THE EDITORIAL PAGE

WAR AGAINST CORONA

The Covid situation across India is taking a serious turn. The rate of infection is increasing and cities and towns are falling short of equipment, beds and even oxygen. Even important medicines have gone missing from the markets. It sounds scary but this is what an epidemic is all about. No country can claim it had an easy way out of it.

However, determined as we are in defeating the virus, efforts on war footing have begun to address the problems. The railway is carrying medical liquid oxygen in special containers across the country through special corridors that are being created to facilitate their movement of oxygen. Medicines required are being manufactured at a high pace to end the scarcity. In Uttar Pradesh, the government has set an example to punish traders indulging in unethical ways in the time of the epidemic. The government there has decided to invoke the National Security Act against two traders who had hoarded important medicine and created an artificial scarcity in the market. In Delhi railways stations, in Gujarat temples are being converted into medical wards to hospitalize COVID patients.

KUDOS TO JAMMU

Jammu district has done well in vaccinating people against Covid as 50 per cent of the eligible population –plus 45 – have taken the jab. This record shows that people have immense faith in the system and also they are feeling responsible for fighting the virus. The success of Jammu's vaccination campaign should be publicised so that other districts too can catch up. It may not be so over, but the fact is there are a lot of people who are still reluctant to take the jab due to some misinformation or a bias. The government must address this problem and encourage the reluctant people to take up the jab. In fact, village heads or sarpanches should be involved in this. The religious heads can also join in.

Ramadan: A month of reflection, spirituality and piety

Dr. Simrit Kahlon

Ramzan is a sacred month when Muslims across the world observe fasts and other religious activities. The holy month is called "Ramadan" in Jammu and Kashmir and is observed with great reverence. This year the holy month of Ramadan has commenced on 14 April and will culminate with celebration of Eid-ul-Fitr on 13 March.

Ramadan is not only about fasting. During this month, Muslims are decreed by Allah to emphasise on acts of "Deen" (religion) rather than worldly matters. it is also about being humble, modest and above all, free of all animosities; it is about discipline, self control, self reflection and reformation, a time when the believer ponders over spirituality and piety and brings about a change in his/her own self for the better.

Kashmir, with its unique Sufi culture has an evolved sense of spiritualism and religion; Kashmiriyat (intrinsic culture of Kashmir) with its tradition of religious amity plays a big role in giving a universal appeal to the holy month of Ramadan and the festival of Eid-ul-Fitr. It is the most significant time of the year for the Kashmiri people.

Sadly, on many earlier occasions the Ramadan and Eid celebrations have witnessed play of dirty politics and restrictions due to terrorist initiated violence. It was indeed very difficult for the people of Kashmir to come to terms with the cult of violence and hatred that remained characteristic in the month of Ramadan for the long period when terrorism was at its peak. Alongside, the open instigation towards protests and aggression during Ramadan by the political leadership, especially the constituents of the now redundant All Party Hurriyat Conference (APHC), caused great stress to the people since such acts went against the spirit of the holy festival.

The Union Government has always attempted to ensure that the month of Ramadan passes peacefully and happily for the people. On many occasions the Government has offered a ceasefire during the month; the last such offer came in 2018 through the NDA II government. It was called "suspension of operations" and was done by the government unilaterally despite many voicing apprehensions that such a recourse would help terrorists recoup at a time when they were on the back foot. The government, however, was determined to give to the people an opportunity to observe the holy month with peace.

Now the situation in the Valley has changed vastly and for the better. Terrorism has been contained to degree where socio-economic activity can be carried out undeterred. The Government has not felt the need to institute any more suspension of operations after 2018 since the security situation has remained conducive for the people to enjoy the festival. Also, the divisive and disruptive political leadership of the APHC and others has been exposed and marginalised.

Ramadan celebration was once again marred in 2020 due to the COVID situation. It was with great despondency that a decision was taken to disallow congregational prayers like Taraweeh due to the prevailing situation. It is to the credit of the people that they fully understood the need to exercise restraint, and as such, Ramadan was celebrated with fervour but without large gatherings in places like the famed Jama Masjid in Srinagar.

This year the evil masters of terrorism sitting across the border attempted to raise the threshold of violence in the valley in the period before commencement of the month of Ramadan. In a very unfortunate incident on, 9 April, terrorists shot dead a Territorial Army (TA) soldier, Havaldar Mohammad Saleem Akhoon, near his home in Goriwan, Bijbehara. This brutal act was part of a well crafted policy of the terror masters to increase violent activity in the Kashmir Valley. By killing a soldier they aimed to instil fear in the minds of the locals and restrict their movement during Ramadan.

The response of the security forces was swift and relentless. Within two days of the murder of Havaldar Mohammad Saleem Akhoon, the two terrorists responsible for the dastardly act were killed. Apart from this encounter, 10 more terrorist were killed in separate encounters within 72 of the dastardly murder being committed. The terrorists got a loud and clear message that the security forces will not allow them to disrupt Ramadan festivities. There has been no terrorist initiated violence or encounters reported after these incidents. The security situation is conducive for safe and secure celebration of Ramadan in Kashmir.

Also this year, however, the shadow of increasing COVID is hovering over the whole of India and also upon Jammu and Kashmir. In consideration of the deep religious sentiments of the people associated with Ramadan, it has been decided to avoid complete closure. On the eve of Ramadan, Shri P K Pole, Divisional Commissioner Kashmir clarified that there would be no bar on the religious gatherings in Kashmir and that night curfew would be imposed after Taraweeh prayers. "If the situation goes awry, then definitely the administration will take appropriate measures," said the Divisional Commissioner.

Now, almost a week since the commencement of Ramadan, Taraweeh prayers continue to be held in Mosques but with strict adherence to the COVID-19 Standard Operating Procedures (SOPs). While offering the prayers, the devotees are leaving intermediate prayer mats empty as marked by the Mosque administration, thus ensuring social distancing.

It is heartening to see religious leaders motivating people to offer prayers at the individual level so that nobody is infected with COVID. It is also heartening to see the people strictly following social distance norms and other protocols during offering of prayers. If things carry on in this positive manner the holy month of Ramadan will witness a great celebration without any medical emergency erupting.

On this holy occasion, the best wishes of the Nation are with all Muslim brothers and sisters and especially those from Jammu and Kashmir who have suffered so much in the hands of terrorists and now deserve to celebrate their festivals with total peace and security.

(Dr. Simrit Kahlon is an academician, columnist and commentator)

Time to bridge the healthcare gap and tap indigenous potential

KM Cherian

The COVID-19 pandemic has brought to light the disparity among the haves and have-nots in access to healthcare in the country. However, everyone should have working and living conditions that are conducive to good health. The collaboration of various stakeholders in the health sector, who must work as a team as well as individually, is essential to achieve a fairer and healthier world in which all members of society have access to quality healthcare services irrespective of their socio-economic status.

The first step towards achieving universal access to affordable health services is to have uniform, unbiased and economical healthcare facilities available for all. This will help in early detection and treatment of various diseases and infections. Preventive healthcare measures are of utmost importance in ensuring the overall health of a community.

While we have a plethora of health schemes in India like the 'Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY)' to cater to the health of our citizens, it's the execution part of such schemes that we lack in. Efforts are required to ensure that people are enrolled, databases are updated regularly and citizens avail the benefits of the scheme.

The Public-Private-Partnership (PPP) model can help in achieving the goal of accessible healthcare and realising the targets in the field. Private and Government entities need to collaborate and work in consonance, supplementing each other's effort. They have to come up with specific strategies for various sections, such as those below the poverty line.

It is imperative to monitor health inequities and help provide better access to affordable and quality healthcare. Many people in our country struggle to avail primary healthcare services. It is important that the Primary Health Centres (PHCs) in every State cater to the healthcare needs of migrant workers who are from varied backgrounds.

Fostering and nurturing indigenous technology is extremely important in building affordable healthcare infrastructure in India. There has to be support from the Government for medical Research and Development (R&D) activities towards advanced health solutions.

As far as possible, bureaucratic hurdles must be removed so that innovators and scientists are able to avail the benefits of various policy initiatives. There has to be some provision for financial support and tax benefits so as to encourage these R&D entities. For instance, if a patient needs a heart valve replacement, Transcatheter Aortic Valve Replacement (TAVR) is an alternative to conventional heart surgery but the long-lasting results of it are still in question.

It seems that there is an industry-wide push to make these procedures popular, without really thinking about the long-term results. Currently, these valves are highly expensive in India (approximately Rs 22.5 lakh) owing to which a majority of the people cannot afford it. Even the cost of conventional valve replacement (approximately Rs 3 lakh) is also out of reach for many. The solution is indigenisation.

The Transcatheter Aortic Valve Implantation (TAVI) using Nitinol stents developed by the National Aeronautical Lab (NAL) and the Council of Scientific and Industrial Research (CSIR) is promising in this respect. Unfortunately, there has been no support from any Central Government agency.

We all know that several organs are received only from human donors and there is a wide gap in the supply and demand. Today, science has reached a stage where these organs could be manufactured using one's own cells through the 3D printing technology or by using a biological scaffold — like a shark fin — on which it could be grown. Shark skin is another potential tissue substrate to create biological tissue in view of its inherent tensile strength and durability. The Governments, both Central and States, as well as financial institutions mainly banks, should support these initiatives.

Unfortunately, due to ignorance on the part of regulatory bodies and other law enforcing agencies, even the licence for producing or manufacturing these has been poorly formulated and prioritised. Another important area is the realm of stem cell research with its tremendous regenerative potential, but we face too many hurdles in manufacturing and commercial production.

Further, it's critical to create awareness about various health issues in regional languages that people understand. Plus, there is a pressing need to emphasise upon the importance of nutrition and immunity development in maintaining individual health.

Vaccination can help in keeping vaccine-preventable diseases away but there are new viruses and strains that are being discovered every day. Recently, we have witnessed how the second wave of the COVID-19 virus has taken the country by storm. Therefore, it is of utmost importance that our population has a fairly strong immune system, along with affordable healthcare and indigenous R&D in medical science.

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Engineering a better future for humankind

BKP Sinha

In this age of unprecedented technological revolution, genetic engineering is fast occupying the centre stage. Susan Hockfield, a Professor of Neuroscience at the Massachusetts Institute of Technology (MIT), says that virus-powered batteries, protein-based water filters, cancer-detecting nanoparticles, mind-reading bionic limbs, computer-engineered crops, and so on, have the potential to overcome some of the greatest humanitarian, medical and environmental challenges of our time. These are going to be next generation products that have the potential to reshape our lives. For instance, the discovery of products like aquaporin to purify water for our use that functions like a parking lot that permits only cars identified with a specific transponder to enter, is nature's marvel. All these frontier technologies have inputs of genetic engineering.

Genetic engineering has come a long way since 1971, when two scientists, Berg and Jackson, created the first molecules of a recombinant DNA. Many milestones have been accomplished since then to make genetic engineering almost child's play in the hands of a molecular biologist. But gene therapy, which genetic engineering promised, has been fraught with pitfalls despite a multitude of methodologies. As a result, inherited disorders resulting from aberrations in one's genes could not be treated by replacing or correcting a faulty gene. Correcting the gene in its specific location was an issue and when this was overcome by employing viruses, our immune system would play the spoilsport apart from other issues that sprung up. Ever since the failure of the Jesse Gelsinger trial for the cure of a rare metabolic disorder called ornithine transcarbamylase deficiency syndrome, (OTCD) in 1998, gene therapy was left gasping for breath amid stringent regulations. This is where a serendipitous observation of bacteria having the ability to specifically target the DNA of viruses to inactivate the invader, provided the breakthrough to overcome many of the pitfalls of the earlier methodologies.

CRISPR and GENE editing: CRISPR technology is a simple yet powerful tool for editing genomes. It allows researchers to easily alter DNA sequences and modify gene function. Its many potential applications include correcting genetic defects, treating and preventing the spread of diseases and improving crops. The CRISPR-Cas9 can do the job easily and precisely as CRISPR is a part of the bacterial immune system and germs, too, can get sick from viruses. Bacteria fight them by chopping their DNA or RNA with CRISPR sequences and then remember them by pasting their DNA bits into their own genome, allowing to ward off any future infections. These genetic scissors, whose use for targeted modification of genomic DNA was perfected by Jennifer Doudna and Emmanuelle Charpentier, have given a new life to genetic engineering and gene therapy. Both these scientists were the recipients of the Nobel Prize in Chemistry in 2020.

The use of CRISPR-Cas9: Many diseases that were incurable through traditional means can now be treated easily, thanks to genetic engineering. There are ongoing clinical trials using CRISPR-based approaches to treat monogenic inherited diseases such as sickle cell anemia, childhood blindness and so on. It holds the promise to treat many other diseases such as cancer, autoimmune disorders and polygenic genetic disorders in future.

Apart from medical applications, it is being used to genetically modifying crops to make them resistant to viruses, make leaner pigs, help yeast make better beer, make mosquitoes infertile and so on. It is also possible to recreate an extinct species, so a 'Jurassic Park' could actually be a reality in the future.

Research is also underway for the use of CRISPR gene editing that could make us less vulnerable to pandemics, cancer, Alzheimer's and other diseases. Mammals have a gene known as p53 that encodes the proteins that suppress the growth of cancerous tumours. Humans and most other mammals have only one copy of this gene, whereas elephants have 20 copies, and they almost never get cancer. Hence, research is ongoing to double this gene in human beings.

Up till 2020, over a dozen clinical trials were underway for a disease called acute myeloid leukemia, super-high cholesterol and baldness. The thrust of the ongoing research is to study how bacteria developed an immune response to ward off new viruses.

Coronavirus: Covid-19 jabs, like many modern vaccines, have also gained from the advancements in genetic engineering.

Bits of the SARS-CoV2 genes have been pasted onto the adenoviral DNA backbone, some of whose own genes have been knocked off to accommodate the foreign gene. When this vaccine is delivered, the adenovirus carrying the SARS-CoV2 will enter the human cell, it will pretend that it produces the SARS-CoV2 protein but will itself be unable to replicate and make a person sick. This creates a temporary SARS-CoV2 protein factory in our bodies to prime our immune system and prepare it to tackle any infection with the real SARS-CoV2 virus.

Hopes and pitfalls: Ever since Herbert Boyer and Stanley Cohen patented the recombinant DNA technology that they developed in 1972, and Boyer co-founded Genentech, the world's first biotechnology company in 1976, genetic engineering has been the subject of intense debate beyond the scientific arena, involving lawyers, journalists, politicians and the public at large.

Since then, genetic engineering has come through the moral issue of man playing God, with a possibility to determine the fate of the evolution of all species on planet Earth. It is generally agreed that genetically engineered organisms will not be released into the environment. Many countries, including India, have put in place ethical committees at various levels that oversee and approve research that involves the use of genetic engineering.

Even routine laboratory experiments which only aim to demonstrate cloning experiments to students in biology laboratories also need mandatory approvals of the institutional ethical committees or relevant boards. Though there are already products of genetic engineering in the market like vaccines, pest-resistant crops and genetically-engineered mosquitoes, debate continues on the ethical and moral issues surrounding genetic engineering and gene therapy. Thankfully, its fruits are slowly blossoming for larger public good.

Fortunately for humankind, in 2015 at the NAPA international conference, a consensus quickly developed that it would be bad to completely ban germ line gene editing.

The CRISPR inventor, Jennifer Doudna, herself summed it up: "We wanted the scientific community to hit the pause button until the social, ethical, ecological and philosophical implications of germ line editing could be properly and thoroughly discussed ideally at the global level."