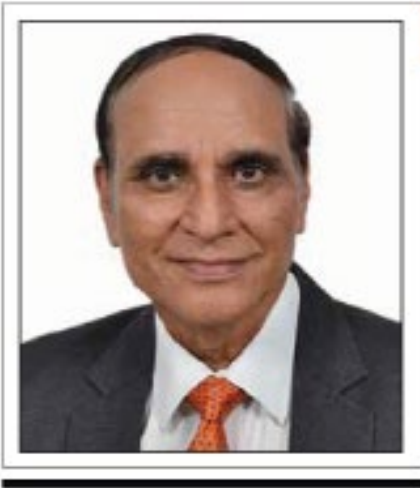






## EXECUTIVE OPINION



Dr. V K Singh

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## Where do we stand as Indians in Healthcare?

**H**ealthy nation is a wealthy nation, quality of life is an important factor that makes a nation healthy. A new 'Empowerment line' is proposed to fulfill eight basic needs of human beings in a report recently published by McKinsey Global Institute. Those are food, healthcare, education, sanitation, water, housing, fuel and social security to include clothing and entertainment. As per report 680 million Indians or 56% of the population lack the means to meet their essential needs. It also states that due to urban-rural divide 171 million urban residents (44% of urban population) and 509 million rural residents (61% of rural population) are below the empowerment line. As per a government survey three basic necessities of life are clear drinking water, electricity connection and sanitation. These are not available to 82% rural Indian households. According to the World Bank report 32.7% of the population of India is below the poverty line (International poverty line is USD 1.25 per day), and less than 68.7% survive on less than USD 2 per day. We have 45% children malnourished and infant mortality rate is even higher than Bangladesh and Sri Lanka.

Some of the reasons for this deprivation are lack of education and political will, corruption, planned too late and too little, mismanagement, unresponsive bureaucratic system and laid-back attitude of the public. There is a necessity to do introspection and see how other countries like China have progressed in a limited time frame. South Korea has been adjudged as the best healthcare system of 2021. The present government has launched many new initiatives which are to be taken at breakneck speed. We should not land in the situation of old wine in a new bottle. We have many health reports like the 1946 Bhole committee and 1962 Mudaliar committee etc. but we failed on all accounts by not implementing these recommendations. Health for All, National Rural Health Mission also failed as no impact analysis and accountability was done, due importance to healthcare was not in any govts' agenda. The present pandemic has forced everyone to take healthcare seriously and many new initiatives to handle challenges have emerged. The COVID-19 with a lockdown of almost two years has changed the behaviour of everyone and we should take advantage of it to improve healthcare systems. Many schemes have been launched, the public should be made aware of its benefits and how to get these, and not advertise to make up a political image of leadership for self and their party. We have observed in the second wave of Covid as how badly the center and states have coordinated health care efforts which affected patients. The instigation of blame game has no place during adversities and clear-cut guidelines that should be adhered to and followed by everyone.

We need to create infrastructure for the health sector in a time bound manner and can not think of another disaster to wake us up out of slumber. A broad-based group should be created to look up all issues, lapses and recommend a comprehensive healthcare system for the country. As India is trying to be an emerging power in the world, let us show the way in the health sector too. It has already done so in vaccine and vaccination against Covid-19 lauded by WHO.

We as a nation should evolve new healthcare systems and policy based on challenges, experiences and learning from other countries. A revolutionized approach backed by technology is required to deliver qualitative healthcare for all at optimum cost.

“ We have 45% children malnourished and infant mortality rate is even higher than Bangladesh and Sri Lanka. ”

“ The instigation of blame game has no place during adversities and clear-cut guidelines that should be adhered to and followed by everyone. ”

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## InnoHEALTH Magazine

thanks all its contributors,  
readers, editors and advisors for  
their support  
and  
conveys its warm wishes for a  
happy new year ahead



# PERSONA

## Experience the inspiring journey of a mountaineer

Dr. Anshu Jamsenpa is the first woman mountaineer who climbed Mount Everest twice within five days. She is also the first Indian woman in the world to climb Mt. Everest five times for this achievement she received Padma Shri in the year 2021. She was a lead actress in the movie 'Crossing Bridges' and is also a mother of two children. She is an inspiration for all those people who dare to dream and turn their dream into reality.

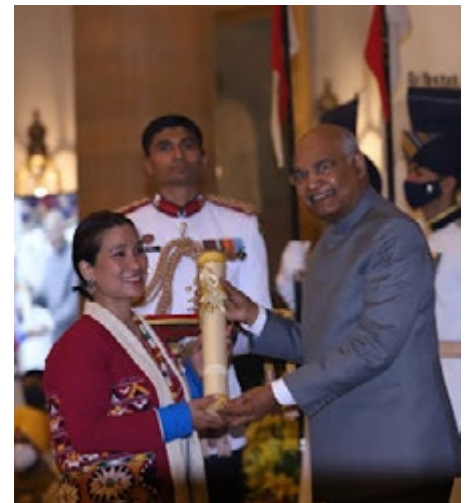
Dr. Debleena Bhattacharya, Associate Editor, interviews her on the experiences she has gathered during her expeditions and those that have helped her to grow personally and professionally.



**Dr. Anshu as an actress**



**Conquered Mt. Everest five times**



**Receiving Padma Shri from President of India**

**Q. When did the desire to climb Mt. Everest come to your mind? What planning you had gone through to undergo the mission and how much time did it take?**

**A.** I was always an outdoor kind of a person. I've been drawn to nature and the mountains ever since I can remember. It was during my adventure course in Manipur that I seriously began thinking of taking up mountaineering as a career because mountaineering and adventure sports/tourism had tremendous potential in our region. I went for my basic course at the National Institute of Mountaineering at Uttarkashi and advanced course from

Himalayan Mountaineering Institute in Darjeeling. The instructors began encouraging me to think about climbing Everest as they were confident seeing my determination which initially came as a shock to me but helped in firmly planting the seeds of my passion for eventually climbing Everest. I began planning about climbing Everest after my advanced course was over and for the next one year I began meeting government officials and ministers in order to fund my expedition. I had to sell my land and dig into my savings to come up with the required funds in order to finance the climb.

**Q. Tell us about your journey and what**

**hardships you have to endure to make your dream come true?**

**A.** My struggles really began after finishing my advanced course. I wanted to fulfill my dream of climbing the highest mountain in the world, but climbing Everest is a very costly affair. I began going around meeting government officials, ministers and bureaucrats asking for any help and assistance I might get for my venture. I met everyone I could whom I thought might help me. But convincing people who weren't sure about my abilities in the first place was hard. There were days I couldn't sleep or eat properly. Most people I met gave me cold responses, barring a

few. In between a pre-Everest expedition to mount Nepal peak took place. By sheer chance I was chosen as one of the climbers of the expedition at the very last minute in place of another climber as again very few people believed I was capable. But I had faith in my skill and by the time the successful summit to Nepal peak was over, a lot of the climbers had changed their opinion on my climbing abilities.

I had to deal with a lot of people questioning my ability to climb Everest. Almost no one was convinced I could actually do it and many even came forward suggesting I was crazy and should just drop the whole thing. People began saying I would come back from Base camp itself. I had to ignore all the naysayers and keep my focus on my goal and still kept struggling to generate funds for my expedition. It took quite a toll on me, mentally and physically. But I always believed in my dreams and somehow kept going.

**Q. Being a mother and mountaineer how did you cope up with both these responsibilities ?**

A. My first and foremost responsibility is towards my children. My dreams and passion come after them. My children are my top priorities and being a mountaineer will always take a second seat to them. However I have also always been aware of the fact that females are treated unequally in society and I really wanted to set an example for my daughters that as women we can break the glass ceiling and not confine ourselves to societal norms and its narrow ways of thinking. Towards this end it was vital that I set a personal example for my daughters and for women in general through my actions that no dream is impossible.

## I had to deal with a lot of people who were a bit unassertive about my ability to climb Everest.

I have had many long conversations with my daughters and talked to them about the positive impact that could be brought about in our society if I succeeded in my endeavours and the positive change that could take place in people's mindset about women going after their dreams. I have been very fortunate to have had two very understanding and mature daughters who eventually began to understand their mother's passion to do something different and am very proud of them for motivating me. Their support has always encouraged me to chase my passion, although I have always had to go with a very heavy heart during my expeditions leaving my children behind knowing that I might not return.

**Q. It is truly inspiring to balance the role of being a mother and also an ardent mountaineer. Your journey will motivate our readers. How did you feel when you have conquered Mt. Everest for the first time?**

A. The first summit of Everest for me was a very unusual one. The weather had turned for the worst while climbing and a majority of climbers turned back from the balcony. I couldn't see ahead clearly and kept forging ahead through the packed weather and terrible visibility and it was only when my Sherpa Lakpa Rangduinfomed from behind me that we had reached the summit did I realise I had reached the top. I felt an immediate

goosebumps all over me when I realised I had truly summited Mt. Everest. But we couldn't savor the moment. The weather was terrible and there was a real danger of frostbite. We quickly unfurled the national flag, took pictures and descended back down. It was a moment I shall never forget. A deep feeling overtook me and I felt a very strong sense of connection to God at that moment. It's a feeling that I get whenever I summit any mountain.

**Q. Was it there in your mind to climb Mt. Everest five times ?**

A. No, I never thought I would climbing Everest so many times. Maybe it was fate. After my first successful summit, which I couldn't really savour because of the bad weather, I became self-assured by my fitness and climbing abilities. This brought a desire in me to climb the mountain again and even my Sherpa kept telling me that I should go in for a second summit attempt as I had the fitness and ability to do it.

Having climbed Everest twice, I began guiding young mountaineers everywhere which I always wanted to do and this brought me further opportunities to climb Everest.

My final two climbs were a result of my desire to test my limits and to prove to myself that I could climb Everest the fastest that anyone has ever had.





**A deep feeling overtook me and I felt a very strong sense of connection to God at that moment. It's a feeling that I get whenever I reach the summit of any mountain.**

**Q. You had played the role of lead actress in the film “Crossing Bridges”, do you have any plan to pursue it further?**

A. I have always been open to new experiences and this led me to try my hand at acting. It was a novel and a different experience for me and I enjoyed being an actor. I was again offered to act in another movie but I couldn't commit to it because of date problems. Given the opportunity in future, I am open to standing in front of the camera once again.

**Q. What benefit do you accrue by**

**climbing that you would like to convey to the younger generation?**

A. Climbing has been a window to myself. I have pushed myself to my limits and realised that one can go further and higher then one realises if we are willing to take the risk.

Making a world record was a distant dream but I pursued it with dogged determination and it happened. I would want the younger generations to realise that all their dreams, no matter how wild or unachievable it may seem, will

most definitely come true if you pursue it determinately without getting distracted with the naysayers.

**Q. What are your future plans?**

A. I would love to continue climbing and inspiring younger generations as much as I can. climbing has opened up a whole different world for me and given me a lot. I would love to continue doing it and get younger men and women to get into the sport so that they too can realise what they are capable of.





# ▶ INNOVATIONS

## TYPE 2 DIABETES REVERSAL BY BREATHE WELL-BEING GETS ADA RECOGNITION



**B**reathe Well-Being, an Indian Online Diabetes Management Program (BDMP) with emphasis on diabetes reversal and healthy living has recently got recognition from the American Diabetes Association. The online program is a personalised digital therapeutics one which assists individuals manage and reverse Type 2 Diabetes. This Gurgaon-based healthcare start-up was founded in 2020 by Rohan Verma and Aditya Kaicker with a vision to help people live a life free of diabetes using a clinically proven program.

The 3 pillars of this unique program are curriculum, community and coaching. The company conducted a clinical study to verify the effective use and efficacy of the BDMP Digital Therapeutics which acts as a valuable tool to enable personalised care among Indian diabetics. Along with this long-term health outcomes were tracked

for three years. The team at Breathe well-being consists of experts coming together from fields of healthcare, community and lifestyle management to create a revolution in the healthcare digital delivery space. The holistic program is based on exercise, diet and stress reduction with 1 on 1 coaching by a Breathe certified health coach, a community for peer to peer interaction and support with an interactive game design to keep individuals motivated on their journey of reversal of diabetes and also encourages patients to track their weight, physical activity and blood glucose levels.

For the study 3 control groups were formed with a total of 181 participants in which the first group had 60 patients who were treated with the BDMP plus doctor prescription medication, second group had 61 patients who were treated with the BDMP plus doctor- prescribed

medication plus stress reduction module and third group had 60 patients who were only treated by doctor-prescribed medication. BDMP imparts lifestyle advisory, education and content related to healthcare as part of their curriculum which is customised as per the health profile and preferences of the patient. Comprehensive lifestyle data is provided to the doctors which enables them to give data backed clinical decisions and also helps the patients adhere to the advice given by the doctors to achieve Diabetes Remission a sustainable HbA1c level of below 6.5% for a minimum of 3 months. the study lasted for 16 weeks at the end of which patients from the first group showed 81.6% program completion rate, an average of 0.68% reduction in HbA1c levels, an average of 5.64% of baseline body weight loss and Penn State Worry Questionnaire (PSWQ) score average change from 56.3 to 44 (score ranges



change from 56.2 to 55.5.

The results of the study were submitted to ADA on use of Digital Therapeutics which acts as a valuable tool enabling personalised care among diabetics. ADA then examined these results across cohorts with different age groups and profile of chronic patients suffering from Type 2 diabetes and certified that Breathe Well Being effectively works towards reversal of diabetes. The study proved that this lifestyle intervention program has helped its users' show significant reduction in their HbA1c levels, body weight and stress levels. More than 90% patients completely stopped or reduced their diabetes medications and more than 95% patients showed HbA1c level reduction of more than 10%.

The USP of this company is that it follows "No outcome No pay" policy wherein diabetic patients end up paying only if they see significant reduction in their HbA1c levels else the fee is refunded. Breathe Well-Being application is available on the Play store and App store to access the program and so far this clinical program has helped more than 10,000 members to reduce their blood sugar levels, lose weight and prevent further health complications.



from 16-80), higher score indicates higher worry. Patients from group 2 showed 88.5% completion rate, an average of 0.74% reduction in HbA1c levels, an average of 6.02% of baseline body weight loss and PSWQ score average change from 58.6 to 40.8. Patients from group 3 showed an average of 0.28% reduction in HbA1c levels, an average of 0.8% of baseline body weight loss and a PSWQ score average



SOURCE: [www.crunchbase.com](http://www.crunchbase.com)

## DEPRESSION OR ANXIETY DISPLAYED IN ONE -THIRD OF FIRST YEAR UNIVERSITY STUDENTS



This Canadian study is the first of its kind in which students have been assessed on prevalence or likelihood of developing anxiety or depression in their college life. The study has been published in the open access journal *BMJ Open* and clearly suggests that nearly one third of first year university students either have or develop moderate to severe anxiety and/or depression. The area of interest for the researchers was to find out the factors which might predict recovery in students who start the university with moderate to severe anxiety and/or depressive symptoms and also those factors which might predict the emergence of these symptoms in first year students without pre-existing depression or anxiety.

To carry out the study researchers used the survey responses of a representative sample of first year students enrolled at a large, research-based, public university in Kingston, Ontario, Canada in the year 2018. The survey explored factors previously associated with academic performance and mental health in students and was offered two weeks into the first term in September 2018 and two weeks before the start of the exam period in March 2019. The study highlighted how the increased use of prescription drugs (but not prescribed) and illicit drug use amongst those without mental health issues at the start of their university classes is associated with greater odds of developing significant levels of depression and anxiety by the end of the first year. Factors which lower the odds of developing significant symptoms and recovery of students who already have

depression and anxiety symptoms are related to one's level of socialisation and involvement in student societies, clubs and sports teams. A significant finding made by the research team was that the transition of university life coincides with the peak period for the emergence of mental illness, nearly 75% of which starts in young adulthood. Students also spoke about other potentially influential factors like parental education, early life adversities like sexual/emotional/physical abuse and divorce. Social support, sense of belonging both within the campus and with their peers and the amount and frequency of alcohol, stimulants, sleeping pills that had not been prescribed was also assessed.

58% of eligible students completed the first round of questionnaires and assessments (3029 out of 5245) and 37% (1952) completed both sets. Resultantly, at the start of the year 2018, 27% students

showed significant symptoms of depression and 32% students showed significant symptoms of anxiety. These figures had risen to 33% and 37% respectively by March 2019.

The study was an observational one so it cannot establish a cause. The researchers thus highlighted how their findings may not be more widely applicable to other universities in different countries as many interrelated factors influence the emergence and maintenance of mental health problems including psychological, social and biological factors. The conclusion was that moderate to severe levels of depressive and anxiety symptoms are common among students at entry to university and persist during the first year. University connectedness may mitigate the risk of emergent or persistent symptoms, whereas drug use appears to increase these risks.

SOURCE: [www.labmanager.com](http://www.labmanager.com)



## A NEW HOPE FOR TREATING SPINAL INJURIES - NVG 291

Researchers around the globe and over many decades have been struggling to solve the mystery of how to reverse paralysis caused by injuries of the spinal cord. Now the hope appears to be at hand which is demonstrated by a preclinical therapy in which an injection developed by Northwestern University, Evanston, Illinois researchers is used to regenerate nerve cells in spinal cord injuries. This injection helped mice regain their ability to walk again with no impairment as such. However human

clinical trials are yet to be carried out. So another experimental therapy using a novel drug named NVG-291 has achieved a step ahead results with laboratory rodents by enabling even previously paralysed rats to climb tiny ladders has come into picture.

NervGen Pharma Corporation, a Canadian life sciences company has rights to this innovation named NVG-291 made by Dr. Jerry Silver who is a leading global expert on spinal cord injury and is

also a professor of Neurosciences at Case Western Reserve University, Cleveland, Ohio. This drug is presently undergoing phase 1 human trials to check on its safety and lack of toxicity in healthy human trial volunteers and is being prepared for pivotal phase 2 human trials to be conducted in 2022 to test it for the first time in humans suffering from a range of debilitating spinal cord injuries and other nerve damages. The results are expected to be positive due to the surprising similarity between the central nervous system of



humans and rats.

The achievement with NVG-291 is exciting because till date the pharmaceutical industry has not been able to bring any effective drug in the market which is able to repair injured nerves and allow patients to regain or improve key bodily functions. The uniqueness of this drug is that it is designed to heal nerve damage by unleashing the body's natural ability to repair itself and actually creates new neural pathways via the extraordinary process of neural plasticity. Thus this drug empowers sprouting or growth and fortification of healthy neurons thereby allowing regeneration and rejuvenation both at the site of injuries such as the brain or spinal column.

Dr. Silver was the first to identify a class of molecules in the central nervous system called chondroitin sulphate proteoglycans (CSPGs) which inhibit the sprouting and regeneration of neurons. Euphoria struck him when he found out that axons are freed from the debilitating effects of CSPGs when treated with NVG-291 which is a peptide (protein) that works

by targeting the specific receptor 'tyrosine phosphatase sigma' (PTP) that blocks nerve repair following injury. This new drug also showed considerable promise in the treatment of multiple sclerosis, Alzheimer's disease, stroke and traumatic brain injury. So phase 2 trials will also be done for the above stated diseases. Independently some other scientists in a German Laboratory have replicated this work by using doses of NVG-291 that were 50 times more powerful. As a result their study achieved even better outcomes with no toxicity issue with the rats from using such high doses.

Such efforts of researchers have raised hope that this technology can improve the lives of tens of millions of people worldwide who suffer from nerve damage. The researchers are confident that they are working in the right direction and a breakthrough in the treatment of spinal injuries will emerge soon.

**SOURCE:** [www.bloomberg.com](http://www.bloomberg.com)



# FINANCIAL INCENTIVES MOTIVATE PREGNANT WOMEN TO QUIT SMOKING



'No smoking' is important for expecting women as smoking can harm themselves as well as their unborn child/children in many ways like causing birth defects, premature births and damaging babies developing lungs. Despite knowing the vitality of no smoking during pregnancy, evidence suggests that less than half of women who are daily smokers successfully quit during pregnancy. Recently researchers have undertaken a trial in France to assess the effectiveness of progressively higher financial dependence on continuous smoking abstinence on stopping smoking and birth outcomes amongst pregnant smokers.

A total of 460 pregnant women with an average age of 29 years at 18 maternity wards in France participated in the trial. These participants were randomly assigned either a financial incentives group (231) or a control group (229) when they were less than 18 weeks into their pregnancy. The participants completed six 10 minutes face to face visits and were asked to fix a date when they would quit smoking. Motivational counselling and

support was given to them to prevent any possibility of relapse. Control group women were given a voucher worth 20 Euros per visit but they were not rewarded for abstinence, therefore their maximum voucher worth was 120 Euros after 6 visits. Whereas women in the financial incentive group could earn an additional amount depending on their abstinence which was measured by the amount of carbon monoxide on the participant's breath at each visit. Thus these women could earn a maximum of 520 Euros at the end of their 6 visits. Other potential factors that were considered were age, income, ethnicity and use of nicotine replacement therapy. At each visit certain measurements were taken like nicotine withdrawal symptoms, time to relapse, blood pressure and use of cannabis and alcohol in the last 30 days.



The results showed that the pregnant women in the financial incentives group smoked 163 fewer cigarettes than in the control group. In the financial incentives group the continuous abstinence rate 16% (38 out of 231) was higher than those in the control group 7% (17 out of 229) and visit by visit, the abstinence rate was 4 times more likely in the intervention than in the control group. In the financial incentives group time to relapse occurred significantly later and also the craving for tobacco was lower than in the control group.



With regard to the outcome of the babies, analysis showed that in the financial incentives group, babies were around twice as likely to have birth weights of 2500 g or more than in the control group. Financial incentives were also associated

with a 7% reduction in the risk of a poor neonatal outcome, i.e. 4 babies(2%) in the financial incentives group and 18 babies (9%) in the control group. There were certain limitations while conducting the study like lack of involvement of partners in the intervention who smoked and lack of mother and baby follow-up after

delivery. Despite this the evidence shows that it is the right time to start including financial incentives as part of standard practice to support cessation of smoking during pregnancy for the benefit of an expecting mother and her born to be child/children. This study showing that pregnant women are more likely to stop

smoking if given financial incentives as part of the treatment plan is published in The BMJ.

SOURCE: [www.bmj.com](http://www.bmj.com)

## ‘MONITAIR’ TO LET PATIENTS MONITOR THEIR COPD SYMPTOMS

As per worldwide estimates nearly 86 million people have been diagnosed with the chronic lung disease, COPD and direct healthcare costs related to lung attacks amount to 10 billion Euros in Europe and more than 30 billion Euros worldwide. In this light MonitAir was developed by Dr. Peter Lucas in the Netherlands to give COPD patients a self management tool to monitor their health condition.

MonitAir is a smart self-test and a cutting-edge e-Health product which empowers and enables patients to monitor their COPD symptoms accurately, providing them with unprecedented insights into their condition and reducing the economic burden of healthcare consultations. MonitAir aims to bring in a transition



in care for COPD patients. Starting with prevention and then enabling people to manage their own health for as long as possible. This product is focussed on two principles, firstly, to work on further improvement of diagnostics and predictive value and secondly, striving hard for even more patient-friendly use,

fail-safe and foolproof and intuitive. Doctors want to see patients intervene in their COPD symptoms at an earlier stage themselves so that they report to their doctors in time for better healthcare outcomes but unfortunately COPD patients only recognize the first symptoms of an emerging lung attack at a late stage. To cater to this problem, MonitAir has entered the market. This product is based on a self-learning algorithm which works on a patient’s smartphone to completely autonomously interpret patient data and provide advice to the patient without direct intervention of the healthcare provider. It is used at the patient’s home in consultation with a doctor and the patient is completely self-reliant until MonitAir feels it is necessary for a doctor to intervene. It is a way for early recognition and prompt action to reduce the severity and duration of a lung attack, prevent complications, reduce healthcare costs and improve quality of life.

MonitAir is self-explanatory and its app guides the patient through the process but still the care provider delivers the product to the user and guides him on its use. The product consists of a thermometer, an oximeter and a spirometer. The patient takes his measurements at home and enters them in the MonitAir application, together with the answers to 10 questions derived from an internationally recognised questionnaire and then receives preventive and personalised advice from the device which he/she can follow independently. There is a technical help desk, patient and care provider instructional videos, an optional professional training programme, proactive patient support by giving a signal if measurements are forgotten.



received very well by the users as well as the healthcare providers owing to which it will soon be rolled out to other nations. In the future, conditions like obstructive apnea and cardiac abnormalities will also be investigated for relevance and feasibility.

SOURCE: [www.healtheuropa.eu](http://www.healtheuropa.eu)

## TEEN FROM INDIA CALLS FOR CLEAN ENERGY AT COP26 MEET



A 15-year-old girl from Tamil Nadu had exhorted the world to move towards clean energy during the recently concluded 26th Conference of the Parties to the UN Framework Convention on Climate Change at Glasgow, Scotland.

“I am not here to speak about the future, I am the future,” she said, encouraging the world to move towards renewable energy. The leaders who had come from across the world to attend the global meet heard her with rapt attention not without a reason: she has been recognised as the Earthday Network Rising Star by Earthday Network, an international environment campaign, for 2021, for her innovation of

a solar ironing cart.

A class 10 student from Tiruvannamalai district of the southern State, Vinisha Umashankar, is also a recipient of the Dr. APJ Abdul Kalam IGNITE Awards instituted by National Innovation Foundation (NIF) – India, an autonomous body of the Department of Science and Technology, Government of India. She won the prestigious award for her mobile ironing cart, which uses solar panels to power a steam iron box. She is now an inspiration for the world for her speech at the international conference.

A key benefit of the solar ironing cart is that it eliminates the need for coal for

ironing bringing about a shift towards clean energy. The mobile ‘istriwala’ (laundry persons) can now offer their services at the doorstep of their customers without adding the dreaded carbon dioxide greenhouse gas to the atmosphere. The ironing cart can also be fitted with USB charging and mobile recharging points which can fetch extra income for them. It is an ingenious solar-powered alternative for the millions of charcoal-burning ironing carts for pressing clothes and can benefit the workers and their families. The device can also be powered by pre-charged batteries, electricity, or diesel-powered generators in the absence of sunlight.

Vinisha’s efforts have made India stand out as a country that brings innovative solutions for the climate change problem. Prominent world leaders like the Prime Minister of India Shri Narendra Modi; Prime Minister of Britain Mr. Boris Johnson; President of the USA Mr. Joe Biden; Prince William, founder of The Earthshot Prize; Mr. John Kerry, the Special Presidential Envoy for Climate (SPEC) from USA; The Duke and Duchess of Cambridge and Noted philanthropist Mr. Michael Bloomberg amongst others were audience to her speech which is attracting a global appreciation.

**SOURCE:** *India Science Wire*

## INNOVATION HUB LAUNCHED TO TACKLE ANTIMICROBIAL RESISTANCE

The Department of Biotechnology’s Centre for Cellular and Molecular Platforms (C-CAMP), has launched a global collaborative platform to help reduce the antimicrobial resistance (AMR) burden in India through stronger and more stepped-up participation of various stakeholders.

Anti-Microbial resistance is emerging as one of the world’s major healthcare challenges. India is one of the most

affected geographies. Out of the projected AMR-related death of 10 million across the world, 20-25% or about 2.5 million deaths are projected in India alone.

The new platform called ‘India AMR Innovation Hub (IAIH)’ will focus on human-animal interface, and neglected tropical diseases and aim to create a globally connected ecosystem that includes an experienced scientific and clinical knowledge base, regulatory

expertise, capability, and capacity building support such as funding and advanced research and development infrastructure, multi-pronged policy measures for public health and improving access, AMR stewardship and public communication for raising public awareness.

IAIH partners include national and global stakeholders such as World Health Organisation, Bill and Melinda Gates Foundation, The Drugs for Neglected

Diseases initiative (DNDi), Narayana Health, Zydus Cadila, Johnson & Johnson, and support from ICMR, DBT, and ICAR. It will continue to add more partners and expertise with time.

IAIH recently convened a meeting chaired by the Principal Scientific Adviser to the Government of India that brought together the collective thinking of all these partners on the way forward. It will soon outline specific interventions and prioritize focus areas in alignment with the National Action Plan on AMR.

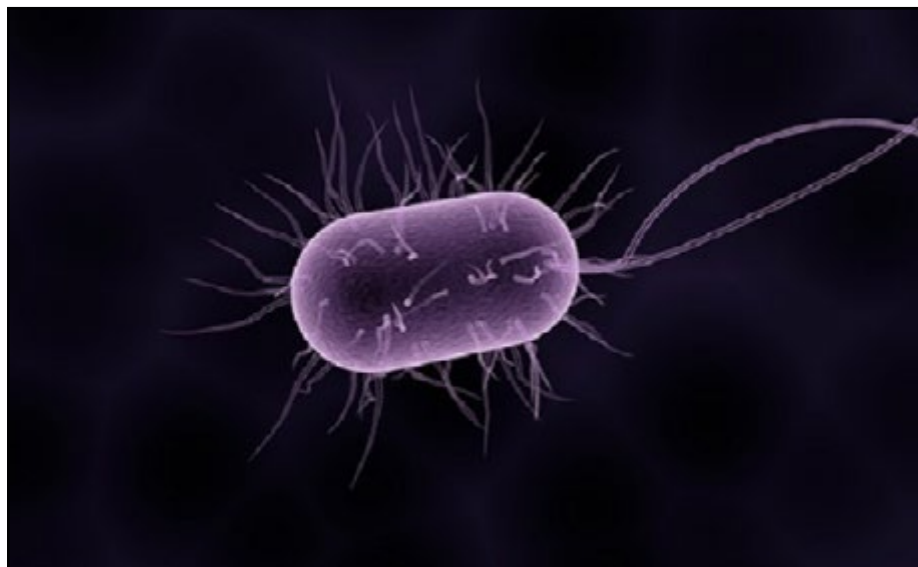
Dr Taslimarif Saiyed, CEO & Director, C-CAMP said, "The world is staring at a silent pandemic of AMR. We need to come together and fight this health challenge collectively for the well-being of our and coming generations. Today, we are extremely excited with the launch of IAIH and grateful to support from all our govt and non-govt partners."

WHO has identified antimicrobial

resistance AMR as one of the top ten global healthcare threats. The steady rise in AMR worldwide has been attributed to misuse and overuse of antimicrobials, lack of clean water and sanitation, lack of public awareness, and inadequate prevention and control measures to emergent and existing microbial infections. Besides

infections, the problem poses a looming threat for 21st Century medicines as antimicrobial treatment regimens associated with conditions such as cancer treatment and post-operative care begin to fail.

SOURCE: India Science Wire



## FROM WASTE TO WEALTH

A team of scientists has developed a technique to use tea and banana waste to make non-toxic activated carbon that can be used for several purposes such as industrial pollution control, water purification, food and beverage processing, and odour removal.

The processing of tea generates a lot of waste, generally in the form of tea dust. They could be converted to useful substances. The structure of tea is particularly favourable for conversion to high-quality activated carbon. However, it normally involved the use of strong acid and bases, making the product toxic and hence unsuitable for most uses. A non-toxic method of conversion was needed to overcome this challenge.

Dr N. C. Talukdar, former Director, Institute of Advanced Study in Science and Technology (IASST), Guwahati, an autonomous institute of the Department of Science & Technology, Govt. of India and Dr Devasish Chowdhury, Associate Professor at the Institute, used banana plant extract as an alternative activating agent for the preparation of activated



carbon from tea wastes.

was used as the activating agent.

Oxygenated potassium compounds contained in the banana plant extract help in activating the carbon obtained from tea waste. An Indian patent has recently been granted for the new process. The process began with the drying of the banana peel. It was then burnt to make an ash out of it. The ash was further crushed and made into a fine powder. Subsequently, water was filtered through the ash powder using a clean cotton cloth and the final solution

The main advantage of this process is that the starting materials, as well as activating agents, are waste materials. Also, no toxic material was used at all in the entire process. The most preferred banana was found to be Bheem Kol, which is an indigenous variety found only in Assam and parts of North East India.

SOURCE: India Science Wire



## GRAPHICS TO HELP PEOPLE DECIDE HOW TO PROTECT THEMSELVES AND OTHERS FROM CORONAVIRUS

A new interactive graphic has recently been developed by researchers in the United Kingdom that will help people to decide how to protect themselves and others in everyday situations from coronavirus. This graphic will illustrate the risks of catching covid-19 in different scenarios and what measures or actions need to be taken to reduce those risks based on the available evidence. Estimates from 26 international experts from multiple disciplines and countries have been collected and combined to carry out this research. Data is collected on the importance of different coronavirus transmission routes like small and large airborne droplets, contact with contaminated surfaces during activities like coughing, exercising, talking and eating either outdoors or indoors. Estimates on the importance of different protective measures like the use of face masks in reducing the transmission of coronavirus are collected. The analysis of

these collected estimates highlighted that airborne transmission routes were most important in all situations, face coverings especially when worn by an infected person as a form of source control were the most important mitigation measures to be adopted.

Very importantly, all routes were considered to play a part in transmission and simple measures like thorough hand washing, respiratory hygiene and physical distancing made a useful contribution. Gaps in evidence and differences in opinion amongst the experts have been found around different variables including the effects of different kinds of masks on inhaled aerosols, the role of aerosol transmission and the effects of face coverings on transfer from hands to nose, mouth and eyes. The tool is interactive so that you can explore the scenarios which are most relevant to you. This tool makes it very clear that

all the routes of transmission matter but in different proportions in different contexts. Simple to say that though airborne transmission is the main one in most situations but that does not mean that we ignore the others. The study is published in The BMJ and aims to prove helpful to those faced with challenges of communicating complex, uncertain and imprecise evidence in the future. It is imperative to say that coronavirus is an ongoing pandemic and it is difficult to control its spread by just sticking to a single precautionary measure. Thus all routes of transmission need to be taken care of and a multi pronged approach to contain its transmission is the need of the hour. So choose your scenarios wisely and where you want to be.

SOURCE: [www.healtheuropa.eu](http://www.healtheuropa.eu)

## REDUCE THE RISK OF INFLAMMATORY DISEASES BY OPTIMISING YOUR BODY CLOCK

Researchers at RCSI University of Medicine and Health Sciences, Dublin, Ireland have carried out a study that has put light on the essential role that an erratic body clock has in enhancing inflammation in the body's immune cells which leads to dire consequences for the most prevalent and severe human diseases, signifying the importance of a consistent sleep pattern. The circadian body clock is an essential aspect of the body's daily functions wherein it generates the 24 hour rhythms which helps humans to maintain their health in time with the day or night cycle. This body clock also regulates our body's immune cells known as macrophages. But when these cell rhythms are disturbed or disrupted by an erratic sleeping pattern or eating or shift work then these cells cause inflammation which can lead to diseases like cancer, diabetes, obesity, heart disease and reduce the body's immunity.

To carry out the research, under lab

conditions macrophages were analysed with and without a body clock. They discovered that macrophages without a body clock used far more glucose and broke it down quicker than normal cells. It was also seen that in the mitochondria, the pathways in which glucose was further broken down to produce energy were extremely different in macrophages without a clock. This led to the production of reactive oxygen species (ROS) which further added to inflammation. The study also shows that anything that negatively impacts on our body clocks be it insufficient sleep or inappropriate eating timings or not enough daylight can impact the immune system of our body leading to an unhealthy us. The collaborating research teams came from the RCSI School of Pharmacy and Biomolecular Sciences, Swansea University, Trinity College Dublin and the University of Bristol and their study is published in Frontiers of Immunology.

SOURCE: [www.healtheuropa.eu](http://www.healtheuropa.eu)

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# ► WELL BEING

## A Novel Attempt To Purify the Air Around You

■ Dr.Shubha.H.V

*Breathe easy in a natural way by growing the little green lives....*



Who doesn't like to have clean air around their homes and workplaces? Yes, of course, all of us crave for pure and pleasant air encircling our body, mind and soul. Indeed, everyone has the right to clean air. Having said that, it is also everyone's responsibility to keep the air clean.

How can we purify the air around us? Is it possible to do so through minimal efforts and also in a more natural way? Yes, it is definitely possible. But before that let's know something about the basics of indoor air pollution, the commonest sources of indoor pollutants and finally the simplest way to get rid of them.

We spend almost 90% of our time indoors whether it's in home, office, schools, colleges or simply at a shopping mall.

But we often tend to ignore the quality of air that we breathe in when we are indoors. According to the Environment Protection Agency (EPA), some people are believed to be suffering from "Sick Building Syndrome" (SBS) in which the building occupants experience a feeling of ill-health and it comprises various non-specific symptoms. No specific illness or cause is identifiable. It is attributed to some of the indoor pollutants about which we are unaware most of the time.

Some of the commonest sources of indoor air pollution are:

- **Tobacco smoke**
- **Fuel-burning combustion appliances-** Gas stoves, space heaters, water heaters, wood stoves, dryers, fireplaces
- **Building materials and furnishings-** Furnitures made of pressed wood

products, newly installed flooring, upholstery or carpet

- **Volatile Organic Compounds (VOCs)-** paints and lacquers, varnishes and waxes, air fresheners, moth repellents, pesticides, paint strippers, cleaning supplies, adhesives, nail polish, dry wall, shampoo etc.

- **Moulds:** They flourish on the damp surfaces and produce spores.

Various toxins emitted from these sources include:

- Formaldehyde
- Benzene
- Xylene
- Trichloroethylene
- Ammonia
- Toluene
- Carbon monoxide

In 1989, B.C.Wolverton (Principal investigator of the famous NASA Clean Air Study) in his study entitled “A study of interior landscape plants for indoor air pollution abatement: An Interim Report” announced that plants were “a promising, economical solution to indoor air pollution”. He screened a dozen common houseplants and tested their ability to remove a variety of toxins. NASA also recommended having at least one plant per 100 square feet (10 square meters). Although this research is quite old, it is still regarded by many as the most comprehensive and accurate to date.

I personally believe that: “He who plants a tree, plants a hope”. Therefore, I have passionately made my own collection of indoor plants. Most of them are low maintenance plants requiring very little care and most of them turned out to be the air purifying plants as recommended by NASA. I have never felt that I have enough plants. I have only felt that I need more shelves. Also don't let the fear of limited space keep you away from growing or buying plants. So, here goes the list of best indoor air purifying plants, with their care tips and the toxins which they can remove.

**1. SNAKE PLANT/ MOTHER-IN LAW'S TONGUE PLANT/ *Sansevieria laurentii***



It is native to southern and central Africa. It is characterized by its upright sword-like pointy leaves. They help to regulate healthy airflow. It can convert carbon dioxide into oxygen at night and is therefore ideal for bedrooms. They are perfect houseplants, not requiring a lot of water. They tolerate low light conditions very well and you don't have to worry too much even

when they are left in a dark room. Snake plants filter toxins such as formaldehyde, benzene, trichloroethylene, xylene.

**2. SPIDER PLANTS/ *Chlorophytum comosum***



They are one of the most adaptable houseplants and the easiest to grow especially for the beginners. They possess a gush of green-white striped, long and thin leaves. They are pet-friendly. They can flourish in medium light conditions. NASA's study found that spider plants were able to remove 95% of the chemicals from the air in 24 hours. They filter toxins such as carbon monoxide, benzene, formaldehyde, xylene, styrene, toluene. They can also absorb ozone and clear the air-borne irritants.

**3. PEACE LILY/ *Spathiphyllum 'mauna loa'***



It is a herbaceous perennial that does best indoors in moist, but not soggy soil. It has beautiful glossy green leaves and an unusual ability to blossom in medium light conditions. The pure white flower turns pale green in 10 days and then remains for at least a month. It filters toxins

like formaldehyde, trichloroethylene and benzene. In the NASA study, peace lilies were one of the top ten plants for removing the common household toxins, even ammonia.

**4. ALOE VERA/ *Aloe barbadensis miller***



It is a succulent plant that grows in hot, dry climate. It has thick leaves that can store water for a longer time. It acts as air purifier by removing volatile organic compounds (VOCs), taking up carbon dioxide at night and emitting oxygen. It can remove toxins such as formaldehyde and benzene.

**5. ENGLISH IVY/ *Hedera helix***



It is a climbing plant well adapted to indoor conditions. It is also popular as an ornamental plant especially during winter seasons and Christmas. In one study (presented to American College of Allergy, Asthma and Immunology) it was found that they could reduce particles of fecal matter and moulds. Researchers found that the amount of fecal matter was reduced by more than 94% in 12 hours and the moulds went down by 78.5%. It is

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a perfect air purifying plant for bathrooms and during winters to combat the moulds.

**6. BARBERTON DAISIES/ *Gerbera jamesonii***



PC: Dr. Shubha

They are deeply rooted plants with bright coloured flowers in shades of red, pink, yellow, orange, and lavender. They need an unusual combination of bright light and moderate temperatures. They filter toxins like benzene, formaldehyde and trichloroethylene.

**7. FLORIST'S CHRYSANTHEMUMS/ *Chrysanthemum Morifolium***



Florist's chrysanthemums or "garden mums" are ranked the highest among all the air purifying plants. They are one of the most vibrant houseplants that bloom in a variety of vivid colors, including yellow, white, red, orange, lavender, and purple. They eliminate common toxins including ammonia.

**8. CHINESE EVERGREEN/ *Aglaonema***



PC: Dr. Shubha



PC: Dr. Shubha

It is a low maintenance plant which keeps growing without fail for years. They are stylish, exotic and versatile and come in a wide variety of shades including pink, red, orange, yellow, and gray. It emits high oxygen content owing to its larger surface area. It removes toxins such as formaldehyde, benzene, carbon monoxide, VOCs through phytoremediation.

**9. GOLDEN POTHOS/ *Money plant***



It is an attractive trailing vine with heart-shaped leaves that are sometimes variegated with white, yellow, or pale green striations. They love medium light and only need water every 7-10 days. It can be planted indoors throughout the entire year. It removes toxins like formaldehyde, toluene, benzene, carbon monoxide.

**10. BAMBOO PALM/ *Chamaedorea seifrizii***



PC: ugao.com

These are one of the most attractive, durable and tolerant houseplants. They

**We spend almost 90% of our time indoors whether it's in home, office, schools, colleges or simply at a shopping mall. But we often tend to ignore the quality of air that we breathe in when we are indoors.**

## plants were “a promising, economical solution to indoor air pollution”

are more resistant to insects. Growing between 3 to 6 feet tall, the long, elegant leaves of this sturdy palm sweeps away toxins such as formaldehyde, xylene, chloroform, carbon monoxide and benzene. It was the third most powerful plant in the NASA study at removing formaldehyde.

### 11. RUBBER PLANT/ *Ficus elastica*/ INDIAN RUBBER TREE



These are unusual looking varieties native to the tropics of Southeast Asia. It has oversized, shiny, oval-shaped leaves that have a rich emerald hue. Rubber plants

*Looking at these beautiful plants, don't you feel like planting a few of them atleast? Better late than never, start growing these elegant plants at your homes and workplaces so that you can breathe clean air.*

### “KEEP GOING, KEEP GROWING”

produce lots of oxygen more than any other plant, in fact! They also remove toxins like formaldehyde and also the mold spores and bacteria from the air by upto 60%.

### 12. BARBERTON DAISIES/ *Gerbera jamesonii*



It is a vast group of beautiful flowering plants available in a wide range of colors. According to NASA, anthurium is incredibly effective at removing

formaldehyde, ammonia, toluene, and xylene from the air. They are also effective against moulds and viruses.

### 13. SYNGONIUM/ Arrowhead Plant



Dr. Shubha

It is a beautiful foliage plant with arrow-shaped leaves. It requires low to medium light. It is an excellent air purifier and removes benzene and formaldehyde.

**Dr. Shubha. H.V** is a pathologist working as Lab head in SRL diagnostics, Fortis hospital, Rajajinagar, Bangalore



# Pain in Children-Role of Health Care Professionals

■ Edlin Glane Mathias



**P**ain is an uncomfortable physical, sensory and emotional sensation that is typically related to or explained in terms of tissue injury. Pain can make feeding, relaxing, and sleeping difficult. Pain can delay the recovery, if not well managed, by interfering with normal body functions. Pain can raise blood pressure, heart rate, and decrease the amount of oxygen in the blood, for instance. Pain perception is different in each child. Younger children express pain by crying and older children verbalize the pain perception. The treatment regimen depends on the type of pain whether it is pain due to injury, procedure related

pain or surgical pain. The goal of pain management must be to make the child comfortable and feel better. The acute pain needs are met appropriately and it subsides around 3-4 weeks; however, the treatment of chronic pain will last for three months or more sometimes based on the effect on the nervous system of the child. Pain management among children is a challenging work for the nurses and health professionals. The most challenging task is learning to handle the children during pain. As it is one of the necessary parts of work of the health professionals to identify the pain and handle children during immunizations,

painful procedures, surgical treatment and other necessary treatments.

## How to know whether the child is in Pain?

During pain the child can behave differently than normal. In a certain way, he or she can weep, make faces, or shift his or her body. The child can also be very quiet and tend to have restricted movement of the area under pain because he or she is afraid to move or does not have enough energy to show the endurance that he or she has towards the pain.



**The acute pain needs are met appropriately and it subsides around 3-4 weeks; however, the treatment of chronic pain will last for three months or more sometimes based on the effect on the nervous system of the child.**

The capability of enduring the pain is different in all individuals, especially children. Among infants, a child's cry sounds differ from the regular pattern. Also, changes in the temperament of a baby can be a tip-off. Crying that cannot be soothed with a bottle, diaper change, or cuddling, for instance, could signify pain. Often in pain may be a calm baby who becomes unusually fussy. Toddlers will most always clutch the part that hurts.

#### **How can doctors and nurses handle pain in children?**

Doctors and nurses will work together to find the right way to treat childhood pain, whether it's through drugs, non-drug care, or both. When a child takes pain medication, the child's doctor will select the form and quantity of medication that is best for the pain and condition of the child. It is important to realize that pain

can be managed safely and efficiently and very few children develop pain medication addiction. Along with pharmacological treatment the use of non-pharmacological interventions need to be practiced among children. The pharmacological and non-pharmacological interventions combined together provides an improved quality care for the children in pain.

**When a child takes pain medication, the child's doctor will select the form and quantity of medication that is best for the pain and condition of the child.**

**Edlin Glane Mathias**, is a Research scholar at Manipal College of Nursing, Manipal Academy of Higher Education, Manipal, Karnataka. Her area of research focus on pediatric pain management.

# ► IN FOCUS

## Knee Implant Price Capping

■ Arvind Kumar Prajapati



Osteoarthritis (OA) is a type of joint disease with prevalence of nearly 22% to 39% in the Indian population. OA occurs more in women than men, around 45% of women suffer from this disease. Higher rate of OA is associated with ageing (geriatric) population, diabetes osteoporosis, obesity, and sedentary lifestyle. According to the World Health Organization, OA is the prime reason for knee replacement and is set to become the fourth biggest cause of immobility in India. At the same time, Indian elderly population (aged 60 and above) is projected to increase by nearly 41% in 2031, from 138 million in 2021 and the Kerala has highest elderly proportion

with 16.5% of state population, as per data provided by National Statistical Office (NSO)'s Elderly in India 2021.

There are various types of surgical treatments for OA joint disease, among them Knee replacement surgeries range from 20%-25% as per voluntary registries controlled by 'Indian Society of Hip and Knee surgeons'. India is expected to witness high growth of around 15%-20% till 2030 in this segment. Currently, multinational orthopaedic device manufacturers (Stryker, Depuy Synthes, Smith and Nephew and Zimmer Biomet) control around 85%-90% of Indian orthopaedic devices market, which

indicates minuscule market share of domestic manufactures. India sees up to 1.5 lakh knee replacement procedures every year.

India's geriatric population has pressed the need to review the significance of orthopaedic care to its population. The common challenges of an economically weaker population are affordability and accessibility of good healthcare services, in which implant cost is a major factor. These challenges are also highlighted by numerous complaints received by implant regulators and disproportionately high trade margins especially in Knee and hip replacement implants.





Knee Implant components

## the decision of price cap may discourage the international medical device manufacturers to bring innovative products in the market

Looking into various challenges, National Pharmaceutical Pricing Authority (NPPA), India's agency for controlling prices and ensuring availability of medicines, undertook the herculean task of bringing regulation on the pricing of medical devices for public benefits. The price cap on knee implants was fixed by citing a huge trade margin. Subsequently, studies by NPPA confirmed that trade margins were exorbitant (more than 400%) and irrational, which indicated unethical 'profiteering' at various levels of distributors and hospitals.

In 2018, NPPA capped the price of cobalt-chromium based knee implants (Fig.1.) at ₹54,720, which is preferred in 80% of knee replacement surgeries and sold in the range of ₹1.5-2.5 lakh, wherein the price of knee implants made of titanium and oxidised zirconium was capped at ₹76,600, against the market range of ₹2.5-4.5 lakh. NPPA further instructed that health care providers cannot label a selling price more than ₹56,490 for high-flexibility implant, for which the average market rate was ₹181,728. Also, the ceiling was done for specialised Revision Implants used for cancers, being sold at an average rate of ₹113,950. The NPPA

circulated the ceiling price and informed hospitals that overcharging will attract punitive actions, including revoking of licence and heavy penalty.

### Concerned raised by medical community

Orthopaedic surgery in India is considered as less expensive than in developed countries, and overall cost for Knee replacement is lowest in the world, considering the quality. The knee implantation surgery contributes a part of the medical tourism business in India. India was ranked 7th position in 2017 where 56 million trips were made for wellness tourism and India generated revenue of USD 16.3 billion. As per draft of National Strategy & Roadmap for Medical and Wellness Tourism, 2021, India is ranked 10th in Medical Tourism Index (MTI) for 2020-21 out of 46 destinations of the world. There is a fear that the price capping on knee implants may hinder India's vision "To position India as a sustainable and responsible medical value travel and wellness destination" and "Heal in India" Brand.

The private hospitals involved in

providing world class health care to patients pointed out that enforcing the price cap will degrade quality assistance and surgeries to patients. It will interfere in the decision to use innovative and better products from the market and may force innovative products to disappear from the market. This will have a negative long-term impact on business and quality treatment. It has been pointed out that the emerging technologies such as patient specific implants and surgeries performed in liaison of, MRI and CT scan, navigation and robotic technology, may receive set back at nascent stage. Moreover, the decision of price cap may discourage the international medical device manufacturers to bring innovative products in the market and may create sudden instability in knee implant logistics.

### Benefits & opportunity

The Indian government supported its decision by emphasizing that price capping will benefit approximately 1.2 to 1.5 crore orthopaedic patients in India and the decision will lead to a total savings of 1,500 crore to patients.

**The knee implantation surgery contributes a part of the medical tourism business in India. India was ranked 7th position in 2017 where 56 million trips were made for wellness tourism and India generated revenue of USD 16.3 billion**

According to the IMF World Economic Outlook (April 2021), GDP (nominal) per capita of India in 2021 is projected at ₹1,59,932 (\$2,191) which translates to ₹13,327 per month. The average income of ₹13,327 per month is surely not sufficient for Indians to undergo joint replacement surgeries. Thus, a move to cap the price of knee implants will definitely benefit the majority of orthopaedic patients.

According to the 48th meeting of NPPA concluded on August 14, 2017, about 2% patients in India are undergoing revision and globally the average is around 10%.

Thus, the decision to lower the implant cost will ultimately benefit millions of orthopaedic patients, especially in the county where over 1.5 lakh knee surgeries are performed each year. This will further reduce the rise in out-of-pocket expenses for patients undergoing knee implant surgeries. It was also suggested that the government shall initiate measures to promote domestic knee implant industry in manufacturing, product logistics and innovation. This can be done through various ways, such as encouraging entrepreneurs to invest in the orthopaedic domain, providing grant-in-aid, pioneering orthopaedic research park,

encouraging public-private partnerships etc. These measures will help bridging the quality gap pointed out by medical communities.

At this point of time, it may be early to evaluate the benefit of the price cap on the Indian population. We may have to wait and watch how things pan out with time. But we should applaud the effort of the government to regulate the cost of knee implants to ensure good health services to the marginal strata in the country.

**India's geriatric population has pressed the need to review the significance of orthopaedic care to its population. The common challenges of an economically weaker population are affordability and accessibility of good healthcare services, in which implant cost is a major factor**

Arvind Kumar Prajapati is a Scientist/Engineer at Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Department of Science and Technology, Government of India, Trivandrum, Kerala. He has been closely working in design, development, testing and validation of Knee, Hip, and Spine implants and instruments.

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# Blood Donation Amidst the Pandemic: If you haven't then the Time to Donate is Now!

■ Dr.Archana Shetty



A couple of days have just gone by, and as I sink into my chair in the Blood Centre, it dawns on me that it's been a year and a half into the pandemic journey. The Posters and motivational messages on the display board of the Blood Centre I work in, still smell fresh from the celebrations of the 'NATIONAL VOLUNTARY BLOOD DONATION DAY' on the 1st of October, which was as anticipated was sober this year and the year that passed. COVID -19 has had major implications for the global healthcare sector, with blood transfusion services being no exception.

The pandemic has brought in revolutionary changes in diagnostics, new chapters have been written in terms of medications, genetics, treatment protocols, vaccination to name a few. However, the fact that

the need for human blood during the pandemic was there cannot be changed, it is there and will only continue to grow. Though hospitals witnessed a drop in the scheduled planned surgeries, the need for blood units persisted due to its therapeutic roles in trauma victims, anaemic, thalassaemics and cancer management. The only life saving medicine that cannot be

manufactured but can only be passed on from a generous donor to a patient in need is the human blood.

The demand and supply chain was badly affected. While at one corner the donors were hesitant with apprehensions of even visiting the blood centres, recipients were jittered with the thought of the virus being

**While at one corner the donors were hesitant with apprehensions of even visiting the blood centres, recipients were jittered with the thought of the virus being transmitted through the received blood.**

transmitted through the received blood. To add on was the constraint of conducting voluntary blood donation camps, restrictions on travel which further affected the workforce. These, along with other factors made it challenging to pile up blood stock and suffice the blood demands of the patients in need.

As a team working in a Blood Centre affiliated to a tertiary care hospital, that caters to a vast rural population, we took the responsibility of motivating all potential healthy donors in and around our campus. What came as a surprise was that a few key facts needed to be cleared which were engraved in their minds, especially regarding COVID-19 and Blood Donation. A snippet of the same has been given below with the hope that voluntary blood donation can be boosted up.

**If you are a donor who wants to donate blood.....**

Blood donation during Covid is absolutely safe. All good Blood Centres practice stringent protocols of safety and donor screening. Spacing and repeated cleaning of donor stations, sanitizing places

of potential contamination, wearing protective masks compulsorily and following biomedical waste disposal as per regulatory bodies are being followed. Also voluntary donor appointments are fixed by allotting time slots to avoid crowding at Blood Centres.

**Vaccination and Covid.....**

The Notification from the Government of India has now declared that one can donate after 14 days of receiving any/ each dose of currently available Covid vaccine, provided that the donor clears all the criteria for other norms of Blood donation. So, after two weeks past a vaccination one can be an eligible donor!

**What if you have got infected with Covid .....**

According to the guidelines in India, a person can donate after 28 days of full recovery and without any further symptoms. If at any point time one was hospitalized for Covid the proposed deferral period is 3 months from hospital discharge. Published studies and literature till date have shown that respiratory viruses like the SARS CoV2 cannot be transmitted by donation or transfusion.

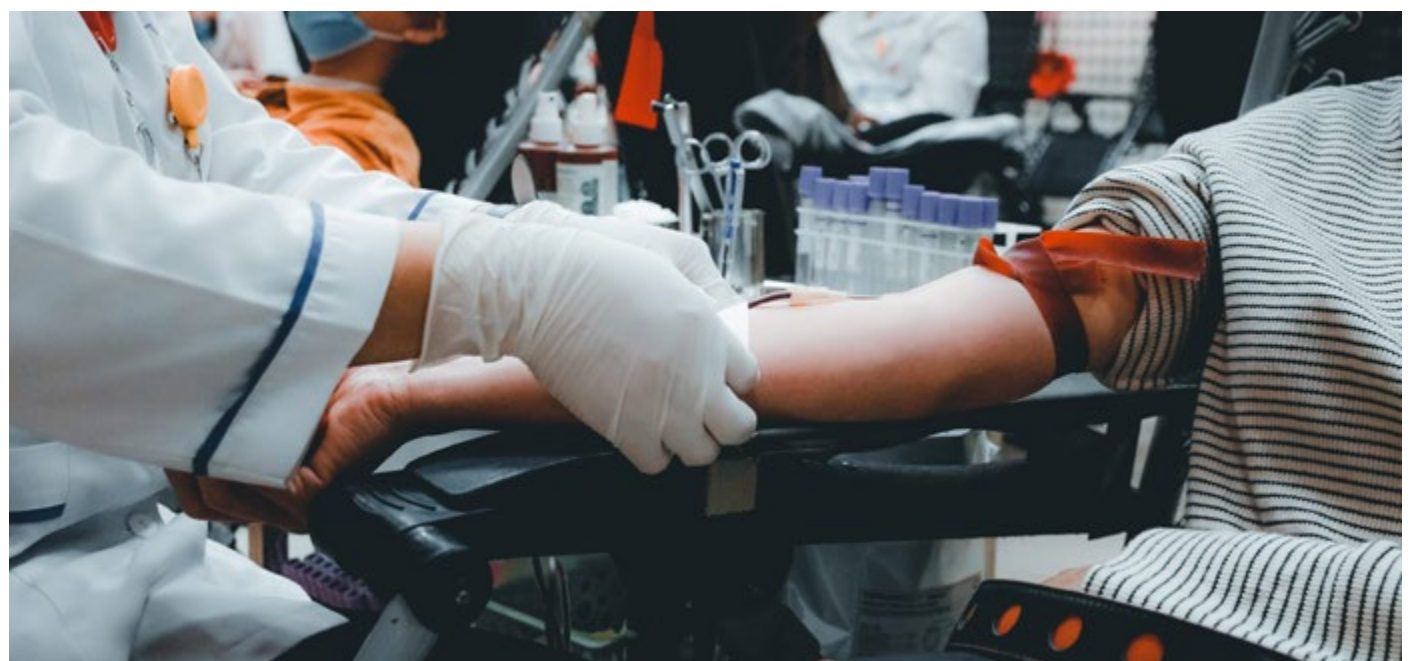
So either as a donor or recipient you are safe!

Social media and healthcare related websites have been playing a crucial role in the dissemination of facts and myths pertaining to Blood donation ever since the Pandemic was declared. However it is recommended to follow credible websites and to directly speak to your doctor for any clarifications.

The above was a bird's eye view of the need and clarifications regarding blood donation and Covid. I will consider my little effort worthwhile , after going through the above matter the little angel in your mind shouts out to you ‘ It's time to be a hero and save lives, it's time to donate blood and the time is NOW’

**Dr. Archana Shetty**, is currently working as a Blood Transfusion Officer and Associate Professor in the Department of Pathology at CDSIMER under the aegis of Dayananda Sagar University. With a teaching and diagnostic experience of over 12 years she is actively involved in blood transfusion services at the hospital.

**If at any point time one was hospitalized for Covid the proposed deferral period is 3 months from hospital discharge. Published studies and literature till date have shown that respiratory viruses like the SARS CoV2 cannot be transmitted by donation or transfusion.**



# Balanced diet and good health

■ Sejal Shrikant Shivale



**B**alanced diet is one that supplies all required nutrients in a proper amount and proportion for the balanced functioning of the human body. Eating a balanced diet is key for maintaining good health.

A balanced diet includes food from these five food groups:

1. Cereals and Millets
2. Proteins
3. Vegetables
4. Fruits
5. Fats

## Nutrients in Balanced Diet:

### 1. Carbohydrates:

Carbohydrates are a major source of energy in the diet. 60-70% calories should be from carbohydrates in the diet. It is emphasized that complex carbohydrates should be consumed rather than simple carbohydrates.

Healthier sources for carbohydrates include whole wheat flour, oats, brown rice, oats, millets like ragi, jowar, bajra which have low glycaemic index means these food sources do not raise blood sugar levels. Good health is not about giving up carbohydrates, it's about choosing healthy ones.

### 2. Proteins:

Protein is the main component of the body's cell, hair; skin. 10-20% calories should be from protein in the diet. This can be included in the form of pulses, legumes, egg, chicken, milk, cheese etc. Animal protein supplies all essential amino acids in diet as compared to plant protein.

### 3. Fats:

Fats are a major source of energy. 10-15% calories should be from fats in diet. It's all about choosing healthy fats like ghee, coconut oil, soybean oil, sesame oil instead of refined oils. Healthy fats also includes nuts, seeds etc

### 4. Vitamin & Minerals:

Vitamin & Minerals are micronutrients required in small quantities for proper functioning of the body. Requirements of vitamins & minerals are fulfilled when we include fruits & vegetables in our diet. It includes green leafy vegetables like spinach, fenugreek, amaranth & Vitamin A & C rich fruits like orange, papaya, banana, carrot, kiwi, apple etc.

**Healthier sources for carbohydrates include whole wheat flour, oats, brown rice, oats, millets like ragi, jowar, bajra which have low glycaemic index means these food sources do not raise blood sugar levels.**

**Sejal Shrikant Shivale**  
is a nutrition student at SNDT  
College, Pune.



# Podcast

*Building the next level of content consumables*



## What is a podcast?

An on-demand way of designing content, providing an inclusive two way audio communication/discussion/debate over a subject of interest.

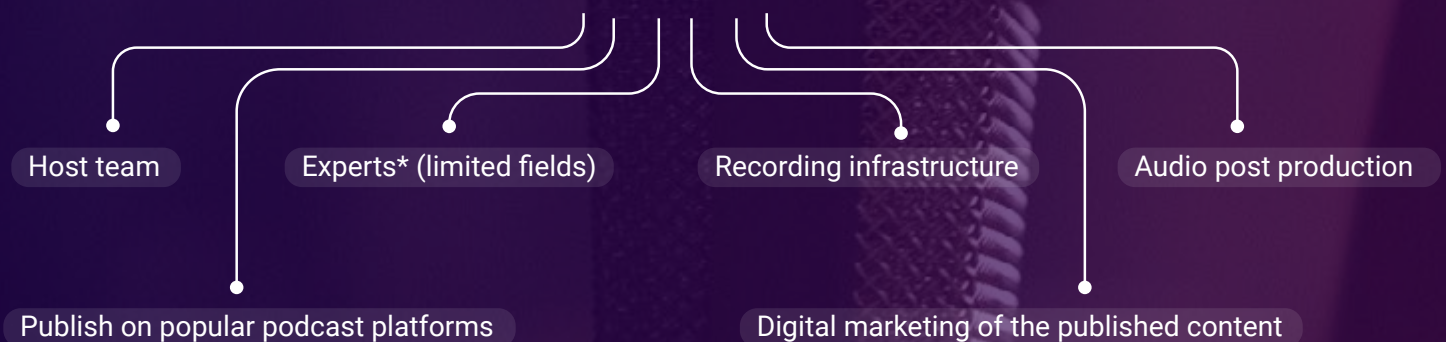
## Why a podcast?

-  *Minimal attention, maximum consumption making podcasts time efficient*
-  *On demand, making content, consumption friendly*
-  *Two way communication, making podcasts more personal*
-  *Live and pre-recorded formats, making podcasts flexible*
-  *Frugal, making podcasts cost effective*

## Why InnovatioCuris?

Our forte is healthcare innovation digital content generation. We hosted over 50 podcast related episodes in the audio and video spectrum, interviewing and handling panels involving high profile individuals and organisations. Our 95,000+ healthcare community receives podcasts on a monthly basis making it an excellent channel for your podcast propagation.

## What do we offer?



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# ► RESEARCH

## Population Explosion and Loss of Biodiversity

■ Dr. Sameer Ul Haq



**P**opulation and Biodiversity are closely related to each other and they have direct relationship with each other. Population ecology is the study of how the population of plants, animals or other organisms change over time. Critically speaking we are mentioning the population of humans here.

It was during the Independence period, India was left with many issues including population explosion along with crippled economy, poverty etc. During Independence, India was one of the most populous countries of the world with 350 million people, since then it continued to grow at a higher rate with 1.37 billion people as of 2020.

### CAUSES: Population Explosion in India

#### • Hot Climate:

One of the main reasons for the population explosion is the hot climate.

Due to tropical climate maturity comes at an early age in boys and girls, due to which they give birth to children at earliest.

#### • Early Marriage and Multi Marriage:

80% of girls of the country are married between 15-20 years. Thus the effect of early marriage comes in the form of long married life (long reproductive age period) and more childbirth.

• Poverty, Illiteracy, High life expectancy (from 35 years in 1947 to 69 years in 2021), low Death Rate (from 45 per Thousand in 1947 to 8 per Thousand in 2021), Refugee

migration etc. are some other causes of Population Explosion in India.

### Relationship between Population Explosion and Loss of Biodiversity and Its Effects:

Population Explosion has a direct relationship with Loss of Biodiversity. Population growth affect biodiversity in following ways;

**During Independence, India was one of the most populous countries of the world with 350 million people, since then it continued to grow at a higher rate with 1.37 billion people as of 2020.**

# Overpopulation and Loss of the environment is a great challenge in front of us because it puts our existence in danger.

• **Deforestation:** Human greed is the main enemy of biodiversity. More forest habitat is being converted into agricultural and urban land as it pollutes the habitat through production of waste which adds to the loss.

• **Increased Resource Consumption:** Increase in resource consumption is directly proportional to overpopulation, more the population more resources are needed for existence.

• **Farming Impacts:** Due to increase in population, demand for food has also increased. This is achieved by cutting down forests more or less with government support to convert forest land into agricultural land. As a result of this practice, forest area is shrinking day by day thereby damaging the environment and natural habitat.

• **Pollution:** Increase in population leads to increased waste production thereby polluting the environment and habitat.

• **Eutrophication:** A process by which water bodies are enriched with minerals or chemical substances that increase in phytoplankton production. This is through direct or indirect human activity.

Direct Activity includes Sewage Deposition in or around water bodies. Indirect Activity includes washing away fertilizers ( from agricultural land) or other chemicals during floods.

• **Global Warming and Climate Change:** Another negative impact of overpopulation is in the form of Global Warming. Global Warming is a current challenge of almost all the countries in common and Southeast Asia ( India) in particular. There have been many agreements by different countries to tackle climate change and global warming. One of them is the Paris Agreement 2015, according to which the signatory countries are expected to lower their carbon emissions. India is also a signatory

of this agreement.

• **Increased Emergence of new Pandemics due to Overpopulation and its effect on Environment:** There's a strong correlation between emergence of new Pandemics and Overpopulation. According to Dr Peter Daszak due to the increase in population we are witnessing new variation and emergence of more diseases.

## Solutions and Future Policies To Prevent Overpopulation and Loss of Biodiversity

**Solutions to Overpopulation:** Overpopulation is the problem that didn't arise overnight and nor it's solution can be made in a day. Overpopulation is a very complex process to tackle and is a long term process which needs a long term planning.

• **Legislation:** Legislation is an important factor to tackle overpopulation. Recently the Population Control Bill was proposed in 2019 to control the population growth of India. The bill was proposed but unfortunately it is yet to become a law in the country.

• **Family Planning**

• **Women Empowerment**

• **Education ( Sexual and Adult Education) about the control methods (Contraception).**

• **Poverty Alleviation ( Equity, Opportunity, Empowerment).**

• **Maternal Education ( One of the main approaches to reduce IMR and decrease Poverty).**

**Solutions to Conserve Biodiversity:** By reducing Overpopulation has a direct effect on biodiversity conservation. We can conserve biodiversity through different approaches viz;

• **Effective Legislation:** Legislation to conserve natural habitat and natural resources.

• **Afforestation:** This is an important and long term approach to tackle climate change, global warming and to conserve biodiversity.

• **Reduce Climate Change:** Global Warming can be reduced by minimising carbon emissions and shifting to alternative energy sources as signed to Paris Agreement 2015.

• **Sustainable Living:** Sustainable Living is something that can be done at an individual level. It helps to reduce resource depletion.

• **Use Of Eco Friendly Products**

Overpopulation and Loss of the environment is a great challenge in front of us because it puts our existence in danger. The fact is we can't compensate for the loss we have done to our environment but it is our responsibility to protect it from further damage by taking small steps that could surely make a big change in the environment like from closing a running tap during brushing teeth to planting a tree.

Are we really doing justice to our environment?

**Dr. Sameer Ul Haq** is doing his Masters in Public Health from Indian Institute of Public Health, Shillong. He has many achievements to his badge in various fields like Public Health, Global Health, Epidemiology besides having clinical skills. He is currently working on a Mental Health project.



# Destructive Creation to Creative Destruction: COVID-19 and Healthcare Innovation

■ Dr. Kanchan Mukherjee



COVID-19 has widened the chasm of institutional voids already existing within the Indian society. Although institutional voids are impediments to effective transactions and the spread of beneficial services (such as reliable healthcare), they are also opportunities for entrepreneurial and innovative interventions. Entrepreneurship as the economist Joseph Schumpeter described is a process of 'creative destruction' by pushing through and successful introduction of a new product, method of production, market, organization or combination of already existing means through innovation for solving meaningful problems and value creation.

Health innovation as defined by the World Health Organization (WHO) is to develop and deliver new or improved health policies, systems, products and technologies, and services and delivery methods that improve people's health and wellbeing. Healthcare entrepreneurship and innovation responds to unmet public

health needs by creating new ways of thinking and working with a focus on the needs of populations. It aims to address these voids and add value in the form of improved efficiency, effectiveness, quality, sustainability, safety and affordability.

**Healthcare entrepreneurship and innovation responds to unmet public health needs by creating new ways of thinking and working with a focus on the needs of populations.**

## The healthcare sector is transforming by digital bytes, novel organisms and personalized genetic interventions.

With the COVID-19 pandemic hitting India hard especially in economic hotspots like Mumbai, and healthcare system struggling to cope, innovation and entrepreneurship could be the potential vital bridge to fill the gap in the healthcare system. Healthcare startups which are a reflection of the Indian healthcare innovation sector is the second largest startup sector in India and shown a high growth rate in recent years, and India has emerged as the third largest startup economy in the world. With favorable government policies, innovators in healthcare sector have identified ways to deliver effective healthcare at significantly lower cost, while improving access and increasing quality and contributing to the growth of healthcare sector. COVID-19 provides a unique opportunity to leverage this start up sector to address the current situation in India as well as for the future.

With social distancing norms and movement restricting protocols, direct face to face consultations between doctors and patients are going to be events of the past. Disruptive technologies driven by technology platforms linking doctors and patients, low cost medical devices, technology-enabled diagnostics, artificial intelligence and telemedicine will become the norm rather than exception in the future and will shape the future of healthcare in India. The potential and reach of technology is enormous and if tapped constructively and effectively could reach out to remote corners of India, plagued by shortages of healthcare work force.

Unfortunately, healthcare can be a sectorally compartmentalized and local activity resulting in innovations which are not widely known across different systems or beyond sector boundaries. Hence, just identifying and promoting innovations isn't enough, but it is important to understand whether, and how, these innovations are addressing health system challenges of access, equity and quality. In this context the role of Health Technology

Assessment (HTA) for understanding the value of health innovations becomes important to inform policy decisions. While, HTA has become an established multi-disciplinary tool in the developed countries with well-established systems in place, its adoption in low-middle income countries like India needs to be contextualized. The SMART framework for HTA development is a useful tool in this context especially for low and low-middle income countries like India. The first HTA from South Asia on a COVID-19 diagnostic medical device was conducted on the innovative FELUDA diagnostic test, which showed the value of this innovation in terms of efficiency, equity, and sustainability of healthcare systems.

As health systems leaders and policy makers worry on their cost, quality, and access problems, the fact remains that at least some potential solutions already exist. Innovators around the globe including India have demonstrated effective ways to improve quality and lower costs through novel ways of preventive, promotive, curative, rehabilitative and/or assistive care. The real challenge lies in implementing in local settings and subsequent scaling up.

While epidemiologists and economists create models to try to predict the future of COVID-19, perhaps it is an opportune time for leaders to become 'role models' as

**The SMART framework for HTA development is a useful tool in this context especially for low and low-middle income countries like India.**

'policy entrepreneurs' and use effectuation principles and an opportunity based approach using episodic knowledge to make decisions for providing a coherent sustainable eco system for the large scale implementation of successful healthcare innovations. This would be a big step towards filling the chasm of institutional voids within healthcare.

The healthcare sector is transforming by digital bytes, novel organisms and personalized genetic interventions. In such an environment, leadership in healthcare organizations requires entrepreneurial talent and healthcare organizations need to transform their administrative focus by restructuring themselves into opportunistic and innovative firms that build trusting relationships with their stakeholders. With the number of cases and deaths due to COVID-19 rising every day, it has become the face of a 'destructive creation' of nature. However, COVID-19 also provides an opportunity for application of innovation and entrepreneurship in healthcare to creatively destroy inefficiencies, inequity, poor quality and become a transformative tool for 'creative destruction'.

**Dr. Kanchan Mukherjee** is a medical doctor who specializes in public health, health policies and systems, economic evaluations, Health Technology Assessment (HTA) and health innovation research. He is professor at the Centre for Health Policy, Planning and Management at the Tata Institute of Social Sciences, Mumbai.

# ► NEWSCOPE

## LATEST NEWS IN HEALTHCARE

### APOLLO HOSPITALS LAUNCHES ACECC TO CREATE INTEGRATED NETWORK OF EICUS ACROSS ITS NETWORK HOSPITALS AND BEYOND

*As we realise the need for building a resilient healthcare system; our healthcare industry is leapfrogging towards digitalisation, digital technology is evolving and making our healthcare smarter by the day. Apollo hospitals have taken a big step towards augmenting India's critical treatment facilities and creating capability for high end critical care by launching digital tech enabled Critical Care Units (CCUs) having standard protocols and operating procedures (SOPs) supported by smart solutions.*



**A**pollo Hospitals launched the Apollo Centre of Excellence in Critical Care (ACECC) to create an integrated network of eICUs to provide critical care not just across the Apollo Hospitals network but also in partnership with non-Apollo units in India and abroad. The ACECC will enable wider and timely access to critical care and help in implementing a standardised scope of management and treatment

in emergencies and critical medical situations.

Apollo Hospitals is currently the largest critical care provider in India with over 25% of its in-patient bed capacity designated for critical care. Critical care, also referred to as Intensive care, deals with critically-ill patients who require intensive care for various medical conditions that are immediately life-

threatening but reversible.

Dr. Prathap C Reddy, Chairman, Apollo Hospitals Group said, "Critical illness leads to millions of deaths each year. However, critical care faces challenges due to factors such as lack of prioritisation, coordination, timely identification and availability of basic life-saving treatments. At Apollo Hospitals, we have the vision, expertise and ability to transform critical

care for India and beyond through excellence in outcomes in an evidence based cost effective manner. The Apollo Centre of Excellence in Critical Care will be instrumental in turning this vision into reality.”

The ACECC will comprise digital technology enabled Critical Care Units (CCUs) having standard protocols and operating procedures (SOPs) supported by smart solutions. This will enable expansion of the critical care network through e-ICUs using Tele-health and Apollo Connect. The ACECC will also focus on evidence-based protocols, training, and capacity building of critical care specialists.

Preetha Reddy, Executive Vice Chairperson, Apollo Hospitals Group said, “The COVID pandemic highlighted the challenges faced by the country with regard to its critical care infrastructure. Studies have indicated that India has just 2.3 critical care beds per 100,000 population as against 10 to 11 beds per 100,000 population in developed countries like South Korea and Singapore. The pandemic brought to the fore the need for augmenting India’s critical treatment facilities and creating capability for high end critical care. The ACECC will be based on a network of hub-and-spokes units between Apollo and non-Apollo providers, both public and private, to ensure that every citizen has access to the best of critical care when needed.”

Critical care is delivered by critical care specialists, who are also referred to as intensivists. An intensivist is specially trained to manage the broad range of conditions that are commonly found in critically ill patients. They also need to be aware of the various procedures and devices used in an intensive care setting, and the technology that powers it. They will also collaborate with other specialities that are relevant to individual cases.

Suneeta Reddy, Managing Director, Apollo Hospitals Group said, “Critical care in the country today faces multiple challenges ranging from lack of trained staff and equipment and a lower priority given to emergency and critical care as compared to other specialities. The ACECC will enable quality critical care with a reduction in morbidity and mortality by encompassing the entire gamut of critical care backed by appropriate training of healthcare professionals. Integrated education and training through Medvarsity will ensure up-to-date clinical knowledge for the healthcare physicians and staff. International partnerships will create an environment for excellence in clinical standards, education, research and support.”

Dr Sangita Reddy, Joint Managing Director, Apollo Hospitals Group said, “There was tremendous pressure on critical care during COVID-19 surge, but resilience and undiluted commitment of the intensivists ensured delivery of care of the highest standards given the circumstances. ACECC will oversee an integrated critical care network, leveraging our collective strength across the group, and will ensure that we take the speciality to a different level not only in the country but also build a global model for the same.”

Dr. K. Hari Prasad, President, Hospitals Division, Apollo Hospitals Enterprises said, “The country faces a resource mismatch with 80% of physicians working in urban areas and 70% of the population residing in remote locations. The ACECC will help in overcoming variability in expertise and critical care delivery and provide smart solutions to the national shortage of critical care experts.”

Critically ill patients present with a different set of challenges from in-patients in other specialities. They require constant monitoring, care and support,

which makes the role of critical care vital to the patient’s health. A patient in a critical care unit has an entire team of specialised physicians, nurses, and other medical staff to look after every need.

Professor Ravi Mahajan, Director, Critical Care Integration and Transformation, Apollo Hospitals Group said, “The launch of the Centre heralds furthering Apollo’s ambition to make high quality, affordable Critical Care expertise available even to the remotest parts of India. It will be a focal point for national networks and international collaborations achieving excellence through standard setting, developing protocols, quality improvement programmes, education and research”

While talking about the accessibility and affordability aspect of E-ICUs, a spokesperson from Apollo Hospitals said, “Through this initiative, critical care will be provided in tier-2 and rural areas where access to critical care is non-existent. The cost will be much lower than a patient travelling to a large hospital in a city for these services. Apart from lower medical costs, logistic costs like travel and loss of daily earnings of the family will be saved.”

Talking about training of the staff, the spokesperson said, “The local hospital staff will be trained using our training platforms first to work with our command centres and then further enhance their skills to handle some of the cases themselves and gradually become self-sufficient. The specialists will monitor, advise and guide treatment of a patient in a remote area. ACECC is currently connected with 500 beds through one hub in Hyderabad. With the launch of Chennai and Madurai hubs in a week another 500 beds will be added. The goal is to connect 10000 beds over a period of one year.”

SOURCE: [www.financialexpress.com](http://www.financialexpress.com)

## ONLINE VIDEO LIBRARY ON MEDICINES MEDWIKI LAUNCHED TO SUPPORT INDIANS UNDERSTAND THEIR MEDICINES

*In the era where everyone turns to Google before taking any medicine, and where medicines are more freely available in the market, it’s very important for an individual to understand that every medicine acts differently to different*

individuals to a certain extent. Also, the source of information should be considered while acting on the information available. Keeping all this in mind, Medwiki launched a video library to help the Indian population understand medicines in a better way. This could be very helpful with the increasing digitisation and with increasing teleconsultation.



**M**edwiki, an online video library on medicines with more than one lakh medicine videos (<https://medwiki.co.in/>) has been launched recently to support Indians understand their medicines better.

Medwiki is a search engine-based video library through which any Indian can search the name of the medicine patient has been prescribed. The videos are made by Medwiki's trusted trained pharmacists in simple language to answer the top 4-5 questions customers typically have about the medicines. The videos have crossed a viewership of more than 10 million on YouTube.

“There is too much information on the Internet with answers to all sorts of

questions, be it on weight loss, Covid testing or pertaining to diabetes or heart diseases. However, surprisingly, people forget to ask the most basic questions of their everyday life— What is this medicine? How should I take it? How does it work? 95% of Indians are not aware of what their medicine is, which is leading to poor compliance and adherence to it. Due to lack of knowledge, people end up consuming the wrong substitutes of medicines, thereby affecting their health. Medwiki has been created to answer these essential questions and empower the patients with the right knowledge on their medicines. We have started Medwiki in English and Hindi and soon plan to make the videos available in 6-8 vernacular languages,” said Amit Choudhary, Founder-Chief Executive

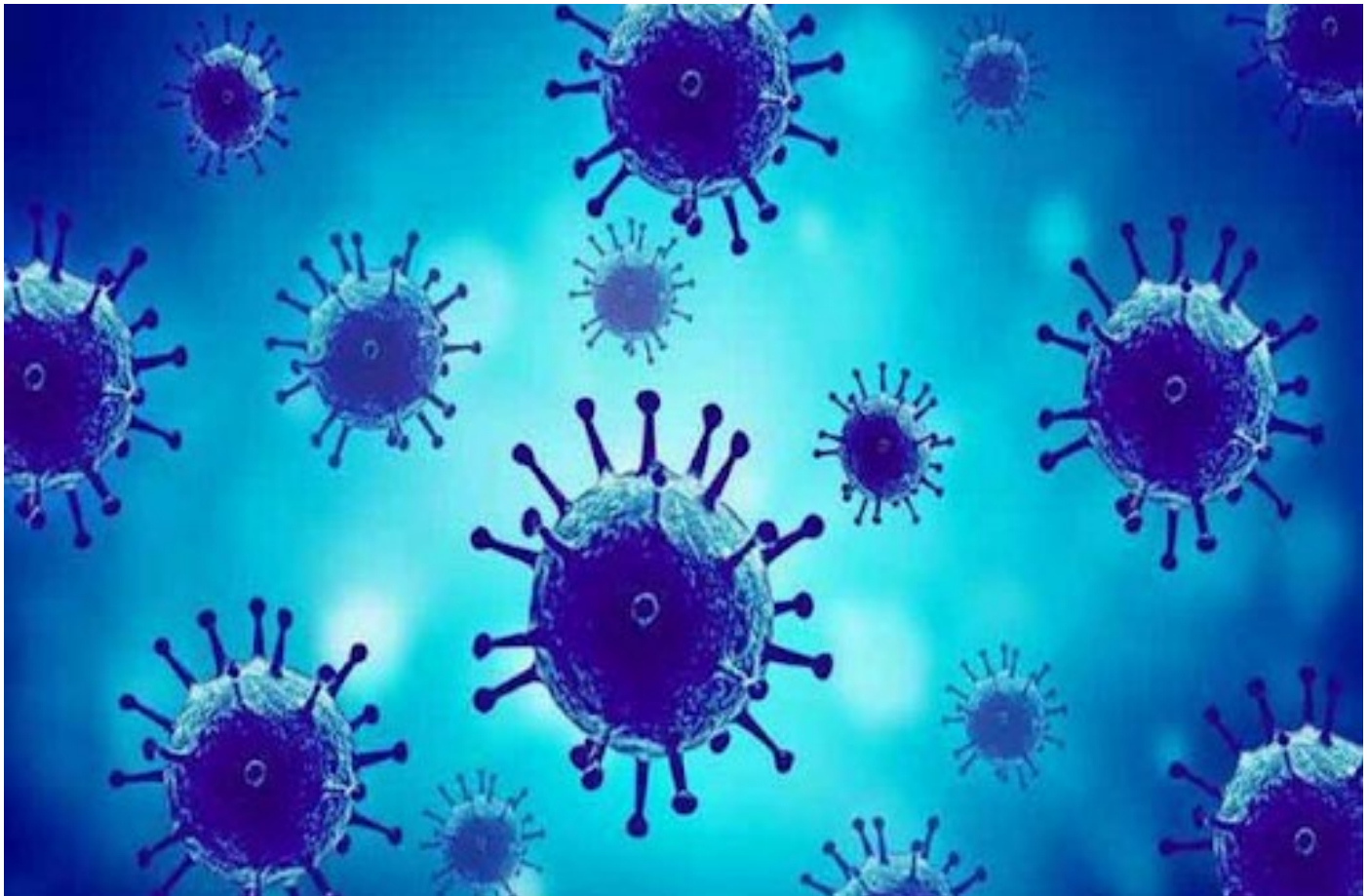
Officer, Medwiki.

According to Choudhary, factors such as growth in Internet, smart phones, increased data penetration and social media platforms across the country can be utilised to make better technological tools to drive better engagement with healthcare customers. This will lead to better healthcare management and consumption among the Indians. “Medwiki is just the beginning. We have many resources that will help Indians navigate the complexities of our healthcare system. When people are armed with information, they have better access to care, which ultimately leads to improved health outcomes,” said Mr. Choudhary.

**SOURCE:** [www.financialexpress.com](http://www.financialexpress.com)

## GOVERNMENT LAUNCHES 'ONE HEALTH' CONSORTIUM FOR SURVEILLANCE OF BACTERIAL, VIRAL INFECTIONS

*The pandemic has definitely taught everyone of us that health is the most important aspect of one's life. It has also taught us that the health of people is closely connected to the health of animals and also our shared environment. Hence the government of India launches 'One Health' principles in the governance of infectious diseases, especially efforts to prevent and contain zoonotic diseases throughout the world.*



The Department of Biotechnology has launched a 'One Health' consortium that envisages carrying out surveillance of important bacterial, viral and parasitic infections of zoonotic as well as transboundary pathogens in the country. The project also looks into the use of existing diagnostic tests and the development of additional methodologies for the surveillance and understanding the spread of emerging diseases, the DBT said in a statement.

Dr Renu Swarup, Secretary, Department of Biotechnology, launched the First 'One Health' project of the DBT through video conferencing on Thursday. The

consortium envisages carrying out surveillance of important bacterial, viral and parasitic infections of zoonotic as well as transboundary pathogens.

Noting that the COVID-19 pandemic showed the relevance of 'One Health' principles in the governance of infectious diseases, specially efforts to prevent and contain zoonotic diseases throughout the world, Swarup emphasised on a holistic approach to understand the health of human, animals and wildlife to minimise the damage caused by future pandemics.

Swarup said the 'One Health Consortium consisting of 27 organisations led by

DBT-National Institute of Animal Biotechnology, Hyderabad, is one of the biggest health programmes launched by the government in post-Covid times.

The consortium consists of AIIMS, Delhi, AIIMS Jodhpur, IVRI, Bareilly, GADVASU, Ludhiana, TANUVAS, Chennai, MAFSU, Nagpur, Assam agricultural and veterinary university and many more ICAR, ICMR centres and wildlife agencies.

**SOURCE:** [www.financialexpress.com](http://www.financialexpress.com)

## ASTRAZENECA, INDIA-SWEDEN HEALTHCARE INNOVATION CENTRE JOINTLY LAUNCH NURSES UPSKILLING IN NCD PROGRAM

*We all have dealt with two Covid waves and our front line workers have successfully saved hundreds of lives with their tireless efforts and sheer dedication. In this need of the hour not only the doctors played a crucial role but also we can not overlook the efforts and sacrifices our nurses have made. And we as an industry have definitely realised that they too have the experience then why not share that knowledge as well. This can fill in the skills gap recognised. Hence the modules of NUN program are carefully designed to enable nurses to deliver specialized care, essential support services and standardized counseling for patients living with high incidence NCDs in India.*



AstraZeneca India and India-Sweden Healthcare Innovation Centre has jointly launched a specialized training program named Nurses' Upskilling in NCDs (NUN) program for nurses to equip them with world-class practical knowhow to manage Diabetes. In the first training, 30 nurses from All India Institute of Medical Sciences (AIIMS), Jodhpur will be trained for two days.

The modules of this program are carefully designed to enable nurses to deliver specialized care, essential support services and standardized counseling for patients living with these high incidence non-

communicable diseases (NCDs) in India.

India-Sweden Healthcare Innovation Centre has been created to address the healthcare challenges in the country through interventions like technology, protocol, process and capability building. This is built under strategic guidance from the Union Health Ministry, the Indian Council of Medical Research (ICMR), the Government of Sweden's Ministry of Health and Social Affairs and the Embassy of Sweden in India, and knowledge partners AstraZeneca and NASSCOM.

In a phased manner, this capability program aims to upskill 5000 nurses

across the country in the next one year by converting the current modules into e-learning. The program also aims to expand the current curriculum to other NCD areas including Hypertension, Cardiovascular diseases and Oncology.

"Nurses hold transformative power in tackling any disease. The primary idea behind this initiative is to create a framework that can enhance primary, secondary and tertiary care in India. The program we are launching deeply focuses on enriching our nurses with hands-on knowledge and specific skills required to practice and promote up-to-date patient centric care", said Cecilia Oskarsson,

Trade Commissioner of Sweden to India

As per WHO, 1 in 4 Indians has a risk of dying from a non-communicable disease before they reach the age of 70 years. Dr. Sanjeev Misra, Director, AIIMS Jodhpur said, “Nurses are a vital layer of any healthcare ecosystem that is instrumental in achieving the health and development goals of a country. As a part of India-Sweden Healthcare Innovation Centre, we are proud to have developed a scalable training programme that would help nurses to not only deliver safe essential health services but also influence and educate patients towards understanding and managing a NCD.”

This program is curated from the rich and diverse resources available within the NCD domain following the National Programme for Prevention and Control of

Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) guidelines.

“Nurses in our country are an important touch point that can be leveraged to spread correct medical information to assess and manage these critical lifestyle diseases. Capacitating and up-skilling nurses can prove to be a boon in ensuring the delivery of affordable, standardised and safe essential health care services. Through this initiative, we continue our commitment to address the growing burden of NCDs by setting up solution oriented centres of excellence that could focus upon upskilling, impactful solutions and scalable operations,” said Dr. Anil Kukreja, VP Medical Affairs, AstraZeneca India

The training program is targeted to empower nurses to better recognize the

risk factors, causes, pathophysiology, screening methods, diagnostic tests and management of diabetes mellitus, hypertension and other NCDs. They will also be able to advise patients and the community on the importance of early and regular screening and adoption of healthy lifestyle.

The initiative will run under the aegis and direction of an Advisory Committee under the chairmanship of Prof Suresh K Sharma, Professor and Principal, College of Nursing, AIIMS, Jodhpur. The advisory committee is being formed comprising of key dignitaries from AIIMS Delhi, AIIMS Jodhpur, Directorate General of Health Services (DGHS), Indian Council of Medical Research (ICMR), University College of Medical Sciences (UCMS), AstraZeneca India, and Business Sweden.

SOURCE: [www.financialexpress.com](http://www.financialexpress.com)

PERSONA

INNOVATIONS

WELL-BEING

IN FOCUS

RESEARCH

NEWSCOPE

## INDIA'S FIRST MEDICAL COBOTICS CENTRE TO BE DEVELOPED AT IIT-DELHI

*The pandemic has shook the entire world and has made us realise that though no amount of technology can replace human emotions and concern, it sure can be very helpful and supportive to have access to technology by your side in case of such a crisis. As we all saw how assistive robots were helpful in day to day activities under a hospital setting, be it in case of sanitization or be it in case of reaching out to patients with some inventory. Hence it is really important to get the doctors and experts well equipped with such technology driven care.*





The technology innovation hubs of IIT Delhi (iHub foundation) and IIIT Delhi (iHub Anubhuti) will collaborate to develop India's first Medical Cobotics Centre (MCC) at IIITDelhi. The hubs, funded by the Department of Science and Technology (DST), will develop training programs in consultation with leading doctors and healthcare experts.

The planned Medical Cobotics Centre (MCC) will be a technology enabled medical simulation and training facility for the young resident doctors to equip them with advanced technological knowledge. The centre will also act as a validation centre for research outcomes in the area of healthcare robotics and digital health in addition to facilitating the training of other healthcare professionals, paramedical staff, technicians, engineers, and researchers.

Project leaders from IIT-D and IIIT-D informed that though there are several medical simulation centres for providing training to the resident doctors, there is none dedicated to developing these technologies and their validation. MCC will develop strategic partnerships with companies, undertake expert driven research and will also work towards commercialization of technologies.

Healthcare experts from renowned

medical institutions like All India Institute of Medical Sciences (AIIMS) at New Delhi, Jodhpur, and other medical colleges have been taken on board to develop training programs under the project. The training programs would be conducted for multiple levels (basic/advanced) of expertise in line with the National Education Policy for medical subjects. They will also be cohort-specific including cohorts like urology, neurology, laparoscopy, but initially limited to minimum invasive surgeries.

The first batch of trainees will be inducted in April/May 2022 with some of the basic training simulators. Advanced medical technology like the surgical robots will be inducted in the next phase.

Trade Commissioner of Sweden to India

As per WHO, 1 in 4 Indians has a risk of dying from a non-communicable disease before they reach the age of 70 years. Dr. Sanjeev Misra, Director, AIIMS Jodhpur said, "Nurses are a vital layer of any healthcare ecosystem that is instrumental in achieving the health and development goals of a country. As a part of India-Sweden Healthcare Innovation Centre, we are proud to have developed a scalable training programme that would help nurses to not only deliver safe essential health services but also influence and educate patients towards understanding and managing a NCD."

This program is curated from the rich and diverse resources available within the NCD domain following the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) guidelines.

"Nurses in our country are an important touch point that can be leveraged to spread correct medical information to assess and manage these critical lifestyle diseases. Capacitating and up-skilling nurses can prove to be a boon in ensuring the delivery of affordable, standardised and safe essential health care services. Through this initiative, we continue our commitment to address the growing burden of NCDs by setting up solution oriented centres of excellence that could focus upon upskilling, impactful solutions and scalable operations," said Dr. Anil Kukreja, VP Medical Affairs, AstraZeneca India

SOURCE: [www.health.economictimes.indiatimes.com](http://www.health.economictimes.indiatimes.com)

Compiled by:

**Parthvee Jain, Editor**  
InnoHEALTH Magazine

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# IC InnovatorCLUB

## Tenth meeting report

### POLLUTION AND DISEASES

#### ■ Parthvee Jain

Pollution receives a fraction of the interest from the global community. This is in part because pollution causes so many diseases that it often makes it difficult to draw a straight line between cause and effect.

To understand this and as an effort to sensitize the concern, InnovatioCuris Foundation of Healthcare & Excellence (ICFHE) organised its tenth virtual IC InnovatorCLUB meeting on Nov 11th on the theme "Pollution and Diseases".

The evening saw and heard some of the experts' opinions and suggestions including words from Dr. VK Singh, Managing Director, InnovatioCuris; Dr. Sunil Kumar, Sr. Scientist, CSIR-NEERI, Nagpur; Mr. Yash Dadhwadi, Area Director India & Bangladesh, RiverRecycle OY, Finland along with others.

As every chilling winter we hear more and more cases of increased pollution and its related diseases. According to stats, about 18% of the deaths are caused due to pollution in India.

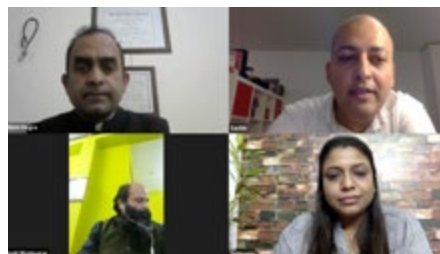
Delhi is the most polluted city followed by Kolkata, Mumbai and Chennai. But the real question and concern is, how much political will is there to tackle the pollution?

Addressing this Dr. Singh said, "should we really have to wait for the media to highlight the issue to act upon, or for supreme court PILs to be raised to address the issue? What are some of the necessary steps to be taken in." With this food for thought in mind, the evening proceeded with its session further.

Throwing some light on solid waste management & soil pollution and also

discussing the issue of improper disposal of solid waste without proper segregation was Dr. Sunil Kumar. Solid waste or rubbish being the most visible form of pollution, is disposed of in billions of tonnes every year, hence making the condition even more severe.

Since there is a disconnect among the local municipalities, all the garbage



collected and being delivered to the final dump sites, particularly due to lack of resources or any adequate infrastructure for the management, is being done incorrectly which has major health consequences causing various negative externalities to environments. There are a lot of impacts of solid waste on the health of preschool children, oil rig pickers, facilities manufacturing workers among others living nearby to the dump sites. Hazardous Waste exposure can have a negative impact on human health, particularly children being exposed to these contaminants.

He also touched upon the concerns caused by chemical pollution/poisoning

which is caused by the release of chemical waste into the environment. He also suggested how the treatment and disposal facility can potentially pose a health risk to the surrounding community. And inefficiently incineration plants pollute the air and poorly managed and built landfills attract a variety of disease carrying insects and rodents and hence these places should ideally be situated at a safer distance from any human settlement.

Plastic waste, Electronic waste and wet solid stream are the emerging concerns for the human race. Plastic pollution and waste is everywhere, not just in the oceans. There is plastic, a lot of it, in the Himalayas and the Sahara. An average person in our modern society breathes in and drinks hundreds and thousands of tiny particles of plastic every day. Plastic also pollutes beyond just being littered. In the process of making it, sometimes the chemicals used to make it seep out, plastic releases toxins into the environment. These chemicals are now in the blood of nearly every person on Earth, even the unborn ones. Some are known or suspected of causing a broad range of health problems including birth defects and brain damage.

Talking and sharing his experience on river plastic pollution we had Yash Dadhwadia. He shared that about 12 million metric ton plastic reaches the oceans every year. Soon, if not already, the weight of all the plastic in the world's oceans will weigh more than all of the oceans' fish. This also affects marine life; much of this plastic is in the fish themselves. Marine animals like turtles and others, especially seabirds, mistake plastic for food. Although it is not digestible to them, it gives them the sensation of being full so the animal then starves to death.

And hence it requires attention from the authorities and finding new ways to address our environmental challenges is reliant on our ability to foster innovation to find ways of driving systemic change. To support such innovation and progress towards circularity, Huhtamaki partners with RiverRecycle and VTT to develop technology to tackle floating river waste and new technology river waste collectors are now operational on the Mithi River in Mumbai, India. This will need cooperation across the value chain with key stakeholders to address global sustainability challenges, for example such as in this case marine plastics.

Such initiatives could be a boon to manage the waste on the shores of the most polluted rivers, collecting and recycling plastic waste and floating debris and saving the environment from being polluted.

Moving ahead we had expert opinion and suggestions from Dr. Debleena Bhattacharya on water pollution. As we all know, we only have 3% fresh water that can be used for drinking, irrigation and bathing that is for our daily use. Dr. Bhattacharya shared that there are four major causes for the pollution, namely, Unethical farming practices, Illegal disposal of industrial waste water, Population growth posing rise in fresh water demand and Microplastics.

As Dr. Debleena shared, according to the recent data, 1.1 billion people worldwide lack the access to clean drinking water and a total of 2.7 billion people find water scarcity and hence the inadequate sanitation; as well as 2.4 billion people around the world are exposed to diseases such as cholera and typhoid. So, in the recent study, we have seen that 2 million people, mostly children, die each year due to diarrheal diseases alone. So, this data is really something that we should be concerned about.

She also suggested that we monitor our dietary habits to avoid foods that require too much water during its irrigation, such as Avocados and replace it with a substitute that requires far less water to be cultivated such as raw coconut. Nowadays people are going for making this superfood into farming practices but are unaware of the fact that it requires 320 litres per avocado that is 64 times more

than a simple tomato vegetation that has been grown. And invariably, by 2050, for places like California it is said that it will be having water problems because already so much water has been consumed by this illegal or illegal practice of farming.

A recent study of IIT Madras done over the Kaveri river shows there are a lot of pharmaceutical residual products, personal care products and miniscule particles of plastics are being disposed of. These discarded components still remain in the water even after treatment and then we intake them along with the water which causes the residual deposits in our body which causes health issues in adults and also in newborns. Dr. Debleena also shared how the microplastics' deposits are creating problems in the food chain and how it will also remain harmful for the generations to come. Because of the biomagnification that we are having, it is of concern for us and for our future generations that we need to control this pollution. And also we need to curb these problems in the near future.

Next the panel saw another expert, Mr. Amit Bhatnagar who talked about how the quality of air is being affected nowadays and how entrepreneurs like him are trying to curtail the issue. He categorises the challenge into two categories, one being the challenge of awareness or psychological ignorance and other being the innovative way to tackle the problem. Air pollution kills an estimated 7 Mn people worldwide every year. Data from WHO shows that almost all of the global population (approx. 99%) breathe in air that exceeds the WHO approved limits containing high levels of pollutants, with low- and middle-income countries suffering from the maximum or highest exposures. WHO is supporting countries to address air pollution. From smog floating over cities to smoke inside the home, air pollution poses a major threat to the health and the climate. The combined effects of ambient (outdoor) and household air pollution cause millions of premature deaths every year, largely as a result of increased mortality from stroke, heart disease, acute respiratory infections, chronic obstructive pulmonary disease and lung cancer.

Mr. Amit shared how they have made an effort to clean the air for the masses by his innovative solution that can harness the energy of moving vehicles and clean

the air while the vehicle is running on the road.

Up next we had Dr. Nitish Dogra who highlighted the six aspects of the pollution - why, when, where, who, what and how. Very beautifully he explained how the pregnant mothers are being the most affected ones and how the birth weight is going down due to increasing pollution. He also explains why the increasing pollution should be of concern and is affecting not only lungs but also heart and brain. He also touched upon where one should be taking the necessary action and when should one move out to act to cater to this problem.

Exposures to environmental pollution remains a major source of health risk throughout the world, though risks are usually higher in developing countries as compared to developed ones, where poverty, lack of investment in modern technology and weak environmental legislation contribute to high pollution levels. Associations between environmental pollution and health outcomes are, however, complex and often poorly characterized. But what is most important is that many of the risks and health effects are readily avoidable. The need of the hour is preventive action to reduce the emission of pollutants into the environment in the first place—and that is largely achievable with existing know-how.

Do let us know if you have any interesting ideas that you would like to implement to cater to these issues or have already implemented in your neighbourhood. We will be happy to hear.

Compiled by:

**Parthvee Jain**, is an engineer with specialization and interests in fields of Biotechnology, Healthcare, Food Processing, and Nutraceuticals. Currently working to build key partnerships to impact people's lives in emerging markets through technology and entrepreneurship. She has an expertise in the area of organising and handling virtual events and also in strengthening the collaboration across national and international organisations.

# ▶ BOOK REVIEW

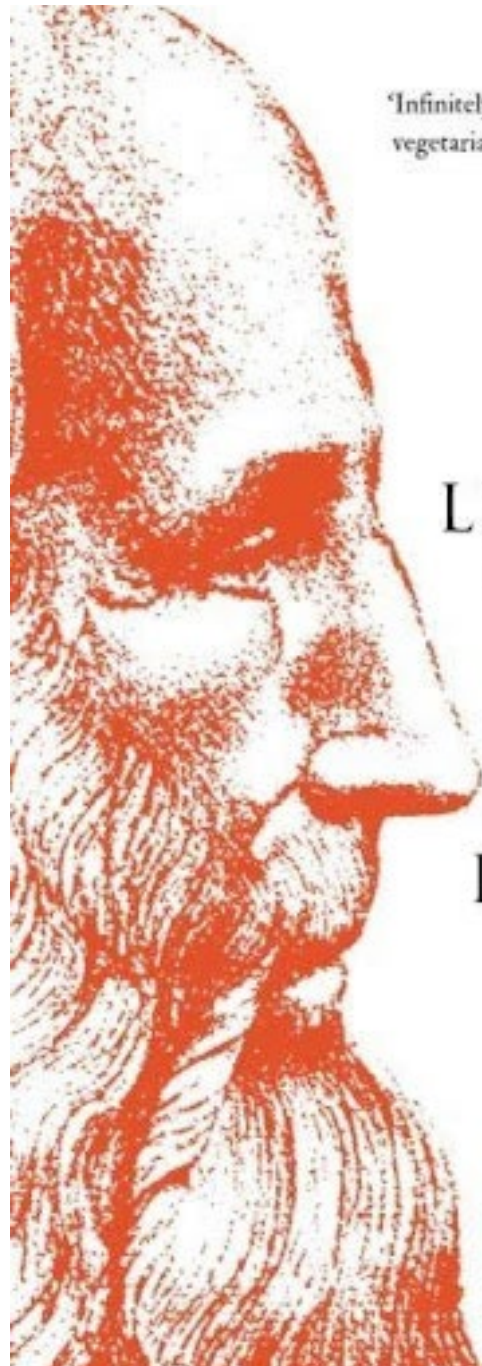
Reviewed by Sachin Gaur, Executive editor for InnoHEALTH Magazine

**M**y first book from Walter Isaacson was the biography of Steve Jobs and after reading that book I even got an opportunity to meet him in Delhi. His writing style is so intriguing that one cannot put the book down. My last read from him was the code breaker about the work of Jeniffer Doudna's life story and on CRISPR. So, I thought let me explore more titles from the master writer. Writing about someone who is living and around might be easy but writing about someone who is enshrined in history can be too easy or too difficult. To find something original that has not been written before or documented is probably difficult. Since then I have read all works of Walter Isaacson and the Da Vinci biography stands out amongst all.

Walter Isaacson has done wonderful on the literary part and through his writings it shows that he must have enriched himself greatly to culminate the amalgamation of Italian context and its history to showcase the Italy of 15th century. It is an interesting book that gives a perspective into the life of Da Vinci.

The book demonstrates the amount of labour and effort that Leonardo has to spend on the human body (dead and alive) to get the perfect curves for his sketches. It seems that he was continuously improving his work to learn human anatomy immaculately.

**It is a life story worth observing and I wonder if it could be part of the medical school curriculum.**



'Infinitely curious, easily distracted, vain and vegetarian, Leonardo is brought to vivid life in this accomplished biography.'

*Sunday Times*

LEONARDO  
DA VINCI

*The Biography*

WALTER  
ISAACSON

I remember one of my trips to Italy to a small island near Venice called Morano, where glasswork is the main art and someone quoted Da Vinci in the verses. It takes seven years to learn how to draw

and then maybe more years to forget / unlearn that you can draw something original.

It is a life story worth observing and I wonder if it could be part

of the medical school curriculum. As it could inspire many would be doctors to look at the natural systems and appreciate the complexity in a new dimension.

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