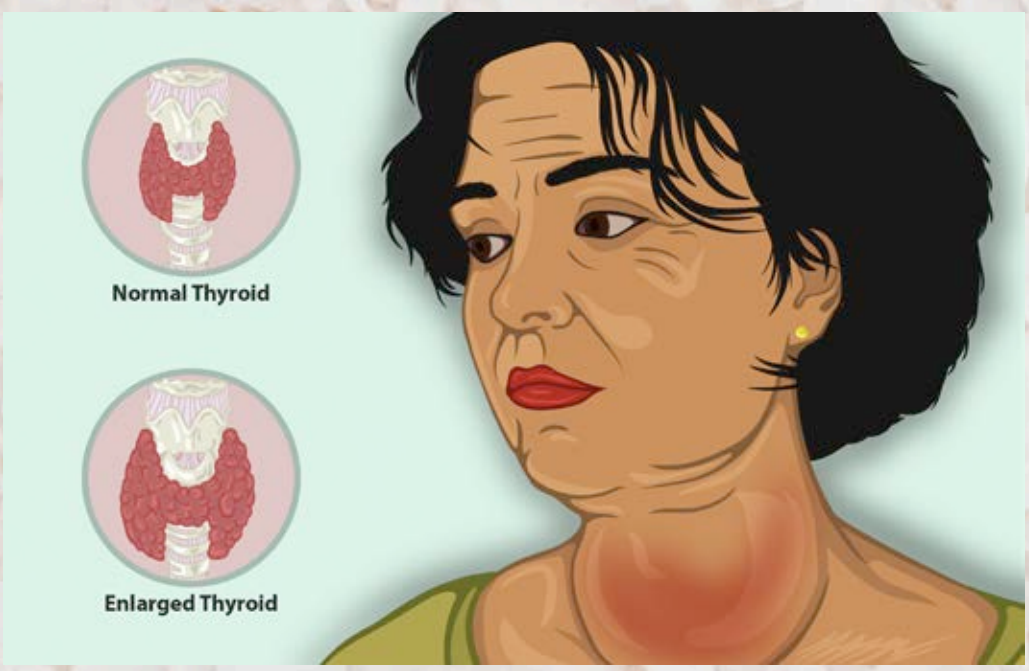


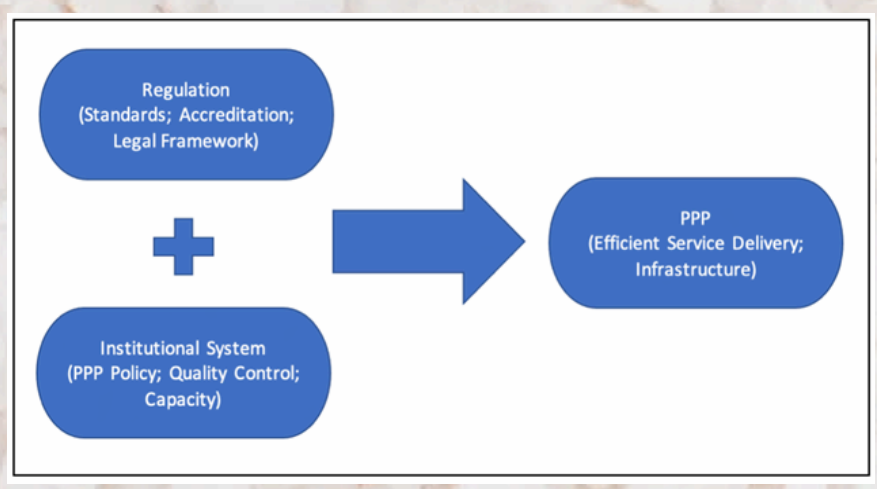
According to the World Health Organisation (WHO), Iodine Deficiency in foetal life and early childhood remains the single most important and preventable cause of mental retardation, globally. Even mild iodine deficiency can prevent children from attaining their full intellectual and physical potential…...…

BY DR CHANDRAKANT S PANDAV

Sustainable elimination of Iodine Deficiency Disorders (IDD) is directly linked to economic growth. The Intelligence Quotient (IQ) score of children living in an 'Iodine Deficient' environment is nearly **13.5 IQ** points less than those living in iodine sufficient environments (2). A one-point increase in a nation's average IQ is associated with 0.11% increase in Gross Domestic Product (GDP)! Therefore, a **13.5 IQ point increase can result in a 1.49% increase in our GDP**!!

Iodine Deficiency is a disease of the soil. If the soil is deficient in iodine, then the food crops grown on that soil are also deficient in iodine. IDDs have been shown to be associated with at least 10 of the Sustainable Development Goals. Salt, because of its unique characteristics, is an ideal fortification vehicle. It is a commodity universally consumed by all - rich and poor, male and female, urban and rural, young and old, in summer and in winter. Each individual consumes, on an average, 12 grams of salt per day. Salt is therefore fortified with Iodine under the Universal Salt Iodisation (USI) program to address Iodine Deficiency Disorders (IDD) in the country. Since the implementation of the USI in India, salt iodisation has achieved remarkable success. As of now, iodised salt reaches **92.4%** of the population in the country (India Iodine Survey, 2018 – 2019). Universal Salt Iodisation (USI) is one of the most successful public health interventions. It has been credited with the elimination of IDD in the world.





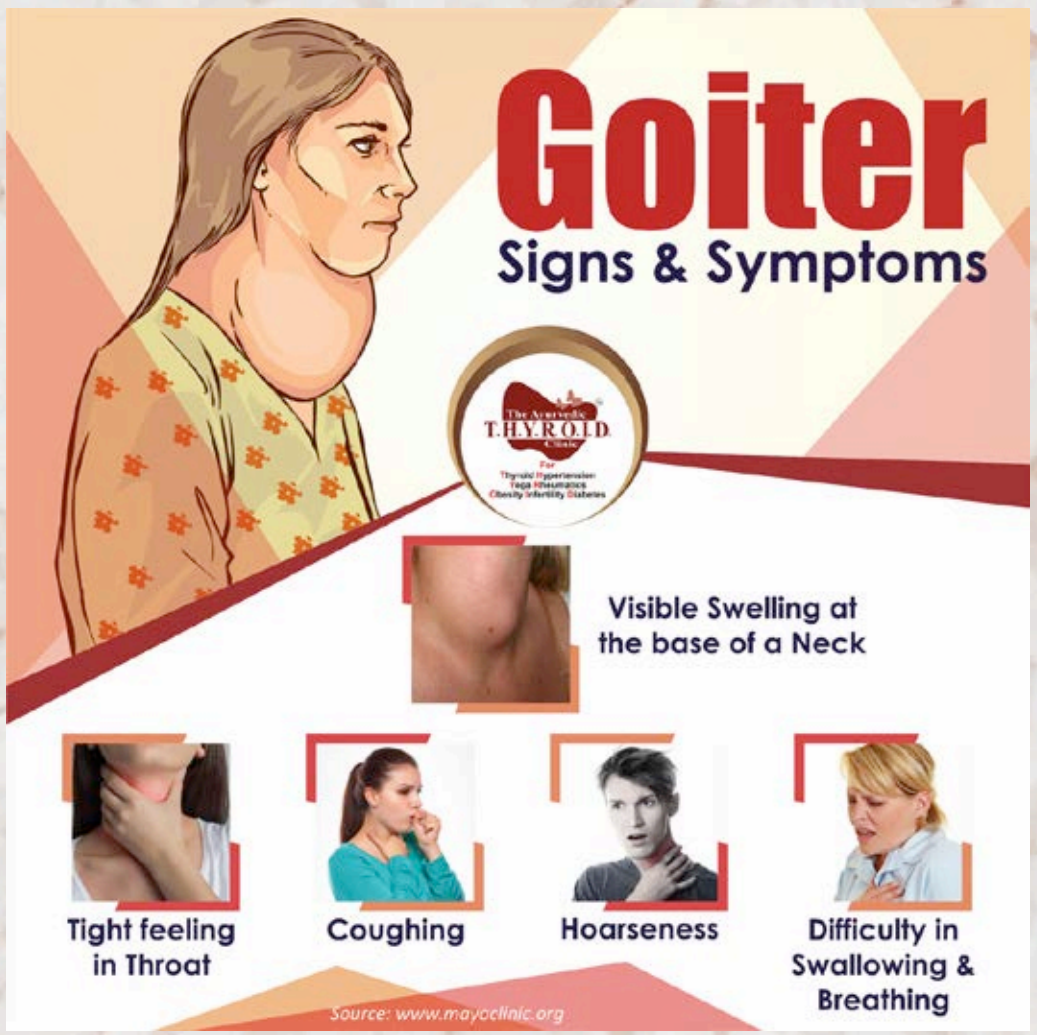
(Adapted from the book A. Venkat Raman and J.W. Bjorkman; Public Private Partnership in Health Care in India: Lessons for Developing Countries (Routledge, London, 2009) (4).

2. THE PUBLIC - PRIVATE PARTNERSHIP (PPP) MODEL

Public Private Partnership (PPP) refers to any arrangement between the government and the private sector for the common good of the people. Whilst the public sector is seen as representing a pool of resources to the delivery of key public services, the private sector is regarded for its ability to harness its expertise in realising substantial incremental values of those resources. The public sector's potential will not be fully realised without the private sector. Private sector's participation can expand opportunities with new and innovative approaches, and better business and management expertise. The benefits of working with the private sector include improved access and reach, better efficiency, opportunity to regulate and establish accountability, improve quality, and practice rationale (3). Given the respective strengths and weaknesses, neither the public sector nor private sector alone is in the best interest of any program, including the sustainable Universal Salt Iodisation (USI) program.

There are very few examples of Public Private Partnerships in the field of health and nutrition in India. Of the few, none are as large-scale and significant as in the case of the Universal Salt Iodisation (USI) program.

It is well known that the most efficient method of assuring adequate intake of iodine in the diet over time at the right cost to large populations is through the daily consumption of iodised salt – which is a product of the market. It is bought and sold in market places in villages, tribal areas, towns, and cities all over the country



every day. The farming, processing, packaging, and marketing of salt in India is largely in the hands of private entrepreneurs. More than 95% of the salt production in the country is handled by the private sector. In such a situation, effective and sustainable elimination of Iodine Deficiency Disorders (IDD) will only be possible if the public sector, and the private sector collaborate in perfect harmony to develop, produce, and promote the daily use of adequately iodised salt.

The public sector, which has the mandate and responsibility to improve the health and nutrition of the population, and the private sector, which has experience and expertise in food production and marketing, are clearly two very important pillars. As a result of their synergy, success has been achieved and we are all benefitting from it. Over the years, surveys have shown that there has been admirable achievement towards sustainable elimination of Iodine Deficiency Disorders (IDD).

From the various national surveys such as the National Family and Health Survey (NFHS), Comprehensive National Nutrition Survey (CNNS) (2016-18), and the India Iodine Survey (IIS) (2018-19), one can see that the cooperation from salt industry is one of the key factors in achieving high coverage of adequately iodised salt in India today. Engagement with medium and small-scale salt producers with focus on improvement in quality of iodised salt through maintenance of quality assurance has been one of the prime reasons for improved household coverage with adequately iodised salt.

3. THE WAY FORWARD

The coverage of adequately iodised salt for sustainable elimination of iodine deficiency disorders is progressing, however it still has not reached the target of more than 90% coverage of adequately iodised salt. As per the latest data reported in the India Iodine Survey (IIS) (2018-19) conducted by the All India Institute of Medical Sciences (AIIMS), Nutrition International, Indian Coalition for Control of Iodine Deficiency Disorders (ICCIDD), and Kantar, **76.3%** of the population in India consumes adequately iodised salt, and 92.4% of the population consumes salt with some level of iodine. The estimated population in India as of 2021 is 1.39 billion. **92.4%** of the population equates to 1.28billion – **which is roughly equal to the population of 193 countries of the world!**

A very significant percentage of the population (23.7%) continues to consume inadequately iodised salt (16.1%), or nil iodised salt (7.6%). Thus, there is still a need to reach the unreached population. The harmony and enhancement of partnerships between the public and private sectors is one of the elements that needs to be strengthened to ensuring sustainable elimination of iodine deficiency disorders (IDD). Therefore, The PPP model is very much required to cover the **'last mile'** of the Universal Salt Iodisation (USI) program in India.

(The author is President, Association for Indian Coalition for Control of Iodine Deficiency Disorders an NGO based in New Delhi)

PRIME MINISTER NARENDERA MODI

PUBLIC HEALTH CHAMPION OF THE MILLENNIUM

"YUG PURUSH"

Prime Minister Narendra Modi, as a person has always been a great inspiration and a role model for the people of India. Furthermore, his styles of work, ethics, thoughts, ideologies and beliefs have recognition throughout the world. He has become one of the most powerful politicians around the world……

BY DR CHANDRAKANT S PANDAV

Our PM's optimistic nature and challenging capabilities have led to an impact on India, in particular. Moreover, his magical charm and his way of turning the crowd and expressing his thoughts has made him a remarkable politician and statesman and have made a place in the heart of the people.

Narendra Modi has a lot of followers and admirers in India as well as in other nations. This is because he travels in different countries throughout the year to discuss India's diplomatic, financial and friendly relations with other countries.PM Narendra Modi has completed over 20 continuous years in service of humanity and Maa Bharat with dedication, vision and selflessness . He is the only democratically elected world leader to serve the people continuously for 20 years since 2001.

This is a "milestone" in Indian political history as well as in world. Indians are immensely proud of him. Hon'ble Prime Minister Narendra Modi, on many occasions in public have been always referred to as a "Champion" "YUG PURUSH" in many aspects. There is no surprise that this eminently respected politician has secured a special place in the heart of the citizens. Being serving in the field of Public Health for over 40 years, I firmly believe that PM Modi is the "Public Health Champion, not only of the Century but of the Millennium".

The evidence to the statement can be considered from the initiation of many historic revolutionary programs such as Swachh Bharat Mission, POSHAN Abhiyaan, Pradhan Mantri Bhartiya Janaushadhi Pariyojna (PMBJP), Ayushman Bharat, PM Rashtriya Dialysis Yojna, Mission Indradhanush and National Digital Health Mission.

We cannot consider COVID-19 alone, but all the public health issues which have been challenging India in all the last few decades. PM Modi willingness to stick with a bold course of action, an unconventional strategy, a unique development roadmap, and a distinctive marketing campaign is leaving an exclusive mark not only to India but to the rest of the World. He is indeed a true leader who does not tell us what to do, rather,he shows us

'how it should be done, and how it must be done.'

PM Narendra Modi has contributed more than half of the Word Health Organzation's global target to provide healthcare coverage by bringing 550 million people under the " Ayushmaan Bharat" Scheme. The World Health Organisation (WHO) says it will bring 1 billion people under healthcare coverage. PM Narendra Modi has already delivered that to 550 millionpeople through the Ayushman Bharat Scheme. It means Modi ji has contributed to over 50 per cent of the world's agenda single-handedly here in India which is a phenomenal achievement.

The Prime Minister has tried to help the common man with good quality and affordable medicines through these outlets. In nearly 700 districts, through 6,700 Jan Aushadhi outlets , medicines worth around Rs 22 billion were provided to people at a cost of just Rs 3.9 per person, in 2019-20.

In 472 districts, 825 dialysis centres have been opened through which 5,80,000 people have benefited. The poor people are being provided free dialysis through 4,920 machines throughout the country. Around 20,000 Health and Wellness centres have already been opened and 25,000 more are to be opened this year.

In 2014, when the Bharatiya Janata Party came to power at the Centre, only 100 medicines were in the national list of essential medicines whose prices are determined by the government. This number has now been raised to 350 at present ! A Committee has also been set up so that such medicines that are important for many people are brought under the list. Due to various initiatives and schemes of the Modi government, the average monthly expenditure of households on medicines has come down from up to Rs 8,000 to around Rs 1,200. Truly, a remarkable achievement.

The Director-General of the World Health Organization Dr. Tedros Adhanom Ghebreyesus had taken to Twitter to praise PM Narendra Modi. He praised PM Narendra Modi for

announcing relief package and help during Corona Virus Crisis to tackle Covid-19 Pandemic. The DG-WHO Tedros Adhanom Ghebreyesus on Twitter had written in praise of PM Modi stating his appreciation to the Prime Minister for announcing a $24 billion package to support Flag of India's vulnerable populations during COVID-19 crisis, which included free food rations for 800 Million disadvantaged people, cash transfers to 204 Million poor women and free cooking gas for 80 Million households.

The Union Finance & Corporate Affairs Minister also announced Rs 1.70 Trillion relief package under Pradhan Mantri Garib Kalyan Yojana for the poor to help them fight the battle against Corona-19 Virus. The government intended at reaching out to the poorest of the poor, with food and money in hands, so that they do not face difficulties in buying essential supplies and meeting essential needs.

PM MODI AND PUBLIC HEALTH

PM Narendra Modi has catapulted public health issues into the political arena like no other predecessor of his in the recent past. The previous United Progressive Alliance government spread the National Rural Health Mission (NRHM) deep and kicked off the National Urban Health Mission (NUHM) over its ten years, along with several other health sector interventions. But as is his ability and style, Modi has made more out of his government's modest steps in the sector .

Modi first injected a public health issue in his political campaigns when taking credit for setting prices for stents used in heart surgeries during his Uttar Pradesh assembly election campaign. His claiming credit and the strong reaction from a section of the hurt industry led many to forget that the decision had come after courts pushed government to the brink on it and not entirely of its own volition.

PM Modi had made several references to how he addressed public health concerns in his Independence Day speech from Red Fort in his 2016 speeches. He

launched the enhanced cover of Rs 100,000 health insurance, the Indradhanush immunisation programme and put hospital records online.

Recently, after more than two years of jostling within the government, the Cabinet had finally approved the National Health Policy. In hitting the compromise between those within demanding a strong role for the private sector and others demanding a more regulated space, the policy held back from detailing the terms of engagement between the government and private players – the key bone of contention.The government's low levels of investment in the health sector – by all global standards – are seen as a key reason for proliferation of the private sector and high out-of-pocket expenses by citizens.

It should not be missed that the BJP did not explicitly commit to any target of increasing government expenditure on public health in its 2014 manifesto. It did promise a "National Health Assurance Mission" and improving public healthcare facilities, though the former lends itself to greater dependence on insurance-based models that the Modi government has pursued in the past three years.

In comparison, after the UPA government failed to enhance the Budget spend on health substantially over several years to meet its public commitments, the Congress in its manifesto had promised that health expenditure would be increased to 3% of GDP and that they would provide universal and quality healthcare for all Indians (including free medicines).

When National Democratic Alliance swept into power it promised to up the amp on UPA's promised medicine shops to sell low-cost generic medicines. The UPA had miserably failed to meet its target of a shop in each district (630) which was noted in a Parliamentary Committee report.

The NDA government upped the targets by several orders of magnitude as it has done in many schemes.

One way to look at the NDA's achievements is to calculate success by measuring achievements against set targets. Yet another could be to assess how much these initiatives count for collectively in altering the nature of healthcare in India – the jury is still out on that. There is now very little or almost no doubt that the subject of public health has been brought more centre-stage in India's political arena, quite like PM Modi had done with the idea of cleanliness and hygiene.

PM Narendra Modi has launched the National Digital Health Mission (NDHM), while addressing the nation from Red Fort on India's 74th Independence Day. Modi said that the initiative which is completely technology based will revolutionise the health sector in India. Every Indian under the Mission would get a Health Identity card containing all relevant information about his/her medical conditions and treatments, tests etc. Whenever a person visits a doctor or a pharmacy, or a lab, all the detail will be registered in this health card. Ranging from doctor appointment to the medication prescribed, medical tests, when were they done, every bit of detail will be available in this health profile.

The National Digital Health Blueprint of the Mission was prepared by a Health Ministry panel to create a framework for the national health stack proposed in 2018 by the National Institution for Transforming India (NITI) Aayog, the government think tank.

Recently approved by the Finance Committee, in the missions, unlike Aadhaar, the data will reside at individual hospital servers in a federated architecture. Citizen will own his/ her health data and would

require consent to share data. All the basic registries of patients/hospital/ medical professionals that enable data sharing will be owned by a government entity.

The vision of National Digital Health Mission(NDHM) is to create a national digital health ecosystem which provides timely and efficient access to inclusive, affordable, and safe healthcare to all citizens. NDHM will significantly improve the efficiency, effectiveness, and transparency of health service delivery and will be a major stride towards achievement of the United Nations Sustainable Development Goal (3.8) of Universal Health Coverage, including financial risk protection, which is a phenomenal step by the government lead by PM Narendra Modi.

The Mission aims to liberate citizens from the challenges of finding the right doctors, seeking appointment with them, payment of consultation fee, making several rounds of hospitals for prescription sheets, among several others and will empower all Indians with the correct information and sources enabling them to take an informed decision to avail the best possible healthcare.

National Health Authority (NHA), the attached office of the Ministry of Health & Family Welfare and the apex Central Government agency responsible for the implementation of Ayushman Bharat Pradhan Mantri Jan Arogya Yojana, has been given the mandate by the Government of India to design, build, roll-out and implement the NDHM in the country. The NDHM is a holistic, voluntary healthcare programme that will reduce the existing gap between various stakeholders such as doctors, hospitals and other healthcare providers, pharmacies, insurance companies, and citizens by bringing them together and connecting them in an integrated digital health infrastructure.

The NDHM comprises six key building blocks or digital systems namely HealthID, Digi-Doctor, Health Facility Registry, Personal Health Records, e-Pharmacy and Telemedicine. The telemedicine will enable access to timely, safe and affordable healthcare through a 'citizen-centric' approach. All of these digital products except e-Pharmacy and Telemedicine have been deployed and are up and running.

The health is balanced when all three doshas or bio energy and agni or metabolic process are balanced, and excretions are in proper order. When atman or soul, the senses, manah or intellect are in harmony with internal peace, svaastha or optimal health is achieved.

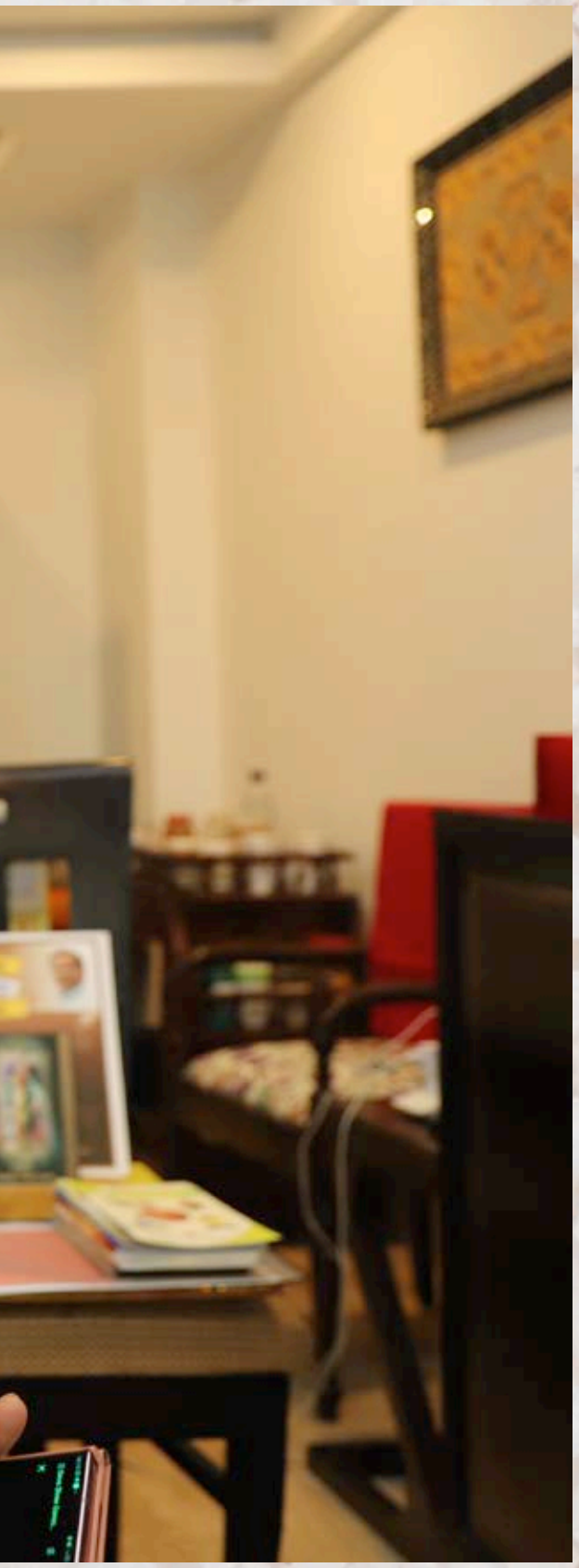
If we happen to realises and compare this with the definition of health that the World Health Organization uses: 'health is a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity', we can state strongly as to how the principles of Ayurveda are aligned with the Eight dimensions of Holistic Health propagated by the WHO.

Today, Ayurveda is relevant globally because of its holistic and comprehensive approach to health. Unfortunately, the real potential of Ayurveda is untapped because of many reasons. Most are importantly because of inadequate scientific scrutiny and concerns regarding standards and quality.

If these issues are addressed properly, Ayurveda can provide solutions to many health problems. India can be a leader in making affordable, holistic health care available to the world. And this is something very importantly PM Modi is fully committed about since taking over as the Prime Minister. The government under PM Modi is fully committed to the promotion of Ayurveda and traditional systems of medicine. As soon as this government was formed, the Department of AYUSH was upgraded to the status of a full Ministry in the Government of India.

The National AYUSH Mission has been started to promote AYUSH medical systems through cost effective AYUSH services, strengthening of educational systems, facilitating the enforcement of quality control of Ayurveda, Siddha and Unani & Homoeopathy drugs and sustainable availability of raw-materials. For quality control of AYUSH drugs, steps are being taken to bring regulatory amendments for effective enforcement and strengthening the regulatory framework at the Central and State levels.

(The author is Padamshree Awardee and Former Professor and HOD, Centre for Community Medicine, AIIMS, New Delhi)



IODINE
MAN OF INDIA

The research and advocacy has contributed enormously to the success of the National Iodine Deficiency Disorders Control Programme (NIDDCP) and mandatory Universal Salt Iodization (USI)not only in India but worldwide. Iodised salt coverage in India has increased from less than 5% in the 1980s to 93% in 2018-2019……

BY AMRESH K TIWARY

Retired from The All India Institute of Medical Sciences, New Delhi, one of the premier medical institution and hospital, as Professor and Head of the Department of Centre for Community Medicine, Dr. Chandrakant Sambhaji Pandav is popularly known as " Iodine Man of India' for his outstanding contribution in public health.

Dr. Pandav is presently Member of the National Council on India Nutrition Challenges under POSHAN Abhiyan which is chaired by Vice-chairman of NITI Aayog. Dr. Pandav completed his MBBS and MD in Community Medicine from AIIMS, New Delhi. He is also an alumnus of the

Department of Human Nutrition at the London School of Hygiene and Tropical Medicine.

As the "Iodine Man of India" he has been a relentless crusader in the fight for sustainable elimination of Iodine Deficiency Disorders, the single most important cause of mental handicap worldwide according to WHO. His research and advocacy has contributed enormously to the success of the National Iodine Deficiency Disorders Control Programme (NIDDCP) and mandatory Universal Salt Iodization (USI)not only in India but worldwide. Iodised salt coverage in India has increased from less than 5% in the 1980s to 93% in 2018-2019. This alone has resulted in saving 4 billion IQ points since 1985.

Dr Pandav's work subsequently led to the concept of "Extra - Himalayan foci of Endemic Goitre" . He has conducted in-depth economic evaluation of the IDD control programme and has provided conclusive evidence for cost effectiveness and cost-benefit of IDD control interventions in programme mode.

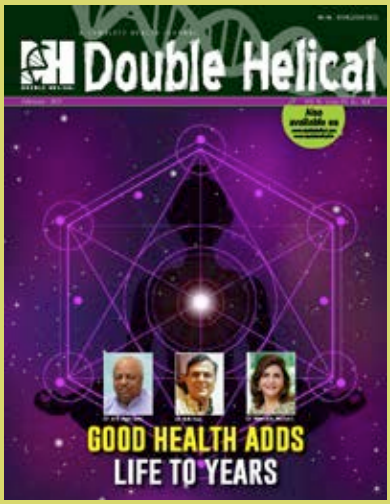
Dr Pandav is the founding member of the Iodine Global Network recognized by the World Health Assembly as an International Non-governmental Organisation (INGO) and has been the Regional Coordinator South Asia, since 1985.

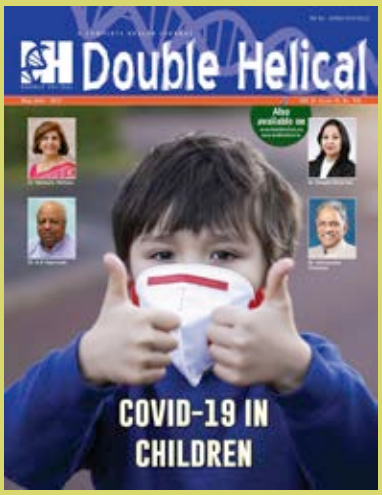
He has been a consultant to the World Health Organization and UNICEF on Iodine Deficiency Disorders IDD since 1983 in over 60 countries in South Asia, Western Pacific, Middle East and Africa. He has been widely recognized in the areas of Iodine Deficiency Disorders (IDD) Micronutrients, Health Systems Research, Health Economics Health Policy Health Programme Evaluation Public-Private Partnership and Human Rights Issues. He is co-editor of 16 books on Health Sciences and has authored over 600 research papers published in various national and international journals.

A few of his notable books are "Elimination of Iodine Deficiency Disorders: Yes, it's a worthwhile investment", and "SOS for a Billion". Dr. Pandav received numerous national and international honours and awards that include the prestigious Dr. M.K. Seshadri Prize and Gold Medal by Indian Council Medical Research in 2000 for his outstanding contributions to the field of Community Medicine. In 2001 he became a Fellow at the National Academy of Medical Sciences New Delhi and Fellow of the Royal Institute of Public Health and Hygiene and Society of Public Health London. The Mother Teresa Memorial Award in 2016 for his excellent work in the area of Universal Salt Iodization.

In 2017, Dr. Pandav was bestowed the WHO Public Health Champion Award for his long and sustained contribution to public health through advocacy for and involvement in impactful health policies, strategies and programmes with proven public health achievements and substantial improvement in health outcomes with equity in the country. Dr Pandav was conferred with the prestigious "Padma Shri" Award - 2021 for his Exceptional and Distinguished Service in the Field of Medicine.

Your Guide to Healthy Living





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Disease Burden

From Neurological Disorders

By Abhigyan/Abhinav

The recent findings on neurological disorders highlight that the contribution of noncommunicable neurological disorders and neurological injuries to the total disease burden has more than doubled between 1990 and 2019.....

BY ABHIGYAN/ABHINAV

The burdens of many neurological disorders vary substantially across the states of India. The state-specific findings described in this scientific paper highlight the extent of the effort needed in each state to reduce the burden of neurological disorders through state-specific health system responses aimed at increasing awareness, early identification, cost-effective treatment, and rehabilitation.

The trends over about three decades reported in this research paper utilized all available data sources from India, which enabled more robust estimates of neurological disorder burden across India than those available so far.

Prof Vinod Paul, Member, NITI Aayog said, " On the release of the findings, "This scientific paper presents a comprehensive perspective of the burden of neurological disorders over the last thirty years, and systematically highlights the variations between the states. Several government policies and initiatives are in place to address the burden of neurological disorders across India, however more focused efforts are required for the planning of specific neurology services in each state. There is a need to address the shortage of trained neurology workforce, and strengthen early detection and cost-effective management of neurological disorders in the country to deal with their growing burden."

Prof Balram Bhargava, Secretary, Government of India, Department of Health Research, Ministry of Health & Family Welfare, and Director General, ICMR said, "This research paper provides the first consolidated estimates on the burden of most neurological disorders for every state of India from 1990 to 2019. Neurological disorders contribute 10% of the total disease burden in India. There is a growing burden of non-communicable neurological disorders in the country, which is mainly attributable to ageing of the population. The findings presented in this research paper are useful for health-care planning at the state level to reduce the

SPACE FOR BOX HEADLINE

The contribution of non-communicable and injury-related neurological disorders to the total disease burden more than doubled in India from 1990 to 2019, whereas the contribution of communicable neurological disorders reduced during this period by three-quarters.

The burden of non-communicable neurological disorders is increasing in India mainly due to ageing of the population. While communicable diseases contributed to the majority of total neurological disorders burden in children younger than 5 years, non-communicable neurological disorders were the highest contributor in all other age groups.

Stroke, headache disorders, and epilepsy are the leading contributors to neurological disorders burden in India. The contribution of all neurological disorders to disease burden in India is shown in the table on page 8 of this press release.Stroke caused 699,000 deaths in India in 2019, which was 7.4% of the total deaths in the country.

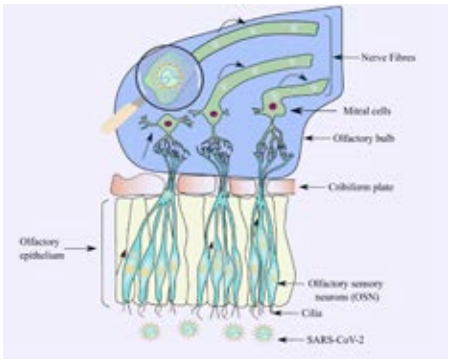
The burden of many neurological disorders varied considerably between the states, which has significant implications for the policies and programmes to reduce this burden.

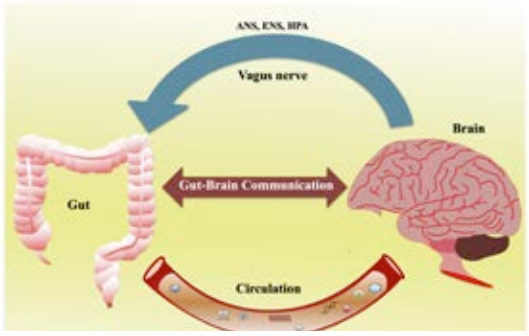
Among the known risk factors for neurological disorders burden, high blood pressure, air pollution, dietary risks, high fasting plasma glucose, and high body-mass index are the leading contributors.

neurological disorders burden."

Prof Gagandeep Singh, Professor, Dayanand Medical College, said, "The analysis in this paper highlights key issues related to trends of neurological disorders in the states of India. Epilepsy is a common neurological disorder in India. While the prevalence of epilepsy has increased over the past three decades, it is gratifying to note that India has made some gains in reducing premature deaths and morbidity of people with epilepsy over this period by reducing treatment gaps. There is however a need to scale up treatment coverage of epilepsy in governmental schemes such as the Rashtriya Bal Swasthya Karyakram and Ayushman Bharat. Policies and practices focusing on safe births, preventing head injury and stroke would help in averting a substantial proportion of epilepsies."

Prof Lalit Dandona, Director of





the India State-Level Disease Burden Initiative, who is Honorary Distinguished Scientist at ICMR, Distinguished Professor at PHFI, said, "This study based on collaboration with leading neurology experts in India provides policy-relevant insights into the trends of neurological disorders across the states. While the burden of infectious neurological disorders has fallen in India, this burden is higher in less developed states. On the other hand, the burden of neurological disorders related to injury is higher in more developed states. Among non-communicable neurological disorders, stroke is the third leading cause of death in India, and dementias are the fastest growing neurological disorder. These and other findings in the paper have important implications for planning to reduce the growing burden of neurological disorders in India."

Prof N Girish Rao, Professor, National Institute of Mental Health and Neuro Sciences, said, "Headache is the commonest neurological disorder affecting 1 in 3 Indians, and is often neglected in terms of public health priority. It is the second leading contributor to the disease burden from neurological disorders in India. Migraine affects females more than males, greatly affecting adults in the working age population. Headaches, especially migraine, need to be recognised as a public health problem and included under the national NCD programme. The time is right for ushering structured headache services in India and develops standards of quality of care, else the missed opportunity is huge."

Prof K Srinath Reddy, President, Public Health Foundation of India, said, "The rise of non-communicable disease related risk factors, as leading contributors to neurological disorders and resultant disability in India, is not a surprise. It reflects the demographic, socio-economic and nutrition transitions that have steered the shift in our epidemiological profile over the past 30 years. What is helpful is the recognition that much of this burden of disease and disability is related to modifiable risk factors which can be reduced at the population level and corrected at the individual level. We need policy, health system and personal level actions to achieve healthy ageing across a long life course."

Prof Christopher Murray, Director of the Institute for Health Metrics and Evaluation at the University of Washington's School of Medicine, said "These results show us the importance of looking at the sub national level and at different age groups to truly understand disease burden within a country. While non-communicable diseases were the largest contributor to health loss from neurological disorders for most age groups, communicable diseases were the largest contributor for children under 5 years of age. The pattern also varies considerably between the states. The data make a strong argument for the importance of locally-tailored health policies to address gaps and strengthen health system neurology services."

The analytical methods of this study have been refined over a quarter century of scientific work, which has been reported in more than 16,000 peer-reviewed publications, making it the most widely used approach globally for disease burden estimation. These methods enable standardized comparisons of health loss caused by different diseases and risk factors, between different geographies, sexes, and age groups, and over time in a unified framework.

COMPASSIONATE DRUGS: A REASON FOR HOPE AND SMILE

CccXXXXXXX as already been confirmed in about 160 million people all around the world. India, which has also been devastated by a second wave caused by the premature relaxation of public health safeguards and more transmissible forms of the virus, has reported more than 20 million cases……..

BY GEETA AGGARWAL AND NIDHI TIWARY

Geeta Aggarwal

Nidhi Tiwary

Imagine if you have suffered from a life-threatening disease and your physician already informed you that in attempting to treat your illness, all established treatments have been tried but all are unsuccessful. Many patients and families leave their hope for alive and to receive palliative care attempt to provide the best feasible end of life. On the other hand, just visualize if your physician informed you that they may be aware of experimental drugs used for the same purpose as yours and yet to be under clinical trials.

Moreover, this drug has been showing favorable effects in animal testing during laboratory under phase 1 and 2 trials. The patients might set their new ray of hopes on the experimental drugs with a compassionate smile to know about enhance their life span and mean of survival time. Another question is still in the patient's mind, how would like to access experimental drugs? What are the various options? What are the eligibility criteria to get it?? Previous studies showed whenever a new therapeutic intervention is in a development phase, it has to be pass under several phases of clinical testing on humans (phase 0-4) and will take almost 10-12 years for market approval. Nowadays, there are many guidelines set up by the US FDA for seriously ill patients to access investigational drugs that have not yet

gained market approval using expanded access and compassionate use programs by participating in randomized controlled trials (RCT). According to the World Health Organization (WHO), Compassionate use (CU) is a "program that is intended to provide potentially life-saving experimental treatments to patients suffering from a disease for which no satisfactory authorized therapy exists and/or who cannot enter a clinical trial. For many patients, these programs represent their last hope. Currently, many terms are used interchangeably for Compassionate drug use" such as "Compassionate use," "Expanded access," "Treatment use," "Special access," "Pre-approval assess," "Emergencyuse" and "Access".

In India, "compassionate use" is an unceremonious term usually used by individuals in their conversation for better understanding whereas "Expanded access" is an official term designated by the United States Food and Drug Administration (US FDA). There are certain conditions when expanded or compassionate use of the drug is authorized by USFDA: (1) Is the patient suffering from a chronic and life-threateningsituation? (2) Unavailability of drug therapy or any kind of prophylactic treatment to diagnose, monitor, and treat the diseases. (3) Registration of patient's is not feasible in clinical trials. (4) To ensure investigational drug will not interfere with phases of clinical trials which is conducted for the marketing approval of a drug for the treatment sign [1].

Traditionally, a drug is reachable to patients, only if an adequate amount of data has been proved during clinical trials regarding its safety, adverse effects, and achievable good pharmacokinetic and pharmacodynamic profile w.r.t its efficacy. Sometimes, this approach creates trouble in the time of crisis and leads to multiple disability and fatality rate due to extensive and strenuous phases of clinical trials. The various pathway involved in compassionate use program are

summarized in Fig.1.

In 2019, during coronavirus (COVID-19) outbreak,this major problem was noticed by the Government under the Ministry of Health and Family Welfare in India and it made a draft for taking amendment in New Drugs and Clinical Trials Rules, 2019 and introduced the regulatory framework for manufacture and import of unapproved/unauthorized novel drugs for 'emergency use'. In the pandemic era (COVID-19), a crucial step has been taken by regulatory bodies to review the investigational drugs and to provide their access as no other drug therapy was available for its prevention. It is a diversion from conventional approach to modern approach and is an enormous step for the prevention and treatment of any type of crisis/dangerous situation in upcoming years and a lifetime.

Fig.1. Flow diagram depicts compassionate use program for patients suffering from life-threatening conditions which are more likely to progress to more serious condition without early treatment. (Abbreviations: NA- Not available).

Involvement of Regulatory Bodies in Compassionate use program

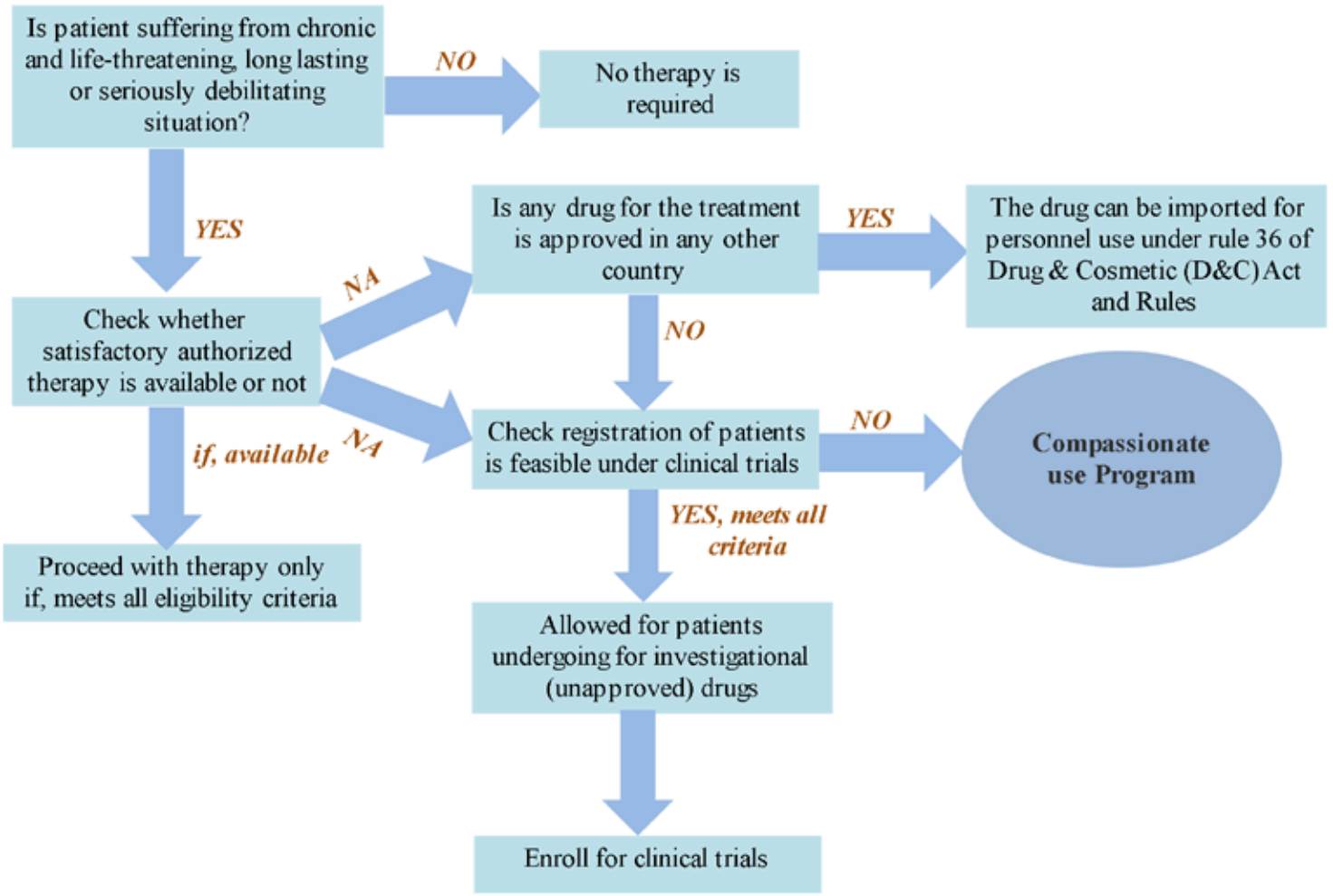
There are several guidelines followed by regulatory bodies under access to unapproved/experimental drugs in different parts of the country. Compassionate use is a different kind of treatment and must require reviewing by ethics committee. Some of the countries' key differences regarding regulations of compassionate use are summarized in Fig.2. In addition, other countries like Germany, Netherlands, Norway, and Spain already invented their own nationalized guidelines and rules for compassionate program [2].

Fig.2.Comparison between regulatory outline for compassionate use of unapproved drugs in different countries (India/USA/EU)

Compassionate Drugs in Diseases[3,4]

1. CORONAVIRUS (COVID-19)

As you all are aware the outburst Coronavirus disease 2019 (COVID-19)



INDIA

- New Drugs clinical trials amendment rules 2019 permitted for compassionate use of investigational drugs by importing and indigenous manufacturing.
- Used only when experimental drug is under Phase III clinical trial in India or outside the country.
- Requirement of informed consent is mandatory.
- Close monitoring and inspection at the manufacture site is under Central Licensing Authority (CLA).
- Requisite to submit quarterly reports on status
- Physicians, patient or a Pharmaceutical Industry can be submitted their application to the board of Drug Controller General of India (DCGI) for the authorisation of compassionate use.

USA

- Given under part 312 in Code of Federal Regulations.
- Expanded access approach with support of physician, FDA and IRB commitee.
- IRB approval (consistent with 21 CFR part 56), not required in case of emergency situation
- Drug must have completed phase 1 trials
- Required informed consent

European Union (EU)

- Mentioned at Article 83 No. 2 of the Regulation (EC) No. 726/2004 of the European Parliament under European Council.
- Member states can set up their own system and procedures.
- For compassionate drug use member state inform European Medical Agency (EMA) through the Committee for Medicinal Products for Human Use (CHMP).
- Informed consent is required for few member state

is caused by coronavirus-2 (SARS-CoV-2; formerly called 2019-nCoV). It was initially reported by World Health Organization (WHO)and later it has been declared a global health emergency on January 30, 2020. Subsequently on March 11, 2020, WHO declared COVID-19 a global pandemic, its first such designation since declaring H1N1 influenza pandemic in 2009. There arevarious programs accepted by USFDA to allow clinicians and researchers to gain access to investigational/experimental therapies during the coronavirus pandemic. The compassionate access and emergency use authorization (EUA) programs allowed for use of investigational drug therapies with promising evidencein emergency cases.

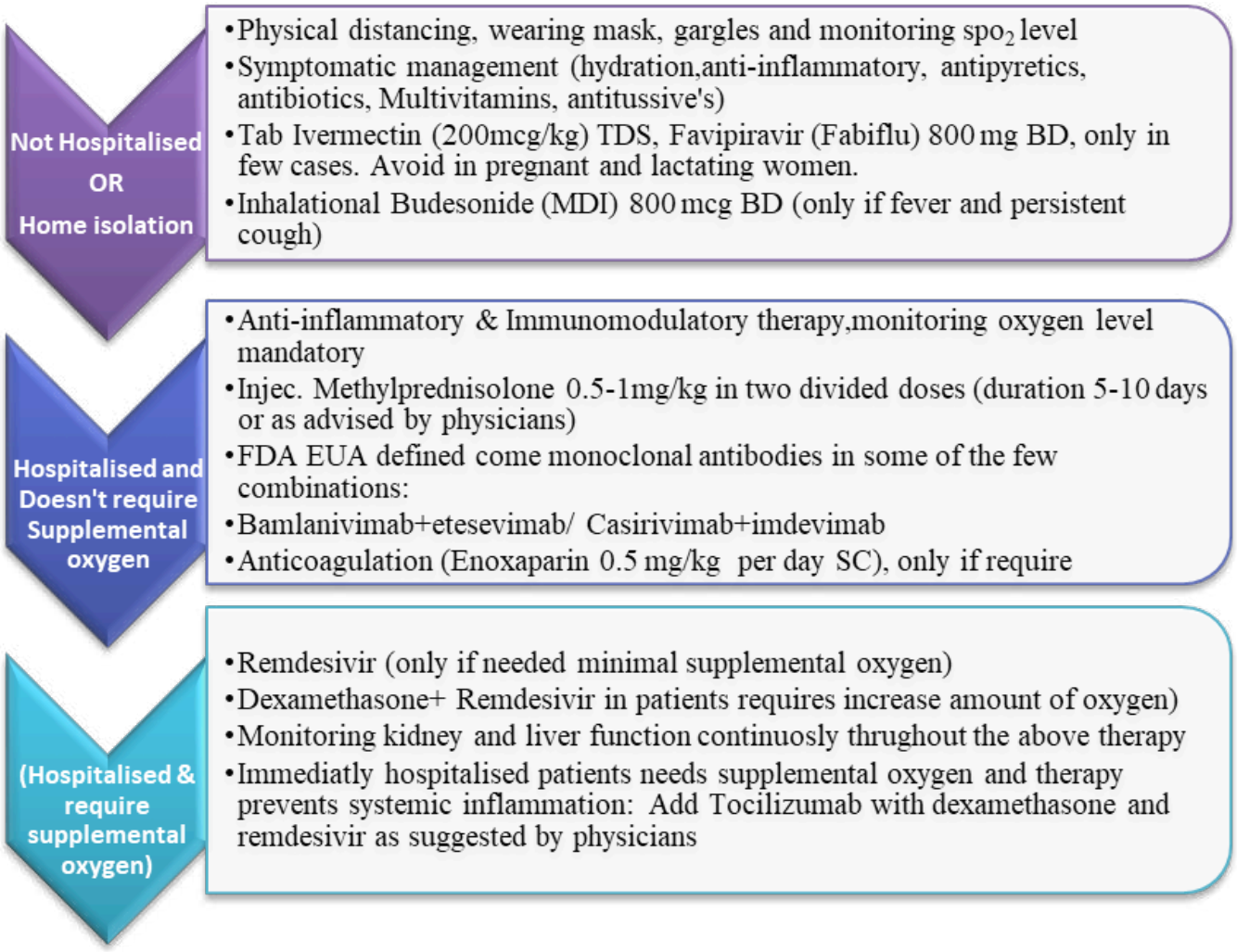
The development of novel therapeutic interventions and vaccines for treatment within a short time span was one of the biggest challenges for the pharmaceutical industry as well as for the medical expert's team because of unexpected outcomes with COVID-19 spread. Considering immediate unmet needs, all medical faculties,scientists, researchers, and government bodiesscannedthe existing drugs based on their symptomatology and their toxicity profile forrepurposing and explore their alternate use. The repurposed drugs were used in the line of compassionate use of drugs. Potential candidates for repurposing includeda variety of drug classes which acts as an antiviral, anti-parasitic, anti-inflammatory and immunomodulators were considered for use in coronavirus. Finding an antiviral drug that diminishes the fatality rate in moderate to severe cases of coronavirus was the biggest demanding and difficult approach. Phase 3 trials drugs baloxavir and pimodivir for severe influenza were unsuccessful (NCT03684044 and

NCT03376321)in treating COVID-19 disease. Similarly, hydroxychloroquine and lopinavir–ritonavir werenot successful in treating COVID-19 disease. However, it was demonstrated by WHO-led, open-label, randomized SOLIDARITY trial 3 that Remdesivir is effective only in hospitalized patients who requires supplemental oxygen of severe cases of COVID-19. Moreover, Remdesivir shortens the process of time to recovery and reduces the risk of progression of disease in patients supported with supplemental oxygen and have a higher risk of inflammation. Additionally, in the second wave of COVID—19, corticosteroid like dexamethasone is strongly recommended and effective in admitted patients supported with supplemental oxygen and in mechanical ventilation. In severe pneumonia-like cases of COVID-19, timely and prolonged administration of methylprednisolone (MP) significantly lowers the risk of mortality and decreases the ventilator dependence. Further, a recombinant humanized anti-interleukin-6 receptor monoclonal antibody, tocilizumab along with dexamethasone therapy effective in severe hypoxia COVID-19 patients. Other drugs like Favipiravir, Ribavirin, Ivermectin, and inhibitors of cytokines are equally efficacious and used in COVID-19 mild to moderate patients. According to current evidence, WHO recommends Ivermectin only to be used within clinical trials in COVID-19 patients until more data are available. Further, the antiviral drug, Favipiravir (Fabiflu) fails viral replication and transcription by inhibiting the RNA-dependent RNA polymerase (RdRp). So far, scientists of various organizations worked day and night to develop relevant pharmacological therapeutics either through drug repositioning or CU interventions. Fig.3. illustrate how compassionate drugs are used based on the severity of the individual case.

Fig.3. Compassionate drugs used in SARS-COV-2 (COVID-19) mild, moderate and severe cases based on their symptomatology.

2. SWINE FLU

Swine flu is a respiratory disease caused by influenza A (H1N1 virus) in 2009-10 and affected rapidly worldwide. A lot of extensive investigations are to be taken to find the alternative approach to manage



the outburst situation. To manage this situation, FDA allowed firstly peramivir, only for the hospitalized patients and for those who are at higher risk for death. Further, Committee for Medicinal Products for Human Use (CHMP) provided compassionate use of Tamiflu and zanamivir (i.v) for the severely sick patients for the treatment of H1N1 influenza.

3. EBOLA VIRUS

Ebola virus is a viral hemorrhagic fever in humans caused by ebolaviruses in the year 2014-16, generally in West Africa. CU of investigational/experimental drugs in the management of ebolawasan imperative strategy for public health levels. There is only one hope for the individuals at that time who received drugs, despite the fact that its efficiency and adverse effects are mysterious. Experimental drugs such as GS-5734, REGN monoclonal antibody (combination Zmapp and mAb114) were firstly permitted by the Ethics Committee in Africa on an emergence basis. Close monitoring of patients during use of unapproved drugs was essential due to their unexpected outcome and unfamiliar adverse events. TherVSV-ZEBOV vaccine had been allowed for prophylaxis to persons who were suspected of close contact with infected patients.

4. NIPAH VIRUS (NIV)

It is a zoonotic virus of the familyParamyxoviridae, genus Henipavirus, which primarily spreads between animals to humans. Initially, monoclonal antibody (m102.4) under investigation completed only phase-1 trials had been allowed for compassionate use basis. Later, Remdesivir was used as post-exposure prophylaxis due to its antiviral activity and might be corresponding to immunotherapeutic agents. In addition, Ribavirin wass also used to treat a small number of individuals, but their efficacy against NiVwas still not clear.

5. MULTIDRUG RESISTANT TUBERCULOSIS (MDR-TB)

Nearly, about last 5 decades of

treating tuberculosis with the same drugs (first (Isoniazid,Rifampicin)& second-line injectables drugs) causing resistance to causative organisms (Mycobacterium tubercular). To address this situation, Bedaquiline was developed by Janssen and used ona compassionate basis when the drug was in phase 2b trial. Later, it was approved by US FDA in 2012 for the effective antitubercular drug. Further, another drug Delamanid, by Otsuka Pharmaceuticals, another class of drug was available along with some other antitubercular regimen (bedaquiline) to explore its efficacy for the treatment of pulmonary MDR-TB.

6. HUMAN IMMUNODEFICIENCY VIRUS (HIV)

At the time of the HIV epidemic, "Glaxo-Wellcome" a pharmaceutical company donated their unapproved antiretroviral drugs Zidovudine to many patientswhen it was undergoing clinical phase 3 trials. In addition, Ibalizumab, a humanized immunoglobulin G monoclonal antibody was approved for compassionate use after phase 1 and 2 trials. The drug showed its activity directed against T-cell receptor (CD4), thus suppressed replication of HIV. Another class of drug fostemsavir (GSK3684934; previously BMS-663068) was used on compassionate basis only for selected patients who didn't respond to available drug therapy.

ETHICAL CHALLENGES FOR COMPASSIONATE USE

There is an intensifying challenge for the entire medical experts like physicians, health department, pharmaceutical industry, scientists from various organizations, ethics committee (IRB) and as well for patients to grant and right to use for investigational drugs, vaccines, biological and any medical devices which have not been approved by the regulatory authorities. The term compassionate use drugs are acceptable in those patients suffering from a life-threatening disease, so assessment regarding efficacy, safety, and toxicity could be uncertain. In addition, it may also a doubtful situation whether the use of compassionate drugs/ products gives better output and would be adequate to save the life. Sometimes, compassionate use produces dismay to physicians and in many clinicians due to the expanded use of drugs in a large numbers of patients and requesting to diminish the supply of drugs for clinical research. Further, during placebo randomized controlled trials only a few patients would like to participateand create difficulty to analyze and interpret the safety and efficacy of experimental drugs without the placebo group. So from all of these challenges, there is necessitate to both regulatory bodies as well as to pharmaceutical companies to work mutually and broaden the range of spectrum of compassionate use of drugs for betterment to save the life of a needy patient.

CONCLUSION

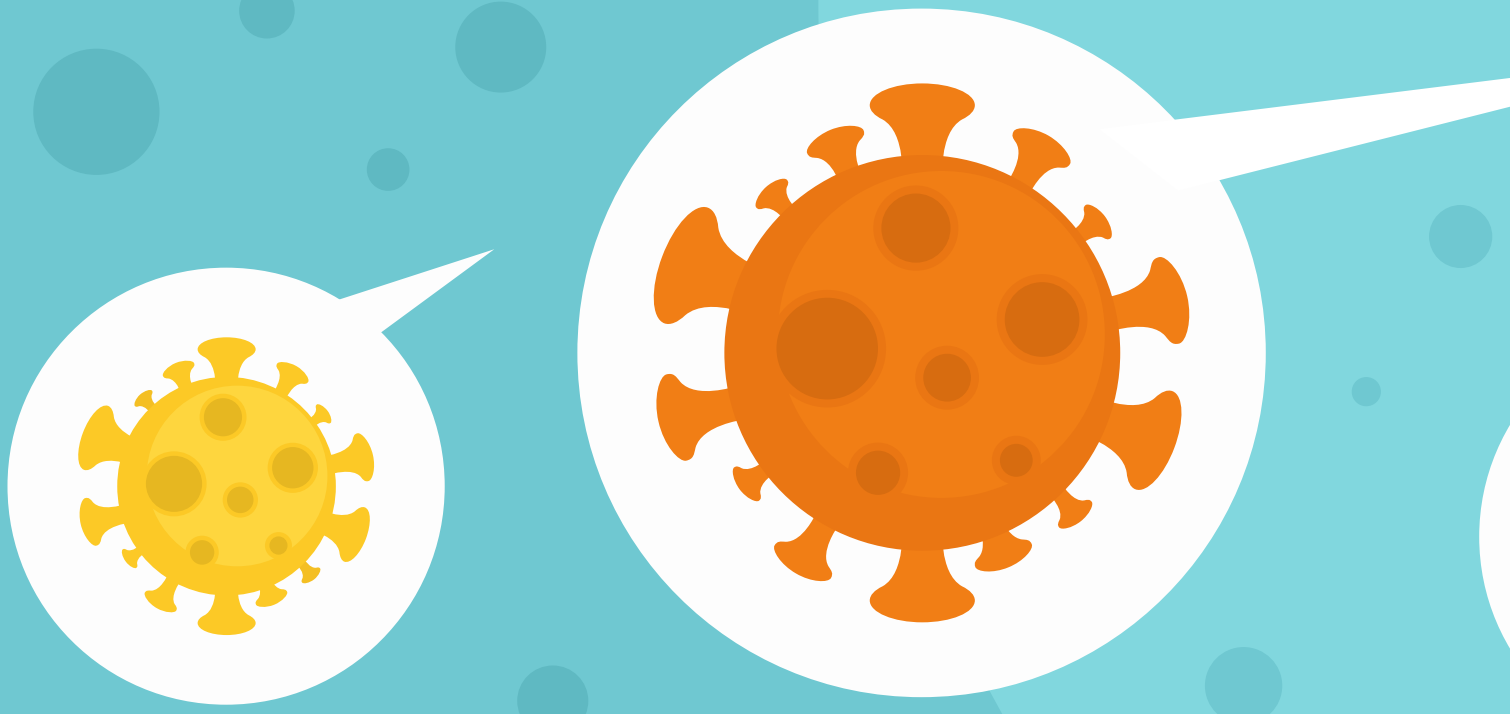
The compassionate drug is preapproval access to drugs under regulatory bodies for patients suffering from long-lasting and life-debilitating situations. Several economically challenged countries suffer a lot for their survival due to unavailable treatment and make the patient in a hapless condition. There is a stupendous step proposed by the drug regulators in the amendment of New Drugs and Clinical Trial Rules (NDCT), 2019 will allow permitting for making provisions of investigational/ experimental drugs to patients in emergencies and creates an immense hope to the patients and their families. Creating a regulatory framework and their outline facilitates the monitoring of experimental drugs that would help to ensure their safety along with the welfare of the patients. But there are certain challenges faced by pharmaceutical industries, physicians and research organizations for compassionate use of drugs. Considering all the facts and challenges together there is a need to work in partnership with academicians, researchers, physicians, and with the pharmaceuticals industries for compassionate use of drugs with clear and sturdy guidelines.

(The authors are Dean Academics, and Research Scholar, DPSRU New Delhi)

ZIKA VIRUS – EMERGING THREAT TO INDIA

COVID-19 pandemic is still lingering India, recorded 30,818 positive cases and 2,024 deaths on 12th July 2021. India has seen worst of the COVID-19 pandemic during the second wave and now there is another virus known as Zika Virus (ZIKV) emerging a new threat to India…..

BY DR. SUNEELA GARG/DR. PARAG BHARDWAJ/ AMIT RAJ SINGH



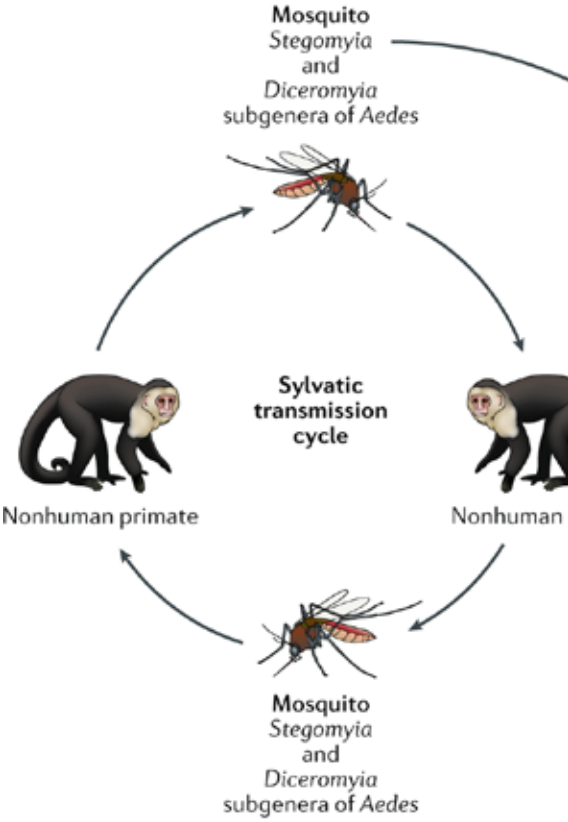
Recently on 8th July 2021, one confirmed case of Zika virus was reported in Kerala state of India while 13 other suspected cases were identified. Five more confirmed cases of ZIKV were reported on 17th July 2021 making it total of 35 cases of ZIKV in Kerala state of India alone.

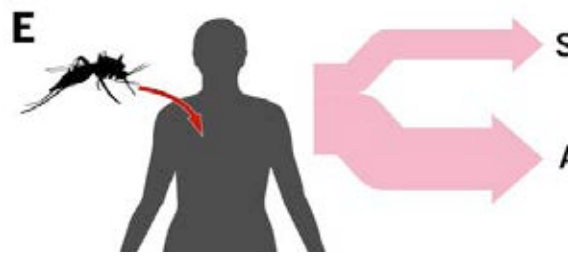
Evidence of Zika virus in India was first reported in 1954 by the then-newly established Virus Research Centre (currently the ICMR-National Institute of Virology). In India specifically, confirmed cases of ZIKV were report to World Health Organization in 2017 and they were three laboratory confirmed cases. Retrospective testing was done on blood samples collected from Ahmedabad district of Gujrat state, India which resulted in 1 case occurred in 34 year old woman who had developed low grade fever after delivering a child in November 2016. Second case was found in 22 years old woman in her 37th week of gestation. Third case was found in a 64 year old man.

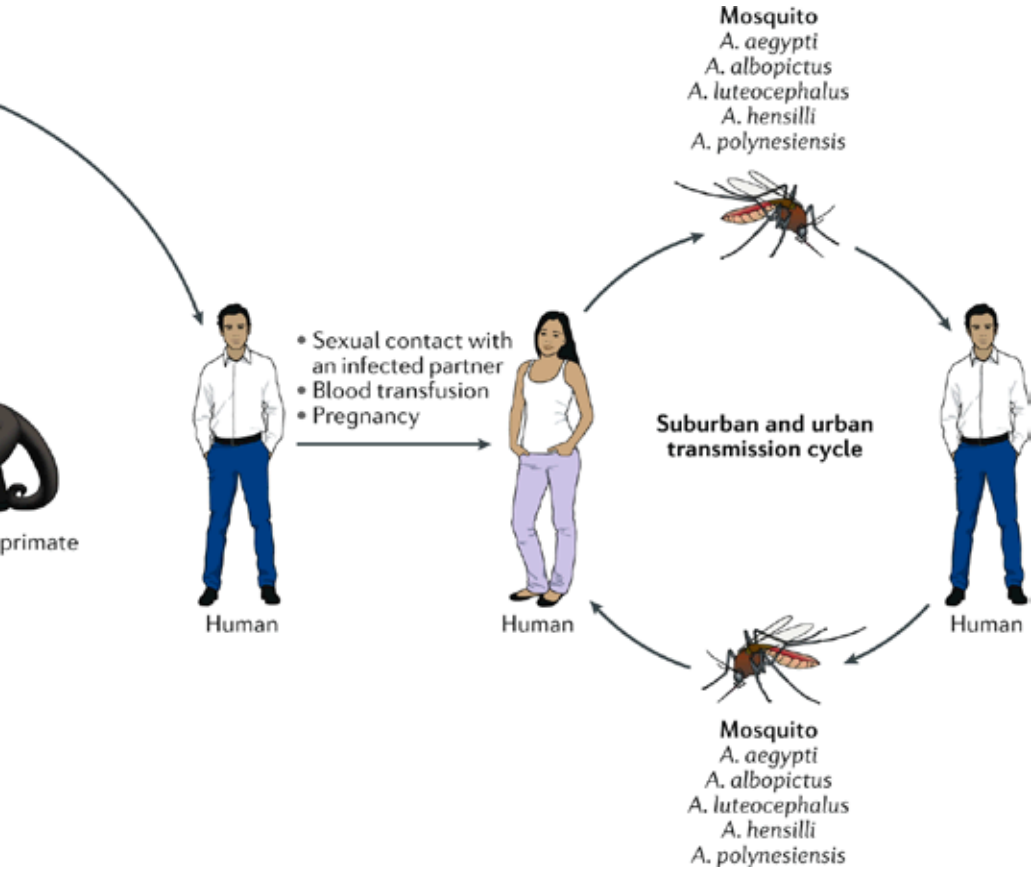
Dr. Suneela Garg

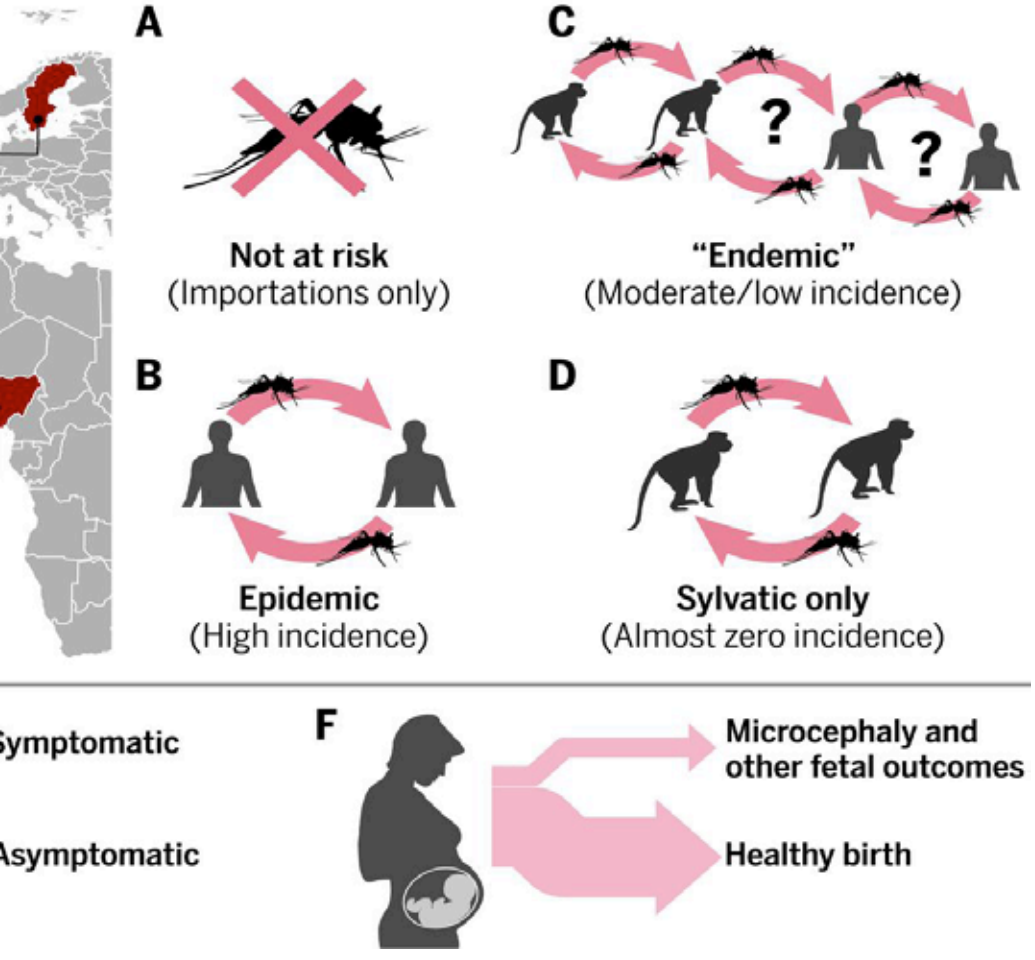
HISTORICAL PERSPECTIVE OF ZIKA VIRUS

Zika virus (ZIKV) disease is caused by a virus which is transmitted through Aedes mosquitoes. It is a flavivirus from the family of Flaviviridae. In 1947, ZIKV was first isolated from non human primate and subsequently it was isolated from mosquito in 1948 from Africa. In 1954, first Case of ZIKV infection in human beings was found in Nigeria (Africa). ZIKV had a broad distribution geographically in sub Saharan and south East Asia which was showed in various epidemiological studies. In Asia, ZIKV was first isolated from Malaysia in 1966. Based on clinical presentation, ZIKV was misdiagnosed with dengue and rarely investigated initially. Thus, ZIKV to go undetected and resulted in its spread throughout Africa and Asia.









Dr. Parag Bhardwaj

TRANSMISSION OF ZIKV

Zika is spread mostly by the bite of an infected Aedes species mosquito (Ae. aegypti and Ae. albopictus). These mosquitoes bite during the day and night. Zika can be passed from a pregnant woman to her fetus. Infection during pregnancy can cause certain birth defects. Zika can be passed through sex from a person who has Zika to his or her sex partners.

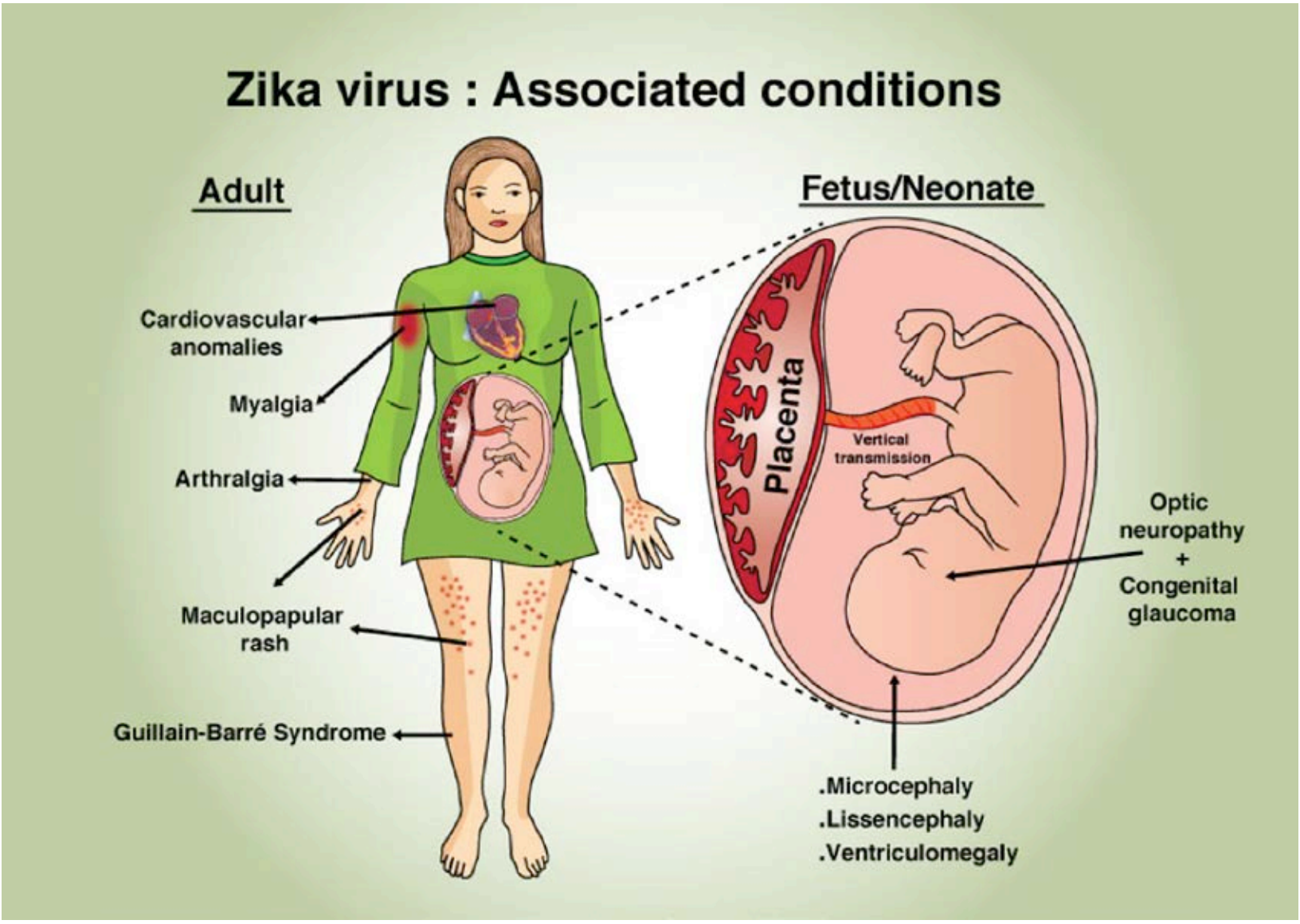
SYMPTOMS OF ZIKV

Symptoms are generally mild and include fever, rash, conjunctivitis, muscle and joint pain, malaise or headache. Symptoms typically last for 2–7 days. Most people with Zika virus infection do not develop symptoms. During pregnancy can cause infants to be born with microcephaly (small head) and other congenital malformations, known as congenital Zika syndrome. Infection with Zika virus is also associated with other complications of pregnancy including preterm birth and miscarriage.

PREVENTION OF ZIKA VIRUS

- **MOSQUITO BITE**

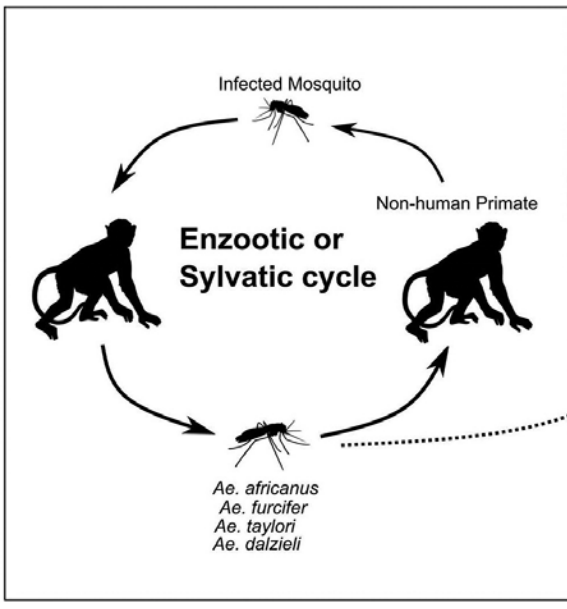
Protection against mosquito bites during the day and early evening is one of the measures to prevent Zika virus infection. Personal protection



measures should be taken such as wearing clothing (preferably light-coloured) that covers as much of the body as possible, and applying insect repellent to skin or .clothing. Young children and pregnant women should sleep under mosquito nets if sleeping during the day or early evening. Travelers and those living in affected areas should take the same basic precautions described above to protect themselves from mosquito bites. It is important to eliminate these mosquito breeding sites, including: covering water storage containers, removing standing water in flower pots, and cleaning up trash and used tires.

- **SEXUAL TRANSMISSION**

Partners should have protected sex. Women who have had unprotected sex and do not wish to become pregnant due to concerns about Zika virus infection should have ready access to emergency contraceptive services and counselling. Pregnant women should practice safer sex (including correct and consistent use of condoms) or abstain from sexual activity for at least



the entire duration of pregnancy.

DIAGNOSIS

Infection with Zika virus may be suspected based on symptoms of persons living in or visiting areas with Zika virus transmission and/or Aedes mosquito vectors. A diagnosis of Zika virus infection can only be confirmed by laboratory tests of blood or other body fluids, such as urine or semen and RT-PCR.

TREATMENT OF ZIKA VIRUS

There is no specific medicine or vaccine for Zika virus.

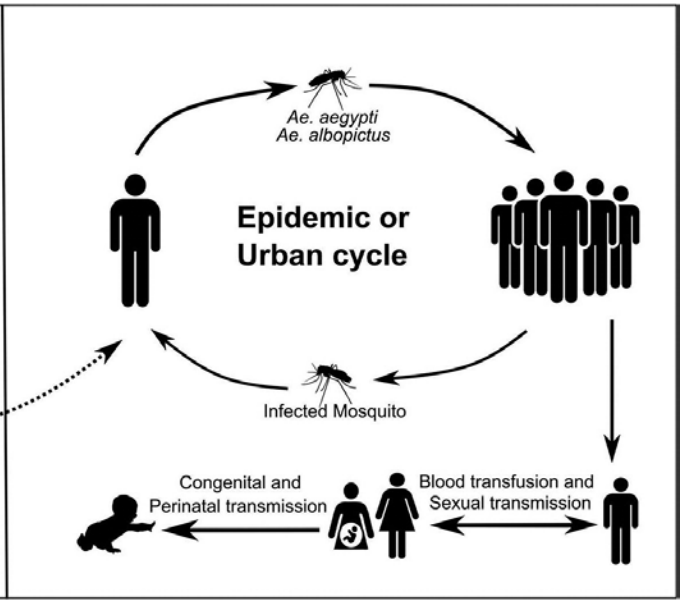
- Treat the symptoms.
- Get plenty of rest.
- Drink fluids to prevent dehydration.
- Take medicine such as acetaminophen (Tylenol) to reduce fever and pain.
- Do not take aspirin and other non-steroidal anti-inflammatory drugs (NSAIDS) until dengue can be ruled out to reduce the risk of bleeding.
- If you are taking medicine for another medical condition, talk to your healthcare provider before taking additional medication.

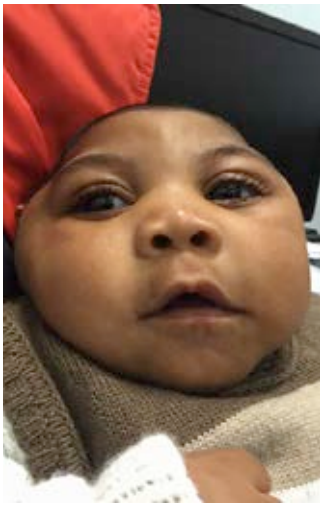
Take steps to protect yourself from exposure to the person's blood and body fluids (urine, stool, vomit). If you

Amit Raj Singh

are pregnant, you can care for someone with Zika if you follow these steps.

- Do not touch blood or body fluids or surfaces with these fluids on them with exposed skin.
- Wash hands with soap and water immediately after providing care.
- Immediately remove and wash clothes if they get blood or body fluids on them. Use laundry detergent and water temperature specified on the garment label. Using bleach is not necessary.
- Clean the sick person's environment daily using household cleaners according to label instructions.
- Immediately clean surfaces that have blood or other body fluids on them using household cleaners and disinfectants according to label instructions.





PREPAREDNESS OF INDIA FOR ZIKA VIRUS

Despite badly affecting with COVID-19, the Indian government has prepared a strategy to control the spread of ZIKV by adopting surveillance system such as surveillance at points of entry, surveillance in the community, laboratory based surveillance, Entomological Surveillance and Xeno diagnosis, Surveillance for Microcephaly, Surveillance for Neurological Syndromes among febrile clustering, Laboratory Support, Hospital facilities, Pharmaceutical Interventions. There are Non-pharmaceutical interventions such as Airport/ Port Isolation, Travel advisory, Vector control, etc.

CONCLUSION

ZIKV could be a potential threat to India as cases are rising amid COVID-19 pandemic. Moreover, there is no available vaccine for ZIKV in the world. Emphasis should be given on developing vaccine for ZIKV and strengthening the public health care system. Strategic planning is important for containing the spread of ZIKV along with COVID-19. More intensive, integrated vector control measures such as environmental management, personal protection, biological and chemical control, health education and community mobilization, and appropriate legislative measures, will help to tackle the preferences.

(The authors are from Maulana Azad Medical College, New Delhi)

BREAST SELF-EXAMINATION

Breast cancer is the commonest cancer of women in the world. In India, the incidence of breast cancer is increasing and it has become the leading cancer of women in major cities. While there have been tremendous advances in the treatment of breast cancer leading to excellent survival, any very effective and convenient approach to preventing breast cancer has not yet been identified. Detection of breast cancer at an early stage is however possible and effective in reducing deaths from breast cancer……..

BY TEAM DOUBLE HELICAL

Early detection of breast cancer can be achieved by three approaches: breast self-examination, check up by a doctor and mammography. Breast self-examination means examination of breasts done by the woman herself. A woman is the first person to know and feel the changes happening in her breasts. BSE is an essential part of taking care of oneself. Breast self-examination is the simplest and the cheapest screening test which can be carried out by every woman, in the privacy of her home.

It is advisable to carefully learn and practice the various steps of breast self- examination so that you are aware of normal feel of your breasts. With regular self-examination, you will be more familiar with the normal and it will become easier for you to know if something unusual has occurred. Any new change you observe or feel should be brought to the notice of your breast surgeon.

Throughout a woman's life, various changes occur in her breasts. At the onset of puberty, the breasts start gradually growing in size to attain adult size. There can be minor differences in size and shapeof the two breasts. During pregnancy and lactation, the breast size again increases. During each phase of menstrual cycle certain changes occur in female breasts.Near the menstrual phase, breasts can feel lumpy, painful/ tender or sore to touch. After menopause again, there are changes in breast size. Breasts can feel much softer after menopause due to more fat in them.

WHAT IS THE BEST TIME TO DO BSE?

The best time to do breast self-examination is one week after the last day of periods. For ladies who are pregnant and those who have attained menopause, it is advisable to mark same date each month on the calendar to conduct this examination.

WHO SHOULD DO BSE?

Every woman above the age of 18 years should do BSE every month.

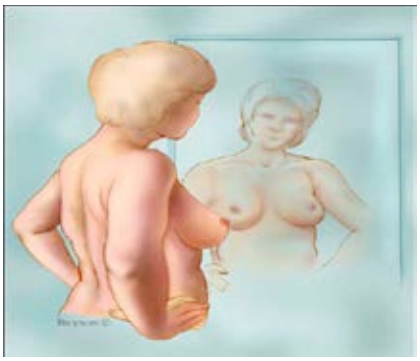
HOW SHOULD BSE BE DONE?

You should know correct way of doing BSE. It should be carried out in step wise manner as described below.

STEP 1

Begin by looking at your breasts in the mirror with your shoulders straight and your arms on your hips.

Here is what you should look for:



Size, shape, skin colour, position of nipple, skin ulcer, rash/scaly skin of nipple or areola

- Lump, firmness or thickening
- Swelling, redness of breast skin
- Change in the size or shape of breast
- Dimpling, puckering or bulging of the breast skin
- Itchy, scaly sore or rash on the nipple/areola
- Inversion/pulling in of your nipple (Nipple retraction) instead of sticking out
- Nipple discharge especially dark brown and bloody

Compare both breasts visually for any new asymmetrical change

STEP 2

A: Raise your arms and look for the same changes.

While you are looking at the mirror, gently squeeze each nipple between your finger and thumb and check for nipple discharge. If there is any discharge, look for the colour of discharge

Is it milky,clear yellow, dirty greenish, dark brown or blood?

Is it coming from a single opening or multiple openings?

STEP 2

Now, rest your palms on your hips and press down firmly while holding the shoulders back so that your chestmuscles are flexed. Check for any changes in appearance. During each of

these four steps you should rotate yourupper body from side to side. By regular inspection you will see what is normal for you. Now bend forward with your hands still on your hips and observe again.

STEP 3

Feel your breasts while lying down, using your right hand to feel your left breast and then your left hand to feel your right breast. Use a firm, smooth touch with the fingers of your hand, keeping the fingers flat and together. Do not use the tips of your fingers; rather use the flat of the hand. Do not pinch breast tissue between thumb and fingers. Use a soft pillow under your shoulder and back. This is the most comfortable position for examining your breast.

Feel the entire breast from top to bottom and side to side—from your collarbone to the top of your abdomen, and from your armpit to the central breast bone.

STEP 4

Finally, feel your breasts while you are standing or sitting. The easiest way to feel your breasts is when the skin is wet and slippery, that is when you are in the shower or having bath. Feel your entire breast, using the same hand movements described in Step 3

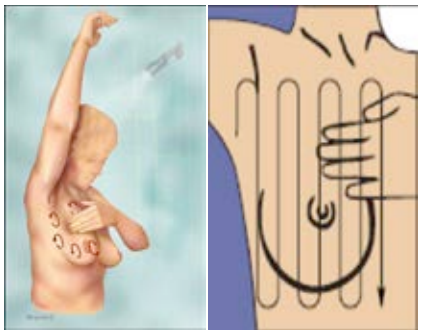
Circular pattern or grid pattern of

palpation of breast

WHAT TO DO FOR ABNORMAL FINDINGS?

Do not panic if you think you feel a lump. Most women have some lumps or lumpy areas in their breasts all the time. The upper, outer area(area near your armpit) tends to have the most prominent lumps compared to the lower half of your breast. The area under the nipple can also feel granular.

What is important is that you get to know how and what to look for and how to feelvarious parts of the breast.



Does something stand out as different from the rest? Has anything changed? Bring to the attention of your doctor any changes in your breasts that last over a full month's cycle OR seem to get worse or more obvious over time.

You can record the findings your breast self-examination. This can be like a small map of your breasts, with notes about where you feel lumps or irregularities. Especially in the beginning, this may help you remember, from month to month, what is "normal" for your breasts. It is not unusual for lumps to appear at certain times of the month, but then disappear, as your body changes with the menstrual cycle (if you are still menstruating). Only changes that last beyond one full cycle, or seem to get bigger or more prominent in some way, need your doctor's attention.

NEED AND SCOPE OF DECADE OF HEALTHY AGEING

Elderly or old age consists of ages nearing or surpassing the average life span of human beings. The boundary of old age cannot be defined exactly, because it does not have the same meaning in all societies. Government of India adopted 'National Policy on Older Persons' in January, 1999……

BY TEAM DOUBLE HELICAL

The policy defines 'senior citizen' or 'elderly' as a person who is of age 60 years or above. Further, older persons are classified as (a) Young old - Aged 60-69 years, (b) Older old - Aged 70-79 and (c) Oldest old - Ages 80 years and above.

TRANSITION & PROJECTIONS

The number of older persons have increased from 2.01 (5.5%) crores in 1950 to 10.38 (8.6%) cores in 2011 and it is projected to increase to 32.43 (20.6%) by 2050. With increasing numbers, there is changing balances in population, which are decline in sex ratio, increase in old-age dependency ratio, decline in potential support ratio, and decline in labour force participation. Decline in fertility and increasing longevity have produced unprecedented changes and so the trend will continue. Thus, the dynamics in the demographic structure are bound to happen. The difference is that in developed countries, it took 100 years to reach 14% from 7% proportion and most developed countries has already expanded and diversified their system of social security and health care. But in developing regions it will take only 25-30 years and there remained major shortcomings and unmet needs of the older population. Thus, the profound, pervasive and enduring consequences of population ageing present enormous opportunities as well as challenges for all societies. No time left to think, the work is to be done in war footing.

ISSUES AND CONCERNS

With increasing age the older people suffer more morbidity i.e. 75.68% have one or other disease, 53.63% have one chronic disease, 20.83 have two chronic diseases and 3.01 % have three chronic diseases. Above all 8% of older people are confined to bed. Thus, the older people have different needs, which are as (a) all healthy older adults need - promotive and preventive care, (b) all those having one disease need - preventive and curative care, (c) those having two diseases requires - curative and rehabilitation care and (d) those having three disease and confined to bed need - long-term care. Other issues of the older people are ageism, feminization, physiological, socio-economic issues, myths associated with older people and unprepared system.

Thus, it is observed that health in aged is not random, there is no typical older person. Biologically, ageing results from molecular and cellular damage over time. This leads to a gradual decrease in physical and mental capacity. But these changes are neither linear nor consistent, and they are only loosely associated with a person's age in years. One 70 year-old may enjoy extremely good health and functioning, other 70 year-olds may be frail. Beyond biological changes,

ageing is also associated with other life transitions such as retirement, relocation to more appropriate housing, and the death of friends and partners. In developing a public-health response to ageing, requires a concerted and sustained effort that may reinforce recovery, adaptation and psychosocial growth, So that no one is left behind.

MILESTONES

WHO adopted Vienna International Plan of Action on Ageing (VIPAA) in 1982, wherein Governments urged to devote more attention to the ageing population. In 1990, October 1 was declared as the International Day of Older Persons. The day is celebrated by raising awareness about issues affecting the elderly. The Annual themes of the elderly days are as under. Subsequently, in 1991, principles for older persons were adopted that are divided into five different clusters of relevant issues of independence, participation, care, self-fulfillment and dignity. WHO in 1999, declared as the International Year of Older Persons. Celebrated in recognition of humanity's demographic coming of age and promise it holds for maturing attitudes and capabilities in social, economic, cultural and spiritual undertakings, not least for global peace and development in the next century. Finally, in 2002 Madrid International Plan of Action on Ageing (MIPAA) that conceptualization of framework for national strategies for implementation by the member states.

WELFARE SCHEMES FOR OLDER PEOPLE IN INDIA

Based on recommendations of the national policy for older persons 1999 and provisions contained in MIPPA, Ministry of Health & FW launched national programme for health care of the elderly with the objectives of To provide accessible, affordable, and high-quality long-term, comprehensive and dedicated care services to an Ageing population. The programme has three components of (a) NHM Component supporting SCs, PHCs, CHCs and Distt. Hospitals. (b) Tertiary component consisting of nineteen Regional Geriatric Centres and two National Centres for Ageing.(c) the third component of the programme is central component that consists of monitoring and evaluation of programme, information education and communication and research in geriatric. Recentally government of India has launched Ayushman Bharat program that ahs two components of Comprehensive Health Care Services through H&WC and National Health protection scheme. Among the twelve services identified under this programme one is health care of the elderly.

MOSJ&E has a number of schemes supporting welfare of the older people and these schems are National policy for older person (NPOP 1999), Integrated programme for older Person (IPOP), International Day for Older Persons (IDOP). Maintenance of welfare of parents and Sr. citizens (MWPSC) Act 2007, National Council for Older Persons (NCOP), Vayoshreshtha Samman, Non-Government Organizations and Services from OldAge Institutions.

Other Ministries supporting welfare schemes for the older people are M/o Rural Development, M/o Finance, M/o Home Affairs, M/o Railways, M/o Civil Aviation, M/o Road Transport, D/o Telecommunication, M/o Consumer Affairs, M/o Legal affairs and Municipal Corporation of Delhi.

Recent Initiative Relevant NPOP are Pradhan Mantri Surksha Bima Yojana, Atal Pension Yojana, Health Insurace for Sr.Citizens, Varishtha Pension Bima Yojana 2017, Scheme for providing aids and Assistive appliances, Sr. Citizen's Welfare Fund, South Asia Partnership on Ageing: The Kathmandu Declaration 2016.

WHO in 2015 constitutes a working group to assess the progress made in the implementation of MIPPA. The world report on ageing 2015 was published in 2016. It pointed out many gaps in the implementation of MIPPA Strategies. The report suggested the concept of healthy ageing and proposed decade of healthy ageing 2020-2030.

HEALTHY AGEING is a process of developing and maintaining the functional ability that enable wellbeing in older age. Three dimensions of Healthy Ageing are; Functional ability, Intrinsic capacity and Environment. As a result of the global policy response proposed Global and Regional Strategies for Healthy ageing as under;

1. Developing a country driven, outcome oriented plan & policy for healthy ageing
2. Adaptation of the health system to the challenges of population ageing and health needs of older population
3. Developing system for long term care of the elderly people
4. Adaptation of a life course approach to promote healthy ageing
5. Multisectoral approach and partnership
6. Improving measurement, monitoring and understanding.

The Decade of Healthy Ageing (2020-2030) is an opportunity to bring together; the governments, civil society, international agencies, professionals, academia, the media, and the private sector for ten years of concerted, catalytic and collaborative action to improve the lives of older people, their families, and the communities in which they live. The need for concerted & sustained action for Healthy Ageing was felt because of longer lives, but countries are unprepared, adding life to years, depends on healthy status and leaving no one behind and Health inequalities. It need, building a solid foundation, and aligning with agenda 2030. Thus, there is need for Decade of Healthy Ageing (2020-2030), to shift ageing from challenges to opportunity.

Vision & Goals of the decade of healthy ageing are; a world where everyone can live a long and healthy life; evidence based action to maximize functional ability that reaches every person and establish partnership necessary to support a Decade of Healthy Ageing 2020-2030.

The issues to focus during the decade are to improve engagement with older people; understanding older people's needs and unmet needs; develop health and long-term care and to improve multisectoral action. The priority outcomes to promote during the decade are healthy life expectancy; age-friendly cities and communities and to reduce number of older people who are care dependent.

Areas for Action identified are; change how we think, feel and act towards age and ageism; Ensure that communities foster the abilities of older people; Ensure person- centered integrated care for older people; Provide access to long term care within community and support; Partnering for Change; Hear and respond to diverse voices and enable potential; Nurture leadership, governance and capacities at all levels; Connect stakeholders at all levels and Foster research, knowledge exchange and innovation.

CONCLUSION

It is intended that the programme will support activities for the welfare of the older people and older people in turn will have healthy lives having maximum functional ability and intrinsic capacity and they will lead a dignified independent life. The focus during the decade of healthy ageing will be develop national policies for healthy ageing, improve engaging with older people, strengthening health and long term care system and improve multisectoral approach. The priority outcome will be health life expectancy, age friendly cities and communities, reduced number of care dependent of older people. The support during the decade will be to provide training, generate evidence for guidance, knowledge exchange, innovations and delivery of support.

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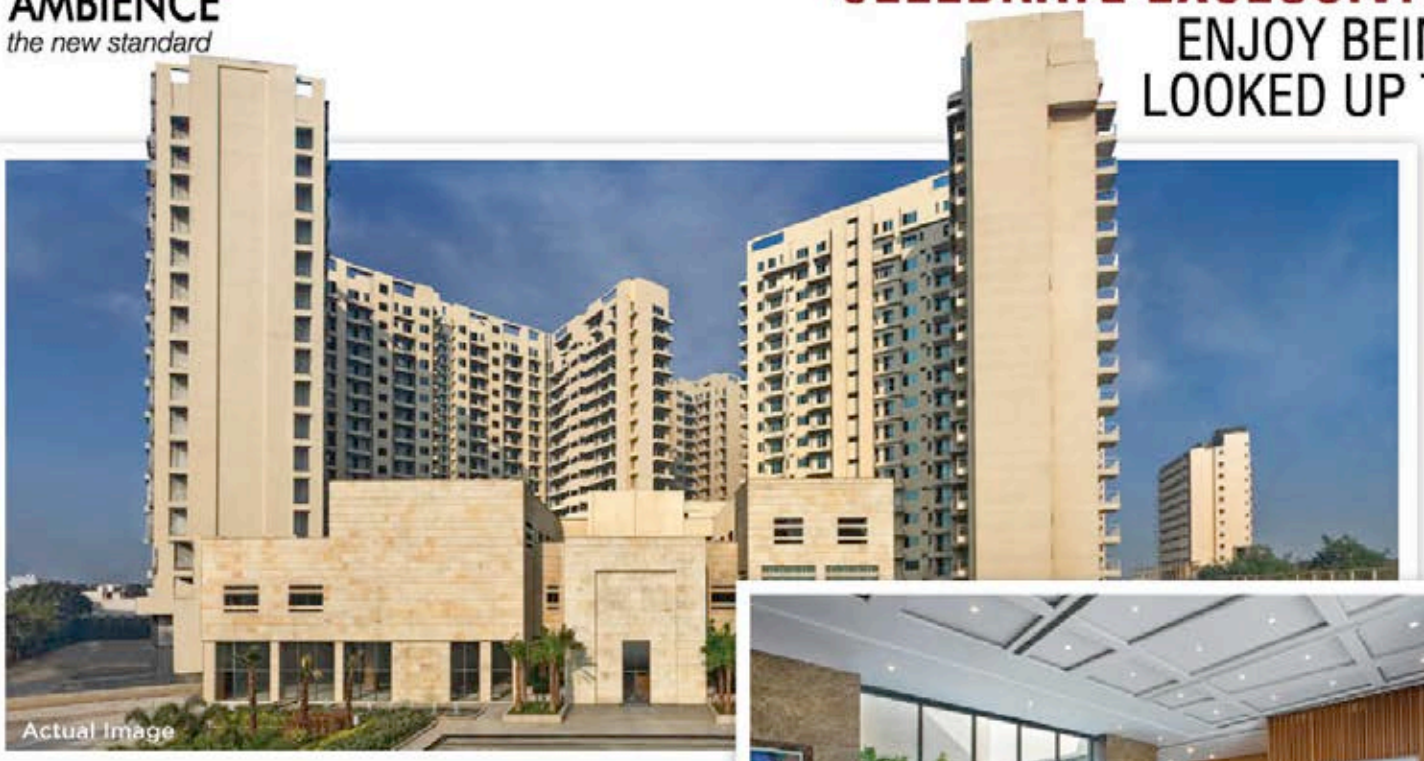

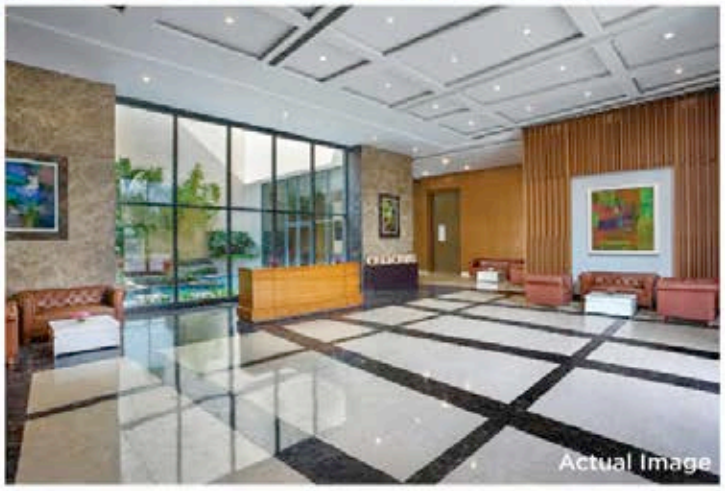

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