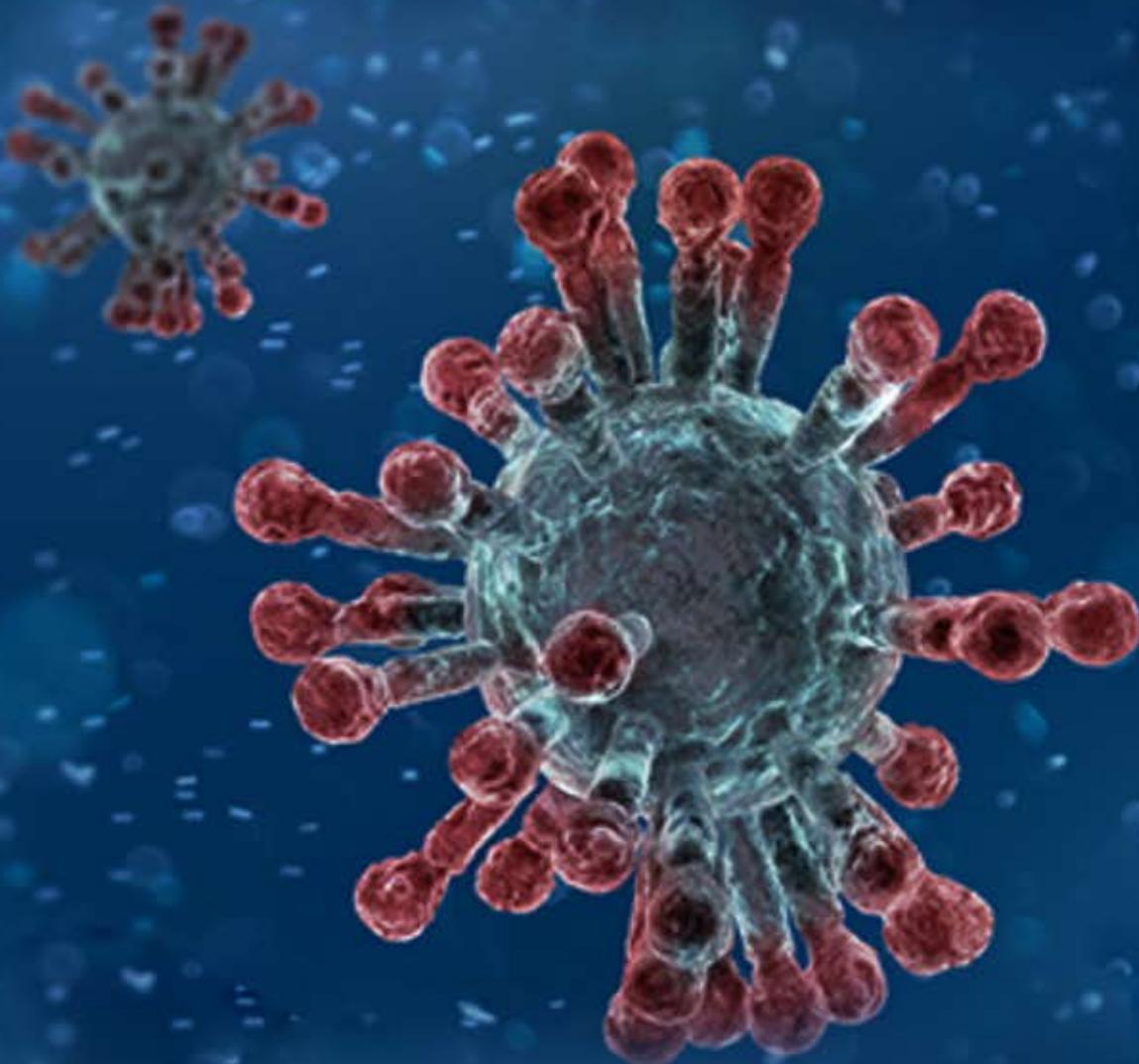




# THE EXPERT SERIES ON COVID-19

A SERIES OF ARTICLES BY MEDICAL EXPERTS ON DEALING WITH  
THE CORONAVIRUS PANDEMIC



# The Expert Series on COVID-19

A compilation of articles written by medical experts on dealing with the pandemic

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# INTRODUCTION

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The world, outside of China, woke up to the seriousness of the novel coronavirus outbreak in March this year. The World Health Organisation declared it a pandemic on March 11, and Prime Minister Narendra Modi imposed a lockdown, the first of many, from March 25.

In the subsequent weeks and months, the spread of the virus has been dramatic. So, even as the lockdown has been eased in many parts of the country, at the time of writing this, India has well over 150,000 active cases. And the country has seen over 9,000 deaths due to COVID-19. The numbers are increasing rapidly.

Over the past few months, The Hindu's exhaustive coverage of the pandemic has included articles written by medical experts who have addressed a host of concerns regarding physical and mental health as well as medical management of the disease and the impact on society. The overarching theme of all these articles is simply how to protect oneself against the virus.

We have compiled all these articles into an e-book, which you are currently reading. You can read these articles under the following themes: medical management of the disease, managing one's own health, the impact of the virus on the body, mental health, pregnancy, childbirth and children, and the impact of the virus on society.

We hope you will find this compilation a useful guide.

# MEDICAL MANAGEMENT

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## A look into key aspects of virus pandemic



Dr. Sudha Seshayyan



Dr. G. Srinivas

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There are a lot of scientific terms being bandied about during the COVID-19 pandemic. Here's a short primer on the key aspects everyone should be aware of.

### What is 'social distancing'?

'Social distancing' refers to a way of creating a barrier of physical distance between two or more people so that transmission of infectious agent can be prevented or halted. It may also be termed as physical distancing. It is a traditional public health measure of separating people to curb the outbreak of infectious disease, aimed to prevent person-to-person spread of disease to interrupt transmission and checking community transmission.

### When does the need for social distancing occur?

Infectious diseases such as COVID-19, transmitted by respiratory droplets require a certain proximity of people. Social distancing reduces transmission, mitigates COVID-19 outbreak, particularly useful in settings where community transmission is believed to have occurred, but where the linkages between cases is unclear, and where restrictions placed only on persons known to have been exposed is considered insufficient to prevent further transmission.

### What is 'isolation'?

'Isolation' is the separation of ill persons with contagious diseases from non-infected persons to protect non-infected persons. This usually occurs in hospital settings. It is particularly effective in interrupting transmission if early detection is possible before overt viral shedding.

### What is 'quarantine'?

Quarantine demands movement restriction of persons who are presumed to have been exposed to a contagious disease but are not ill, either because they did not become infected or because they are still in the incubation period.

Quarantine may be applied at the individual or group level and usually involves restriction to the home or a designated facility. During quarantine, all individuals should be monitored for the occurrence of any symptoms. Quarantining is most successful in settings where detection of cases is prompt, contacts can be listed and traced within a short time frame with prompt issuance of quarantine. It is one of the oldest, most effective tools of controlling outbreaks & was implemented successfully as an effective measure during the SARS epidemic in 2003.

Is there evidence that physical distancing has been effective to control infectious disease?

Since the flu pandemic in September 1918, studies have showed the importance of distancing measures. Social distancing was the key in reversing the outbreak in Wuhan and the wider Hubei region. The earlier a lockdown is put in place in the epicentre of an outbreak, the smaller it ends up being.

### Are 'isolation & quarantine' not a form of social distancing?

While isolation and quarantine are forms of social distancing, there is an important distinction to be made.

Isolation and quarantine are aimed at preventing people who are infected or are known to have had contact with people who are infected from passing on the virus.

Social distancing is a wider measure aimed at stopping the kind of mixing of people that allows infections to spread through a population. They range from ending mass gatherings, closing public spaces like educational establishments (schools, universities), gyms, museums, cultural and social centres, swimming pools and theatres and may be a total lockdown with people forced to stay indoors (community containment).

### What are the different periods in the natural history of COVID-19 from a public health angle

There are four periods:

1. Infected, but not contagious and not symptomatic.
2. Infected and contagious, but not symptomatic.
3. Infected, contagious, and symptomatic.
4. Recovering (assuming survival), where you may still have symptoms but are no longer contagious.

### How does social distancing help in reversing the epidemic?

Even with an ignorance of who's infectious, who's contagious, and how widespread the infection actually is, social distancing can crush the exponential growth phase of COVID-19 and support reversing the transmission of the disease. One of the main aims of social distancing is to "flatten the curve", which means delaying the spread of the virus so it reaches people more slowly.

## Scripting a new narrative for COVID control



M.S. Seshadri



T. Jacob John

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India had warning about the COVID-19 epidemic in China spreading to neighbouring countries well ahead of virus importations; yet, the nation faltered. In epidemics as in war, underestimating the enemy is a costly mistake.

Strategy planning is dynamic, with revisions as the ground reality changes. What is appropriate in the beginning may become redundant midway. Eisenhower said: “In preparing for battle, I have always found that plans are useless but planning is indispensable.”

India’s early strategy (traditional pandemic control: prevent virus importations from China and neighbouring countries and interrupt importation-related local spread) succeeded, but importations from the West and West Asian countries before they were red flagged seeded local outbreaks in several places.

As transmission is through social contacts, social distancing in its extreme form (a nation-wide lockdown) was declared early and abruptly, from March 24 midnight.

### Indigenous wisdom

Indian experts are skilful to imbibe, distil and translate information into practical, socio-culturally appropriate action plans. When HIV importations and local spread were detected, Indian experts studied the situation, and, rejecting advice from the World Health Organization (WHO) for only “syndromic diagnosis” of AIDS, devised multi-pronged interventions — “social vaccine” including hospital infection control and innovative laboratory-testing tactic called sentinel surveillance. For safe blood transfusion, lab-testing was mandatory. Sensitivity and specificity of HIV lab tests were near 100%.

For COVID-19, polymerase chain reaction (PCR) tests were necessary to detect importations and contact screening. For disease diagnosis by physicians, clinical criteria are adequate. Epidemics were asynchronous in different States; the simplest way to monitor epidemic growth was criteria-based clinical diagnosis and confirmation by PCR when deemed necessary. Instead, India blindly continues WHO advice: “test, test, test”.

Openly admitting community transmission of HIV was the signal for the public to change behaviour and take precautions. Social vaccine included public education and social mobilisation; its legacy is red ribbon clubs in schools and colleges.

COVID-19 community spread was denied for too long, promoting epidemic expansion and deaths particularly among health-care

personnel. Early warning and public education would have slowed the epidemic and saved lives. Everyone needed behaviour modification to protect themselves when in physical closeness in clinics and crowds.

### Lockdown vs. mask wearing

Jain munis, realising there are organisms in aerosols and droplets, wear masks to avoid inhaling them — a unique preventive measure born out of ancient wisdom. Hong Kong and Taiwan demonstrated the value of universal mask-wearing to mitigate the current pandemic.

With our mindset of “big solutions” for ‘big problems’, we err. Mask wearing is a simple solution; if practised by every man, woman and child when out of home, it is twice superior to lockdowns: it flattens the epidemic curve better than leaky lockdowns; preserves socio-economic basics which a lockdown destroys. Let us look at another simple solution — oral rehydration for cholera, developed by H.N. Chatterjee in 1957, was accepted by medical professionals and administrators only decades later.

Wise clinicians make presumptive clinical diagnosis of infectious diseases, informed by the epidemiologic setting, the patient’s history, physical findings, simple laboratory tests, and initiate treatment. Laboratory tests, used to confirm clinical diagnosis, identify causative organisms in only about 50-60% of cases in many instances. Why should COVID-19 be managed differently?

Specific epidemiologic and clinical criteria and basic blood tests provide a clinical diagnosis of COVID-19; PCR is useful to confirm this. Home quarantine of all with mild symptoms is simple and safe. Their medical supervision should be through daily phone calls with the assigned doctor. For those with breathing difficulty, a chest X ray or CT scan identifies pneumonia. This approach would have fetched us more gains for less expense.

As of June 23, we have tested 73,52,911 samples (incurring a cost of ₹73,52,911,000 by assuming ₹1,000 for all costs per test; private laboratories charge ₹4,500). Only 4, 57,369 were positive; remember PCR may miss up to half of infected subjects. The original testing policy was essential at first, but became redundant and misleading by end-March. Why evaporate the public exchequer for little or limited public benefit? Now the best use of tests is to confirm clinical diagnosis.

Superficially, flattening the curve sounds attractive — infected subjects trickle in rather than as an avalanche. Lockdowns hurt lives, livelihoods and economy, while non-COVID-19 problems go unattended.

### Risk identification

What we need to flatten is the steep mortality curve. Who are those at risk of high mortality? Those over 60 years, and those with diabetes, hypertension, heart disease, chronic respiratory disease and obesity. This demanded cocooning (reverse quarantine) the elderly and the vulnerable.

Countries with their elderly living in institutions have witnessed a veritable disaster: large numbers succumbed, unprotected by cocooning; hospitals were overwhelmed.

We have far fewer citizens above 60 than the United States and Europe; flattening the mortality curve is eminently feasible and culturally appropriate. The norm in urban middle class and rural families is to protect old parents and vulnerable family members. Flattening the mortality curve by cocooning them would have resonated well with our people and found nation-wide acceptance.

“Social vaccine” stimulates society’s protective knowledge and practices countering major health threats. Social mobilisation subsumes public education for attitudinal and behavioural changes to overcome social determinants of microbial transmission. When children and adults realise that mask wearing is to protect their family, none will refuse to wear one. If it is only to obey orders, many flout; even feel good flouting.

Social vaccine keeps citizens updated with authentic information and convinces them that their behaviour makes a change to the nation’s health and economy. For this to happen, the government must do its utmost to suppress social toxins and convince people about a genuine concern for their health and welfare.

Social mobilisation, our mainstay against community transmission of HIV from 1986, ensured clear guidelines for medical professionals about preventing hospital-related transmission. Educational efforts, integral to social vaccine, galvanised society to resist HIV transmission, like immunity resisting progression of infection within the body.

If social vaccine is the legacy of HIV control, the legacy of COVID control ought to be more far-reaching. The convenience of districts as units for colour zoning emphasises that they can be more self-assertive in planning for unlocking the lockdown.

### A practical platform

A COVID-19 committee as a practical platform in every district, with representation from civil administration, health management professionals, industry, businesses, educational

institutions, major non-governmental organisations, voluntary organisations such as the Rotary and Lions Club can identify facilitators and deterrents of preventive processes and practices and evolve locally relevant solutions for COVID-19 control now. It can evolve into a district development committee in the post-COVID-19 future. With a wider agenda, the fruits of their labour, improved health and education, nation-wide implementation of visionary concepts such as Swachh Bharat for microbiological cleanliness at home and in all places of human congregation, will be ready for harvest.

We have a unique opportunity to script a new narrative to win the present struggle and perpetuate its legacy, with will and wisdom.

## It's OK to be smart



Dr. V. Ramasubramanian

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It probably began in the East and crossed borders and oceans, as it devastated several countries till it reached Rome. The only thing that spread faster than the contagion was the fear and the rumours. People were terror-stricken. Doctors were clueless. Government officials vacillated and losses mounted. Travel was crippled. Festivals, gatherings, sporting events—all cancelled. The economy plunged. Bodies piled up. The world was bewildered.

I am, of course, referring to the Antonine Plague of 165 CE, a global pandemic with a mortality rate of 2-3%. It also began with flu-like symptoms until it escalated and became a catastrophe of unbelievable proportions, in which over 15 million people eventually died.

“Those who do not remember the past are condemned to repeat it” – George Santayana

I was confronted with these words as I walked into the Nazi concentration camp at Auschwitz in 2004 and they have continued to haunt me ever since.

History repeats.

The whole world is in the grip of the coronavirus now. The pandemic started in December 2019 in Wuhan, China and has spread insidiously world over. Coronaviruses have been identified over 60 years ago as one of the agents which cause the annoying common cold. There are 4 types of the beta-coronavirus family which can cause the disease. But, like the influenza virus, it has the uncanny ability to mutate often.

The first such instance of a dangerous mutation was in 2002, resulting in the SARS (Severe Acute Respiratory Syndrome) outbreak from Hong Kong, which afflicted over 8,000 people and resulted in around 800 dead (a mortality of 10%). It is believed to have originated in bats, which are, incidentally, asymptomatic and transmitted via civet cats to humans. The second catastrophe was the mutation resulting in MERS (Middle Eastern Respiratory Syndrome), which originated again from bats, and affected humans through an intermediate host, the dromedary camels, in Saudi Arabia. By last counts, there have been around 2,500 cases with over 750 deaths (a mortality of 35%).

The current outbreak is again due to a mutated coronavirus labelled by WHO as SARS-CoV-2, which is believed to have originated from bats in a live animal and sea-food market in Wuhan, and infected man through an intermediary host (perhaps

the pangolin). The virus has the ability to infect lung cells through a receptor known as ACE-2, leading to complications of pneumonia and respiratory failure.

### How does the virus spread?

The virus spreads through respiratory droplets of an infected person. It could directly spread through inhalation of droplets when you are within a metre of a coughing patient, but more often, it is by touching inanimate objects contaminated by these droplets and taking our hands near our nose and mouth. This essentially means that if we are at least a metre away from anyone, and wash our hands frequently, it is highly unlikely that we would be infected. This is the rationale behind the concept of social / physical distancing. Even though the virus can survive for substantial periods on inanimate objects (a day on cardboard and 2-3 days on plastic and steel, under ideal conditions), it dies on drying.

### What are the symptoms?

The symptoms of COVID-19, the common cold, and the flu are akin to each other. The symptoms start with a low-grade fever followed by a sore throat and body pain. Nausea and diarrhoea may then occur with worsening throat pain, malaise and joint pains. Severe body pain with nausea, high grade fever and diarrhoea may follow. Breathlessness may occur with severe cough after a week. One needs to consider visiting a hospital only when there is high grade fever and difficulty in breathing.

### What are the complications of COVID-19?

Almost 80% of people may not require hospitalization. Around 20% may require admission and oxygen support. About 5% of infected people end up in ICU on a ventilator. The risk of complications is higher in the elderly (over 60yrs of age), diabetics and persons with co-morbidities like uncontrolled hypertension, lung disease, liver or kidney disease and an immune-suppressed status. The case fatality rate is around 2%, but can be as high as 15% in persons over the age of 80. This is because of weakening immunity with age. In some situations, the immune system fights back aggressively, goes berserk and causes more damage. This damaging overreaction is called a 'cytokine storm' and can lead to multi-organ failure and death.

Experts, however, believe that the mortality may be lower than 1% in the general population. Surprisingly, the infections have been very mild in young children, but they seem to spread the virus for longer. Pregnant women have also not shown features of severe infection.

### Does the summer help in stopping the pandemic?

The concept of seasonality for viral infections, especially the flu, is based on evidence and experience from the west. This has been extrapolated to other viruses which may die when exposed to the heat and humidity. The incidence of flu wanes in the summer in the West because most of transmission in winter occurs indoors, where people stay in close quarters to escape from the cold outside. When summer arrives, they start moving out and lack of proximity causes the flu to die down. In tropical countries, the flu is prevalent throughout the year with outbreaks happening even in the peak of summer. In Chennai, people tend to venture out less in summer and the ambient temperature and humidity indoors can cause the infection to be transmitted, even though it may die more readily outside.

### Is there a role of Vitamin C or other food supplements in the prevention and treatment of COVID-19?

At present there is no scientific evidence to recommend Vitamin C or any other food supplements specifically to improve immunity or to protect against COVID-19.

### What should every citizen of India do to help control this pandemic?

Since this infection spreads by respiratory droplets, the only way to block transmission is by physical distancing. This means all of us have to avoid crowds and stay at home.

- Avoid any kind of travel – international or domestic – unless absolutely necessary
- Avoid visiting any public spaces unless absolutely necessary
- Keep all commercial activity at a distance of one metre between customers. Places of worship and restaurants should also ensure that these norms are followed
- Limit hospital visits
- Postpone work meetings. Encourage work from home
- Any gathering of over 10 persons should be deferred

### What do I do if I have sore throat or fever?

Since most infections are mild, the current recommendations are to stay at home under isolation and take only symptomatic treatment with Paracetamol. Contact your doctor or hospital only if the fever is high or if difficulty in breathing ensues.

### How do I quarantine myself at home?

- Stay in a well-ventilated single-room preferably with an attached / separate toilet. If another family member needs to stay in the same room, it is advisable to maintain a distance of at least 1 meter between the two.
- Stay away from elderly people, pregnant women, children and persons with co-morbidities within the household.
- Under no circumstances should one attend any social /religious gathering e.g. wedding, condolences, etc.
- Wash hands often with soap and water or with alcohol – based hand rub.
- Avoid sharing household items e.g. dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items with other people at home.
- Wear a disposable surgical mask at all times, if symptomatic. The mask should be changed every 6-8 hours and disposed of. Disposable masks are never to be reused.
- Use disposable gloves and surgical mask when cleaning surfaces or handling soiled linen.
- Clean and disinfect frequently touched surfaces in the isolated person's room (e.g. bed frames, tables etc.) daily with 1% Sodium Hypochlorite solution.

“Never let a good crisis go to waste” said Churchill.

The risks of doing nothing are greater at this point, which is why we must use this pandemic as an opportunity to learn. We have to act quickly and decisively. We should revisit our practices of yore and re-educate ourselves. Maybe we should begin with not spitting in public places, washing our hands more often, and improving personal hygiene. We need to instil personal and societal responsibility for our actions.

As a doctor, I would strongly encourage people to place their trust in the science of medicine and put to rest the spreading baseless conspiracy theories and rumours. The media should play a responsible role in presenting facts based on scientific evidence.

## Fighting a virus with dedicated health cadre



Dr. P. Kuganantham



Dr. Hamsadvani Anand

*Dr. P. Kuganantham was former Corporation Health Officer, Chennai and Dr. Hamsadvani Anand is a Public health expert in Geneva*

Never have we seen an epidemic on the scale of what the world witnessed since February 2020 beginning in China, and then, moving across the world. India has been witnessing epidemics and pandemics in the past two centuries and these are well-documented. With a dedicated public health cadre and infrastructure, Tamil Nadu has been well-armed and prepared for the past 100 years.

### Epidemics in Tamil Nadu

The history of Tamil Nadu public health practitioners handling epidemics and pandemics dates back to the era of small pox which killed millions in the early 1900s, Plague in 1938 and 1995, Vibrio Cholerae in 1987 and 1992, Flu H1N1 in 1918, Leptospirosis in 1996 etc,. More than half of these outbreaks happened before antibiotics were discovered and millions of people were killed. This became better after the development of newer antibiotics, advanced diagnostics and infection prevention and control measures.

From what the experts have observed, very rarely does a disease turn out to be a pandemic in a short period of time — 3-4 weeks. It causes great human suffering in the form of morbidity, mortality and has a huge impact on nations with low resources — which may be poor data systems, inadequate healthcare professionals and low access to medicines and diagnostics.

China was able to stabilize and bring the epidemic to a halt by adapting the best methods of prevention and control — ‘cordoning’ and fast action in terms of adopting IPC strategies.

### Swine flu epidemic, 2009

Roughly 10 years ago, in 2009, as a City Health Officer of Chennai, my team admitted about 3,500 passengers from the Chennai international airport, railway stations and inter-state bus terminals who were suffering from fever, cold and cough following the declaration of the pandemic of H1N1 by WHO. We identified and quarantined people with fever, cold and cough and who had travelled from the affected areas. Subsequently, we did a contact tracing exercise to identify people and followed up with them for symptoms.

We observed them for 10 days. All our sanitary inspectors were instructed to do epidemiological investigations on all these patients with contact tracing and the contacts were brought to the hospital for symptoms and if required, investigations were done following treatment at Communicable Diseases Hospital (CDH).

Admitted suspects were given throat wash for use 5 times daily with warm saltwater followed by nutritious diet which included vegetable soup with pepper, ginger, garlic and coriander which was prepared in large quantities every day. They were put on mild antibiotics, antihistamines and mucolytic agents, followed by Tamiflu (branded drug), if they were positive along with Vitamin A therapeutic dosage. None of the quarantined patients went in for complications and there were nil deaths.

The same procedure was followed in 1992 and 1993 during outbreak of new cholera NON O139, that we named as MADRAS STRAIN, which became a pandemic affecting many countries. The Chennai city epidemic task force was developed under IAS officer R. Poornalingam with experts (physicians, public health personnel, microbiologists, environmental/water engineers) and a similar state task force was developed under the State Health Secretary.

Similarly, this unusual epidemic, which has spread to over 200 countries, could be controlled in India through implementing and practising 'personal distancing' to prevent the spread of the strain. China and Germany, the countries seem to be successfully containing this disease with quarantining, testing a large number of symptomatic and vulnerable people, apart from physical distancing.

There is a need to move ahead swiftly, here, what with the number of cases rising rapidly:

- India with the second highest population needs to have one testing centre per district including all medical colleges (732 districts) and quarantine/treatment centres well established in all the 536 medical college hospitals and all private hospitals with more than 100 beds to test and treat for free as it is a pandemic preparedness strategy.
- The vulnerable population, especially elders, diabetics, those with cardiovascular diseases, respiratory diseases, people on chemotherapy, retro-viral drugs for HIV etc., have to be supported by our health system with an uninterrupted supply of drugs.
- Hospitals should be regulated with the stringent measures of practising Universal Work Precautions, control of nosocomial infections, strengthening barrier nursing procedures, establishing sufficient negative pressure rooms in all the hospitals and sufficient number of ventilators and required gadgets for critical care.

## A prescription of equitable and effective care



Anand Zachariah



George Thomas

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Medical care has been disrupted by the novel coronavirus. Fear, anxiety, uncertainty and confusion have all overtaken clinical services. The private sector, which delivers the major part of medical services, is now functioning at a skeletal level and patients have considerable difficulty in accessing medical care. Tamil Nadu has one of the better health systems in the country and has demonstrated that it can provide high quality care through public-private collaboration in the areas of maternity, cardiac and trauma care. As the number of COVID-19 cases in Tamil Nadu has crossed 64,000, with over 800 deaths (as of June 24), there is a need to pull together the resources of the public and private sectors into a functioning partnership, to provide good clinical care, ameliorate suffering and prevent deaths.

### A neglect of the primary task

Until now, the focus of the government has been on prevention of the epidemic through testing of suspects, isolation of cases and institutional quarantine of contacts. Hospitals have focused their efforts on prevention by admitting asymptomatic contacts and mild infections. With the focus on prevention, doctors have been unable to attend to their primary task of providing good clinical care to reduce morbidity and prevent deaths.

The majority of COVID-19 infections are mild and resolve on their own. Serious illness occurs in the elderly and those with multiple co-morbidities such as diabetes, heart disease and respiratory problems. The primary cause of death in COVID-19 pneumonia is respiratory failure. The mainstay of treatment in moderate and severe illness is clinical monitoring, oxygen therapy to correct hypoxemia (low oxygen levels in the blood), and good supportive care. Even in those above the age of 80 years, the mortality rate is only 15%. Patients who require ventilator treatment have a mortality rate of over 50%. Good supportive care for sick patients is essential in preventing deaths.

Hospital services have to focus on in-patient management of moderate and severe pneumonia, prioritising intensive care unit (ICU) beds for potentially reversible illness. We need to ensure that every patient with moderate and severe COVID-19 pneumonia has access to the optimum level of care, to prevent deaths and ameliorate suffering.

### Combating fear

Because of the labelling and stigmatisation of those diagnosed with COVID-19, the public are reluctant to come to hospital and may come late or die at home. We need to send out a clear message that hospitals will provide good quality care for COVID-19, at affordable cost and ensuring confidentiality.

For this to happen, the government must work with the private sector to make care accessible and affordable. The Tamil Nadu government's efforts to cap the cost for different levels of COVID-19 care in private hospitals is a positive step. The government should financially assist the private sector by reimbursing basic patient care costs for providing COVID-19 care.

Medical staff taking care of COVID-19 patients are anxious that they may acquire the infection and transmit it to their family members. Deaths of hospital staff due to COVID-19 have been reported, although the mortality risk is lower than that of the general population. Medical staff involved in COVID-19 care should be adequately protected with appropriate personal protective equipment, or PPE, and should be trained in infection control and clinical care protocols. They should be encouraged to communicate with a patient and the family within the restrictions.

### A wish list

In Tamil Nadu, we should shift the discourse from the focus on prevention and reducing the number of cases to an equal priority for providing COVID-19 care. Every citizen in Tamil Nadu who has serious COVID-19 pneumonia should be able to access high quality care. In order to implement a universal COVID-19 care programme, the government health system should collaborate with private hospitals.

Towards this we suggest that: all private hospitals which have the potential, should take care of COVID-19. They should be given requisite incentives and subsidies to that end; every patient should be able to access medical care for COVID-19 from a private or public hospital; only patients with moderate to severe COVID-19 pneumonia should be admitted; ICU care should be prioritised for COVID-19 patients who have potentially reversible illness; confidentiality of the patient should be protected; the government should support the basic cost of COVID-19 care in private hospitals as well; city hospitals should pool their ICU resources for the care of COVID-19 pneumonia; staff providing COVID-19 care, should receive adequate training and be provided appropriate PPE, and, finally, families of staff who die due to COVID-19 should receive appropriate compensation.

These initiatives can only be realised with appropriate leadership from the government. The private sector has to be fully involved in clinical care of the COVID-19 epidemic. We should work towards making COVID-19 treatment available, affordable and effective. Our response to the epidemic must combine good science, clinical reasoning and a humane response to save the lives of the people of our country.

## The tests reveal all



Dr. Rajaram Anantharaman

*Dr. Rajaram Anantharaman is a Senior Consultant Cardiologist and Lead for TAVR / Heart Transplant / Stem Cell Therapy and Cardiomyopathy, Frontier Lifeline Hospital.*

### What are the important timelines and symptoms characteristic of COVID-19 infection we need to understand before testing?

After exposure to SARS-CoV-2, the incubation period is typically 5 to 6 days. It can range from 2 to 14 days. In the first week, only viral RNA and antigen particles will be present.

During the second to third weeks, the initial antibody response in the form of IgM will be seen which may be present for another 2 weeks. IgG antibody response will appear after 2 weeks in the blood and provides long term immunity. Currently we do not know how long the long-term immunity lasts as this is a novel virus.

From the available literature, the COVID-19 infection will be asymptomatic/mild in 81%, severe in 14% and critical in 5% of cases. But the infection can be transmitted from persons through droplets, even from those with mild symptoms or asymptomatic carriers.

### What are the two major types of tests?

The antigen test is the diagnostic test for COVID-19 in which the viral RNA is directly identified by real time reverse transcriptase polymerase chain reaction (rRT-PCR).

This is an extremely sensitive test to identify whether someone is currently infected and active.

The antibody test is to identify the immune response to earlier infection. By identifying the type of antibody positivity (IgM or IgG or both or none) we can determine whether the individual had exposure to infection or not, still has active infection or has developed long-term immunity.

### What is the best diagnostic test to identify if a person is currently having active COVID-19 infection?

The rRT-PCR antigen test is the best diagnostic test to identify if someone is currently infected and active with SARS-CoV-2. In this, a nasopharyngeal (nasal) or oropharyngeal (mouth) swab is taken and sent in a cold storage box to the central laboratory, where the viral RNA is converted to complimentary DNA (cDNA) using reverse transcriptase, and amplified following the addition of a primer and fluorescent dye and DNA building enzymes.

A positive test will be indicated by the raise in fluorescence.

Depending on the equipment and method used, the time taken may vary between a few hours to a day to get the reports.

This test is very sensitive and specific and can detect even if a single viral RNA particle is present in the swab.

Some of the reasons why we get a false negative (negative test when the patient is actually COVID-19 positive) may be improper swab sampling, prolonged time to get sample to lab causing degradation of RNA.

### What is the best test to identify if a person had exposure (with or without symptoms) to COVID-19 and their immunity response?

The test for antibodies will give information on whether a person had exposure to SARS-CoV-2 at any point in time and whether immunity has developed. When exposed to SARS-CoV-2 our immune system will form proteins called antibodies to neutralize the virus, initially antibody response will be IgM and long-term durable response will be IgG. Presence of IgG antibody alone will indicate development immunity.

### Why are the currently available point of care (POC) rapid testing kit (COVID-19 antibody test) results variable?

There has been a lot of interest in the POC rapid antibody testing as it is quick (under 15 minutes). It can be done by anyone without much training, and if the antibody test is positive and if the individual is shown to be immune, he or she can be reassured. At healthcare providers' and business level, they can return to work, and at government policymakers' level, they can come out of lockdown and plan future vaccination programs. The currently available POC rapid testing kits have been brought into the market without quality assurance by the regulatory authorities of the countries in which they were manufactured and they lack the validation process.

Several of the testing kits have been fast-tracked due to increasing demand, hence lacking in quality, with variable sensitivity from 30% to 80%. The main concerns raised by several European countries and India are that these kits are showing a higher percentage of false negative reports (i.e. results of the test is negative while the patient is COVID-19-positive).

## What is convalescent plasma therapy?



Dr. Joy Varghese

*Dr. Joy Varghese is Director - Hepatology & Transplant Hepatology, Gleneagles Global Hospital, Chennai, working in the field of plasma exchange therapy for over five years*

Convalescent plasma treatment involves injecting the COVID-19 patient with convalescent sera of people who recovered from the infection recently. The patient cured of the disease will have antibodies that drive coronavirus away, says the report of the WHO-China Joint Mission on COVID-19.

### What is the meaning of convalescent sera for COVID-19 and how does it act?

The serum of COVID-19 cured individuals will have virus-neutralising antibodies which will act as a passive antibody therapy. It is called convalescent sera of COVID-19.

### How can we collect convalescent sera?

We can collect it in two ways:

- (i) Using routine blood withdrawal followed by centrifuge technique. Here we can collect 180 ml to 220 ml of convalescent sera and we can store it in -60 degree C up to one year.
- (ii) Using apheresis machine/cell separator machine, we can collect even 600 ml of convalescent sera at one time and safely store for a year.

### Who will be a suitable candidate to receive convalescent sera of COVID-19?

Those who are suffering from SARS-CoV-2 infection with moderate/severe sepsis with or without ventilator support.

### What is the dose, frequency and duration of convalescent sera?

At present, there is no available literature in the World. Based on our previous experience (more than 5 years in hepatitis B virus), I would recommend 180 ml to 220 ml of convalescent sera of COVID 19, once a day for a minimum three to five consecutive days.

### Which is the meaning of therapeutic plasma exchange?

The process of removal of abnormal substances from circulation which are either present in plasma or are tightly bound to plasma proteins is known as therapeutic plasma exchange. In COVID-19 patients, their plasma will contain enormous inflammatory mediators which cause severe lung injury.

### What will be the better proposed model for COVID-19 sick patients?

Based on previous experiences with other diseases, in COVID-19 severe cases, a combination of therapeutic plasma exchange

technique using convalescent sera will reduce the “cytokine storm” which will help recovery.

Advantages of the therapy are that it is the viable option in our healthcare system; it is quickly doable and there are no major side effects. The most important thing is that convalescent sera is easily transportable to any part of the country/worldwide by maintaining adequate cold-chain process similar to vaccine

Adding therapeutic plasma exchange in tertiary care centres using convalescent sera of COVID-19 will be the more effective way of therapy in COVID-19 patients.

## The role of palliative care



Dr. Mallika Tiruvadanan

*Dr. Mallika Tiruvadanan is a palliative care expert who heads Lakshmi Pain and Palliative Care Clinic, Chennai*

How can palliative care help when the world is reeling under this most unexpected and unprecedented pandemic, COVID-19? Palliative care is part and parcel of treatment for any patient for any disease at any stage, for any age. It is simply a ‘whole person’ approach to improving health in any patient.

To allay fears and anxieties in patients and families alongside treatment of any illness is not something new in the medical profession.

A 16th century aphorism describes the duty of every physician: “To cure sometimes, to relieve often, to comfort always”.

The literal meaning of the word ‘palliate’ is ‘to alleviate pain — physical and emotional’, meaning, relief of suffering. ‘Suffering’ literally means ‘the state of undergoing pain, distress, or hardship’.

### Social suffering

COVID-19, because of its unique nature and magnitude has brought in its wake, not only physical illness, but more of emotional and social suffering — fear, anxiety, uncertainty, loss of loved ones and social distress such as losing jobs and income, inability to move freely to work and other places, frustrations, staying long hours at home and other hardships, all leading to psychological disturbances for many.

‘Palliative Medicine’ is a medical specialty, which involves the treatment of pain, breathing difficulty and other distressing physical symptoms caused by chronic and life-limiting diseases and also addressing the psychological issues of both patient and family, with the sole aim of improving quality of life. It is most beneficial when started early in the disease trajectory.

It is also a form of supportive care, giving that extra layer of support a patient needs, to alleviate suffering, alongside disease treatment even in acute illness.

In the present scenario, in addition to what physicians are toiling with to cure patients, and the government and health care policies and strategies, palliative care can play a supportive role.

The care may be needed right from the time of diagnosis, during treatment of the disease or when treatment does not help anymore to cure.

### Supportive role

Distressing physical symptoms like pain, breathing difficulty, restlessness (delirium) and others can be well relieved or palliated with medicines in consultation with the specialists.

Similarly, skilled counselling is an integral part of the palliative approach. It helps address the psychological, social and spiritual issues, which both patient and family are experiencing in the present scenario.

There is a way of responding to their fears, anxieties and to questions. They rarely need antidepressants when we acknowledge their emotions as normal. Active listening is by far the most important part of counselling.

Taking a nonjudgmental attitude without assuming or being philosophical, teaching them special skills in coping with the situation, with the illness or death of a loved one, but always maintaining hope are some basic aspects of communication skills.

These skills can be availed of from psychologists, specialists in palliative medicine, as well as those from medical organisations who have the expertise and willingness to render their services.

### Common thread

Palliative care is really the essence of all good medical care. It is the reinstatement of the humane aspects of medical care and is complementary to all medical specialties, a common thread running through the total care of all patients.

Anyone who needs help to overcome their psychological issues can avail of this care by contacting us, [lakshmipaincare@gmail.com](mailto:lakshmipaincare@gmail.com). We can also put you onto experts who are willing to offer their time and service.

## Palliative care is the answer



Dr. Republica Sridhar

*Dr. Republica Sridhar is founder, RMD Pain and Palliative Care Trust, Chennai*

These incidents happened recently:

A patient, undergoing dialysis twice a week, wanted an opinion regarding the continuation of dialysis. Whether COVID-19 will affect him if he does? An elderly couple, dependent on help, who are living with their son who is working in essential service, were anxious. They said they did not know how to handle it if one of them, or their caregivers tested positive for a COVID-19 infection. What is the next step? Is there any institutional care to look after such patients? The answer is yes. There are hospices or palliative or rehab care centres.

Palliative care is a medical speciality dealing with medical treatment for chronic and advanced diseases and care for elderly people with multiple diseases. The need to create awareness is much more in this group as these patients are people who are suffering from chronic illnesses and advanced diseases and are also severely immunocompromised. In these times they need to avoid unnecessary visitors. We also need to provide them with appropriate infection control measures — personal protective equipment, handwash, sanitisers for the health workers and those taking care of such patients.

The key goal of palliative care is to reduce suffering of patients by early detection, intervention, complete protection, infection control and personal care. Preventing the spread of infection among patients who need palliative care is essential as their immunity is low and super added respiratory issues may increase the risk of the COVID-19 and the treatment may get complicated. We need to handle the community looking at the social, financial issues, and reduce their physical suffering by frequent monitoring of symptoms. We need to look for respiratory symptoms, encourage respiratory hygiene and cough etiquette.

The best method now is to avoid contact with high risk groups. Family members must desist from visiting them and also save themselves from possible exposure. Consultations, whenever necessary, can be through telemedicine. We need to avoid interventions or treatments that may not be urgently needed.

The risk groups include patients with illnesses such as cardiovascular disease, diabetes, respiratory conditions, cancer, patients who have a compromised immune system, smokers, senior citizens, the elderly with multiple chronic conditions.

Emergency situations depend on the treatment and disease phase, especially in cancer, dialysis, other rehabilitation specialisations. Treatment is required only when the concerned primary physician insists on it.

# MANAGING YOUR OWN HEALTH

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## In search of Vitamin D



Dr. V. Mohan

*Dr.V. Mohan is the chairman and Chief of Diabetology at Dr. Mohan's Diabetes Specialities Centre.*

Summer is when we get an opportunity of being exposed to sunlight to obtain our requisite dose of Vitamin D. Sadly, despite India being a tropical country, most Indians (over 60% as shown in a recent study done by my team) are deficient in (< 20 ng/ml) or have insufficient (20-30 ng/ml) Vitamin D. Even the recommended dietary allowance of Vitamin D (400-800 IU) is arguably very low for Indians who probably need between 2,000 and 4,000 units of Vitamin D a day to maintain normal blood levels of the vitamin.

Diet alone does not seem to be enough, for several reasons. First, we do not eat the right food in adequate amounts, processing of food over the years has reduced its micronutrient content, and sometimes our cooking practices (excessive cooking) might contribute to this national Vitamin D insufficiency. Added to this, many of us live or work within the air-conditioned environment at our home and in offices. Our dark skin (melanin) and the clothes we wear may make it difficult for our skin to get enough vitamin D from the sun.

A micronutrient is required in small or micro quantities and yet we Indians are deficient in micronutrients, which can lead to macro consequences as micronutrients are co-factors for the efficient catalytic action of many enzymes in our body, and they enable us to optimally use our macronutrients as well.

### Benefits of walking

We do not go for walk when we should (10 a.m. to 3 p.m. is the best time for optimal sunlight of a particular wavelength, UV-B, 290-320 nm to reach our skin) and some of us apply sun screen lotions with sun protection factor (SPF) that again impairs production of adequate vitamin D precursor in the skin.

So, what has all this to do with COVID-19? The lockdown may have eased but we will still need to stay at home as far as possible, practise social distancing, and adhere to personal and public hygiene standards. In such a situation, exposure to the sun will further go down. Hence, it may be worthwhile to consult our doctors, test our Vitamin D levels, and if deficient or insufficient, then we must supplement our diet with vitamin D to meet our body's needs.

You would be interested to know that Vitamin D is not just a vitamin or micronutrient. It is also a hormone in that it has effects way beyond the well-known effects on bone mineral metabolism. Incidentally, the bone is an endocrine organ. There are Vitamin D receptors on many cells in our body and at a genetic level, Vitamin D modulates cell function. It may be an uncanny coincidence, but there is evidence to suggest that Vitamin D may have some anti-coronavirus activity as well (e.g., it

attenuates the Spike protein of this virus which is an obvious advantage). Moreover, it has the potential to modulate the cytokine storm seen in serious COVID-19 patients, and it can improve innate immunity by increasing the production of cathelicidins and defensins in our body.

But the more important point is that if we are deficient in Vitamin D, then we need to take steps to detect and then treat this problem. The prevalence of Vitamin D deficiency is higher in people with diabetes. Hence, as people with diabetes are known to have a more severe form of COVID-19 infection, they should particularly pay attention to improving their Vitamin D levels. Vitamin D can strengthen our immune system and our ability to stay strong and healthy. On a lighter note, one of the simple approaches to COVID-19 could be COVID –Correcting Vitamin D Insufficiency and Deficiency!

Your doctor will tell you whether you need to take Vitamin D and if yes, at what dose. Remember that it should never be taken without the advice of a doctor. All medicines, including vitamins, are double-edged swords and their indiscriminate use can lead to side-effects and even toxicity.

Just as personal protective equipment (PPE) are life-saving for health-care workers in hospitals treating serious COVID-19 patients, for patients with chronic conditions, such as those with diabetes or hypertension, their doctors are their PPE. Hence these patients should stick to their doctors' advice on lifestyle modification, take the prescribed medicines prescribed on time, and check their BP, blood sugar level and so on to try and be at goal so that they are better equipped to face the ravages of COVID-19, just like people without these conditions.

## Aches and pains and a spot of exercise



Dr. Madhu Thottapillil

*Dr. Madhu Thottapillil is a sports medicine specialist, National Sports Medicine Centre, Chennai*

Since the lockdown, with restricted movement in place, a number of people have expressed concern about getting adequate exercise, among other things to be worried about. If you have a regimen in place and that is disrupted, anxiety may follow. Some people also have to, for medical reasons, get adequate exercise during the day.

We have also been flooded with calls, mainly from people with chronic issues — pain mostly. Since they are probably sitting at home in all kinds of odd postures and watching movies on the net or phone. We have been getting an extraordinary amount of calls from people complaining of backpain, shoulder and neck pain.

The general tips that I would give all these people anxious about getting exercise and those who must exercise, are:

1. Involve your family member (could be spouse, parent, sibling, child) in the exercise effort.
2. Try to use any available space inside the house, around the house or the terrace for exercises. About 30 to 40 minutes of brisk walk daily would be recommended.
3. Try to do some strength training too, using household things that you can lay your hands on, like water bottles (filled with water), bags, etc. Free weight or body weight exercises such as squats, lunges, planks, etc., are helpful.
4. Do remember to warm up and stretch before the exercises.
5. Try to assign a fixed time to your exercise activity, which will ensure that you will follow your routine and won't skip it.
6. Keep an eye on your diet and temper it to suit your activity levels. Following the same diet that you were on when you were more active during the lockdown will only result in weight gain and misery.
7. Post-surgery patients should stick to the physiotherapy schedule prescribed by their surgeon or therapist.

When in doubt about anything, it is better to be cautious and call your doctor and check.

## Boosting immunity is the need of the hour



Dr. Bhuvaneshwari Shankar

*Dr. Bhuvaneshwari Shankar is a dietitian and nutritionist at Apollo Hospitals, Chennai*

When we are supposed to protect ourselves from the virus from outside, we need to protect ourselves beginning right from within our body by strengthening the immune system. The immune system is indeed complex and is to a great extent impacted by the environment around us.

There are many factors that affect the functioning of the immune system.

A healthy lifestyle involves eating nutritious food, practising hygienic habits, walking and exercising regularly, maintaining good emotional and mental health and having adequate sleep.

It is important to understand that these factors play a significant role in regulating and boosting immunity.

### Gut microbiome

A healthy body has a healthy gut. The microbes living in our gut, collectively known as microbiomes play an important role in the body's response to infectious pathogens like coronavirus.

It is thus important to maintain a healthy gut which helps to prevent impaired digestion that can damage the vital organs like lungs causing respiratory failure.

This is the reason we should think of supporting rather than 'boosting' our immunity. Recent research has proved that the gut microbiomes can be controlled with a good food regime and a healthy diet.

There are many uncertified and unverified claims made on supplements to boost immunity. Instead of following those prescriptions which do not have any scientific evidence, we should consider eating time-tested foods routinely consumed by us.

We are all very well aware that our home-made food recipes that had been passed on to us through many generations are definitely capable of providing and sustaining all that is essential for us to strengthen our immunity. They have been found to have the most desirable and positive impact on the gut microbes.

Recommended foods rich in antioxidants and minerals to improve immunity:

#### Rich in Vitamin A:

Cereals, legumes, yellow and orange coloured vegetables and green leafy vegetables

**Rich in Vitamin B (B6, B9, B12):**

Cereals, legumes, green leafy vegetables, fruits, nuts, soy milk, dairy products fish, chicken and egg

**Rich in Vitamin C:**

Orange, lemon, guava, kiwi, gooseberry, cauliflower, tomato, capsicum and mint

**Rich in Vitamin E:**

Nuts, green leafy vegetables and vegetable oils

**Rich in Vitamin D:**

Egg, fatty fish, milk and its products

Exposure to sunlight is also helpful in improving Vitamin D levels.

**Rich in iron:**

Cereals, legumes, dry fruits, fish, and chicken

**Rich in zinc:**

Wheat germ, dried beans, nuts, tofu and Sea foods

**Rich in selenium:**

Cereals, nuts, mushrooms, meat and chicken

**Rich in antioxidants, condiments and spices:**

Garlic, onion, ginger, pepper and green tea.

It is preferred to include fish, chicken and egg instead of red meat.

Apart from including the above, it is important to follow a healthy lifestyle which involves, consuming nutritious foods, abstaining from alcohol and smoking or moderate indulgence, de-stressing /unwinding with hobbies, having adequate hours of undisturbed sleep, exercising regularly, walking inside your home, in the terrace or even in the balcony of your home and doing simple floor exercises. Static jogging is also recommended

**Home and healthy**

Consider this as an opportunity to:

- Eat freshly-cooked home made food, which is the most safe
- Have a fixed meal time which is impossible while at work for many
- Develop the habit of eating fruits and vegetables which are an important source of minerals and antioxidants
- Learn healthy cooking and new recipes
- Learn about food safety techniques and healthy food choices,
- Get into the habit to avoid baked and fried foods, pre-packaged snacks high in salt and fat

- Try to cut down on salt and sugar intake for at least 2 weeks, leading the way for it to become a habit
- Try not to buy or store sugar rich candies, sweets, chocolates, ice creams, fizzy drinks, energy and sports drinks
- Keep yourself well hydrated. Get into the habit of drinking more water than usual, at least 8-10 glasses

### Have a positive mind

- Handle stress in a positive way through meditation, yoga, breathing exercise, listening to music, reading or developing hobbies missed out during hectic work schedules
- Indulge in physical activity to lower stress, boost energy, improve digestion and thereby reduce the risk of some chronic disease that could weaken your immune system further. Conserve your energy for essential activities.
- Ensure having a consistent sleep schedule that helps in maintaining your cardiac rhythm. Try to have a restful quality sleep time.
- This in turn helps to manage mood and appetite which in turn facilitates to improve immunity. Seven to eight hours of sleep is essential for us as sleep deprivation significantly weakens our immunity.

### Food safety

Concerns with regard to transmission of virus via food are being rampantly spread across all sections.

There is no evidence to suggest that COVID-19 is transmitted through food and water but considering the fact that food and containers we use may hold and transmit the virus to others, it is essential that we are cautious.

Sharing food by eating out of the same plate and sipping out of the same cup are undesirable and dangerous too.

Anyone with suspected symptoms like cough and cold should avoid cooking food for others

### Food safety measures for refrigerated foods:

1. Separate the raw from the cooked foods to avoid contamination
2. Cook the meat thoroughly
3. While reheating cooked food double check if it is still fresh and suitable for consuming
4. Rinse the chopping board, knives and utensils used while cutting raw meat, chicken and fish.
5. Practice hand hygiene especially after handling fish, chicken and meat
6. All vegetables and fruits to be washed thoroughly

### Nutrition tips for athletes during this time at home:

For many athletes who are used to doing a lot of physical activities like sports training and weight bearing exercises, the same may not be possible now. They might have been on a high calorie diet also. It is important to prevent fat gain during this period — so the guidelines for them and those who regularly exercise are:

- Avoid foods high in sugar and fat
- Reduce portion size
- Consume fewer calories than required
- Include adequate protein to maintain muscle mass – soy chunk, tofu, unsweetened soy milk sprouts, nuts, egg, meat, fish and chicken
- Switch to low fat milk, curd and buttermilk
- Include 4-5 servings of vitamins and mineral rich fruits and vegetables
- Snack on low calorie nutritious foods like salad, sprouts and roasted unsalted channa
- Drink adequate water to keep yourself hydrated all the while
- Avoid tetra pack juice, fruit juices, sugary carbonated drinks
- Avoid consuming pre and post workout drinks if not presently keeping up with routine practice sessions
- Avoid deep fried foods
- Do regular routine floor exercises, walking inside home or on the Terrace and skipping
- Keep yourself active throughout the day, learn to do household chores

Stay home, stay fit and stay positive and spread the positivity.

## Why everyone should wear masks



T. Jacob John

*T. Jacob John, Retired Professor of Clinical Virology, Christian Medical College, Vellore and Past President of the Indian Academy of Paediatrics*

Flattening the epidemic curve (case distribution curve) is the need of the day. On the curve, Y axis and X axis represent case numbers and time, respectively. A normal epidemic curve is bell-shaped, with an early ascending slope (first phase), a peak (second phase) and a declining slope (third phase). The area under the curve represents the total number of cases. India is now in the first phase of the COVID-19 pandemic.

A rapid increase in cases will demand far more healthcare facilities than now available. Healthcare facilities were not created in anticipation of a pandemic and are grossly inadequate for India to tackle the first phase. A flattening of the curve will reduce the demand on beds in intensive care units, respirators, and specialists to manage acute respiratory distress syndrome. The peak will be dwarfed and come after some breathing time; the pressure will be eased. However, the area under the curve, the total number of cases, whether the curve is bell-shaped or flattened, will be the same. This crucial information in the epidemiology of the epidemic must be taken into account for planning a response.

### Flattening the curve

There are two ways of flattening the curve: imposing a strict lockdown for a number of weeks or use of face masks all the time when outside our homes. A lockdown physically distances families from each other. The disadvantage is that family members may not be able to keep a physical distance of two metres from one another all the time. As a result, intra-familial spread occurs, and more people are infected at the end of the lockdown than at the beginning. But during a lockdown community transmission is prevented.

There are four reasons for the universal use of masks. First, any infected person will not infect others because the droplets of fluids that we let out during conversations, coughing or sneezing will be blocked by the mask. Remember, most infectious people don't have symptoms, or have mild symptoms, and are unaware that they are infected. Second, uninfected people will have some protection from droplet infection during interactions with others. For those who wear eyeglasses, there is additional protection from droplets falling on the conjunctiva. When both parties wear masks, the probability of transmission is virtually zero. Third, the mask-wearers will avoid inserting their fingertips into their nostrils or mouths. Viruses deposited on surfaces may be carried by hand if we touch such surfaces; if we do not touch our eyes, nostrils or mouth, this mode of transmission is prevented. Fourth, everyone will be reminded all the time that these are abnormal days.

In overcrowded areas such as slums, a lockdown will not be efficient in slowing down transmission. In such places, universal mask use is a simple way to slow down transmission. In India the wise choice would have been to ensure universal mask use in slums, bazaars, shops selling essential commodities, etc. before the lockdown. But then, wisdom, proverbially, is slower than adventure.

### Making your own mask

Taiwan and the Czech Republic depended primarily on universal mask use and slowed down the epidemic. In the Czech Republic, people made their own masks. Cotton pieces, preferably coarse, three layers, stitched with two straps, make masks of sufficient quality. These masks should cover the nose from just below the eye level and reach and cover the chin. All adults, and children who are old enough to wear masks, should wear them. At the end of the day, cotton masks can be washed in soapy water and hung to dry for re-use.

COVID-19 mortality is due to three reasons. Virus virulence is the given and cannot be altered. Co-morbidity (diabetes, chronic diseases) is already prevalent. Then there is low-quality healthcare. Slowing down the epidemic by imposing a lockdown and ensuring universal mask use gives us the chance to protect people from infection and improve healthcare quality; wherever that was done, the mortality was less than 1%.

## Masks are mandatory for all now



Dr. D. J. Christopher



Dr. Prathap Tharyan

*Dr. D. J. Christopher is a senior pulmonary physician and Dr. Prathap Tharyan is a senior psychiatrist, Christian Medical College, Vellore*

The COVID-19 pandemic cannot be controlled by governments alone. It needs the participation and passion of all the people of India; and it needs clear, feasible measures that ordinary citizens can undertake to help reduce transmission. The lockdown has probably played a great role in making sure the figures aren't much higher than what they are. It remains an experimental intervention not just for India, but for other countries as well.

### Low-cost measures

It is therefore important to explore sustainable methods of reducing community transmission. Along with the well-accepted measures of physical distancing and frequent hand washing, the use of face masks or face covering is now emerging as a third pillar in community action — doable and low-cost.

The tide has turned since the beginning of epidemic, and even the CDC (USA) changed its position and has issued an updated set of guidelines advising the members of the general public to wear non-medical face covering outside their homes, whether or not they're sick.

Would a mass movement by the people of India to take this up on a large scale serve to actually reduce transmission pressure in the community?

Before understanding the role of masks in the spread of infection, it is important to understand the transmission dynamics of COVID-19 infection. Similar to influenza and other respiratory infections, the infection can be transmitted through droplets of different sizes, mostly 5-10 m in diameter.

Droplet transmission occurs when a person is in close contact (within 1 m) with someone who has respiratory symptoms (e.g., coughing, sneezing or even speaking), most commonly by inhalation.

Transmission could also occur through fomites in the immediate environment around the infected person. A fomite is an inanimate object that, when contaminated with or exposed to infectious agents (such as disease-causing bacteria, virus or fungi), can transfer disease to another person. Fomites include doorknobs, switches, computer keyboards etc. At hospitals, it could be stethoscopes, neck ties, IV drips and other hospital equipment. Fomite transmission could be important as the virus may remain viable, depending on the surface, for hours and in some cases, days. Frequent hand washing and cleaning schedules are ways to reduce fomite transmission. But the inhalation route remains the predominant mode of spread.

Most people think that wearing a mask is for self-protection, and that is partially true. But the main benefit of all people wearing masks is that in infected persons, the mask will help prevent these droplets from getting into the air and infecting others. They are thus reducing the spread of infection to others.

### Lingering presence

This assumes even more significance as there are reports coming in suggesting that the virus can live in droplets in the air for up to three hours after release from an infected individual, lingering even much after the person has left the area.

Furthermore, many infected with COVID-19 virus are not symptomatic and they may have started releasing viruses before they developed symptoms.

This is a key factor in the ability of this virus to spread, and the infected don't even know they are infecting others.

Evidence has been mounting on the value of masks in reducing community spread. In Mainland China, extreme forms of social distancing and compulsory face mask wearing in public places appears to have successful in reducing the incidence after the initial outbreak in Hubei Province. Mask wearing also reduced community transmission in other provinces after five million people left Wuhan before the Chinese New Year. In Hong Kong, although the government only advised the people to stay at home, they voluntarily started wearing masks in public places. Following this, the labs in Hong Kong reported a significant drop in the detection of influenza and other respiratory viruses from patient samples, strongly suggesting that there was reduction in spread of these viruses.

During the present outbreak of COVID-19, one patient from Chongqing, China, transmitted the COVID-19 infection to 5 people in one vehicle when he didn't wear a face mask, while no one was infected later in the second vehicle he took when he wore a face mask. This indicates the importance of wearing face masks for everyone in a closed space.

Wearing face masks therefore protects the user and also the others around. Use of face masks in social spaces is therefore likely to play a vital role in mitigating disease spread. We feel that the use of the face masks should become mandatory when people step out of their homes to any area where social distancing is not practical. This is a sustainable and an affordable intervention.

One reason why CDC and WHO initially recommended that the public do not use disposable masks is because the public started purchasing the medical masks (surgical or even N-95 masks) meant for use by the health care workers. The latter is not even meant for all health care workers, but only for those performing

or assisting with high-infection-risk aerosol-generating procedures. Consequently, there was an acute shortage of these personal protection equipment for hospitals and the prices have also shot up substantially. It would be foolish to continue this practice. For the public, cloth masks are probably effective and sufficient for this purpose.

In fact, some years ago, before disposable masks became easily available in India, most surgeons used washable cloth masks successfully during operations. These masks are simple to make and instructions are available on social media for making them.

Recently, respiratory disease experts advocated in a medical journal the use of traditional cloth coverings such as dupatta and saree, towels, turban and even handkerchief as face cover. Communities could be taught to use these to cover their mouth and nose when they cough or sneeze and when they are in places such as markets community gatherings where social distancing may be impractical. The wearing of the masks or any face cover could provide a barrier for transmission to and from the user. However, cloth mask would serve the purpose better as it is a specifically designed cover.

### A show of success

For instance, the 'mask for all campaign' in a rural community in south Odisha, the Bissamcuttack initiative is a show of success. Bissamcuttack is a small town in Rayagada District of Odisha, 200 km from the nearest ICU and 400 km from the nearest COVID-testing facility. Dr John Oommen, Community Health physician at the Christian Hospital, Bissamcuttack (CHB), recognised that if the COVID-19 epidemic reached a tribal region like this, it would be a disaster.

From the technical discussions, it was clear that everything depended on the proportion of the population getting infected in a short time. If the predictions of experts of 50 % of the population eventually contracting the infection comes true, or even if half the number is affected, the damage would be very heavy. The key therefore lay in getting the people to do whatever is possible to reduce the transmission in the community. With social distancing and hand washing already being well communicated by the government and other agencies, the CHB team felt a Mask For All Campaign could be a possible value addition. Support was found from the Azim Premji Philanthropic Initiatives, Bangalore.

Discussions were held with members of a local club, AFSA of Bissamcuttack, and they quickly warmed up to the idea. Dilip Kumar, Gourishankar Patra and other youth agreed to take it on with guidance from CHB. And on 30th March, work began to stimulate the movement. They organised 27 local tailors including professionals, stay-at-home mothers and SHG members, to take up the task of stitching 10,000 cloth masks,

CHB provided the instructions, the cloth and a nominal sum of sum of Rs 5 per mask stitched. The AFSA team took on the distribution of the masks to every individual in every family in the Bissamcuttack Panchayat, with instructions on its use. Staff of CHB's Mitra team took the initiative out to another 54 villages of the block.

By April 15, over 25,000 cloth masks had been stitched by 63 tailors and over 22,000 distributed to people. From 6th of April, the hospital (CHB) made it compulsory for anybody entering the hospital campus to wash their hands and wear a mask – creating one level of protection for the health personnel who would be treating them. Cloth masks are made available at the entrance for Rs 10 apiece. On the 9th of April, the Government of Odisha, which has been very pro-active and organised in its COVID-19 management strategy, made the wearing of face masks compulsory across the state, with a fine for non-compliance.

### A simplified explanation

Volunteers handing out the masks at each home explain the logic in simple language. For infected people, the virus has two Exit Gates from the body – the nose and the mouth. For uninfected people, the virus has three Entry Gates into the body; mouth, nose and eyes.

The connection between one person's exit gate and another's entry gates is usually air (if you are close to each other) or hands (that pick it up by touching things). We do not know who is infected and who isn't. So covering the exit and the entry gates of our body makes it safe for us and for others, thus decreasing the chance of spread of the virus in the community.

### The following instructions are given for the use of the masks:

- Get a cloth mask or make one; write your name on it, so that it doesn't get mixed up with other family members. You can wash and re-use the mask for months; don't throw it away. Wash it before you use it the first time.
- Wear a mask for as much time as you can, but compulsorily if you have a cough or fever – even while inside the house; and compulsorily if you step out of your house.
- Your mask should cover your nose, mouth and chin – for it to do the job. Don't just hang it around your neck. Take the mask off only to eat, drink, bathe etc.
- Once you put on your mask, handle your mask only by the strings. Do not touch the front of the mask or the inside surface. If you do, then wash your hands.
- At night, wash your mask with soap and water. If you have an iron at home, iron the masks; the heat will kill the virus if any. Or else, dry the mask in the sun. Make

two masks for each family member if possible, so that you can use them on alternate days.

- Try to maintain 6 feet distance from others as much as possible; avoid crowding.
- Wash your hands with soap and water as many times a day as possible, especially when you enter your house or leave it, or after touching things.

### Conclusion

The Prime Minister in his address to the nation on the 14th of April said: "Completely adhere to the 'Lakshman Rekha' of Lockdown and Social Distancing. Please also use homemade face-covers and masks without fail". We endorse this call and request all the people of India to help their neighbourhoods reduce the risk of community transmission by taking this up as a mass movement.

The proposition is that a community intervention comprising of the 3 pillars - physical distancing, frequent hand-washing and masks-wearing, if taken up on a mass scale as a people's movement, can possibly reduce the community transmission of Covid-19. It is a cost-effective, participatory approach that can channelize pent-up energy of youth into a positive community activity, for the greater common good. And anybody with a sewing machine can contribute, working from home, and earning some income in the process. A win-win idea for all of us!

## Will Vitamin C be of any help?



Dr. Rajan Ravichandran

*Dr. Rajan Ravichandran heads the MIOT Institute of Nephrology and is also Chairman of Sapiens Health Foundation*

Everybody wants to improve the immune system to avoid infections, specially COVID-19. Vitamin C is the nutrient connected with immune system. It is often prescribed in short courses to promote wound healing and for faster recovery from infections, including cold. So it has been the interest of researchers in COVID-19 also.

Large doses of intravenous Vitamin C are being tried in COVID-19 critical patients on ventilators in China. The results are still not out. In Australia, researchers reported that they did not find any benefit in using Vit C, while the U.S. is planning to try a combination of Vitamin C, Vitamin D, Zinc and hydroxychloroquine for prevention. Many of the internet sites offer vitamin C as immune boosters. Caution is required in consuming mega doses of vitamins without prescriptions, especially for long periods.

A 74-year-old man in Belgium landed up in the hospital with weakness and vomiting. He was found to have severe kidney failure. He was dialysed and his kidney biopsy showed deposition of oxalate crystals, responsible for the kidney failure. On probing further, it was found that he had been consuming for one week a “rejuvenating powder”, which he had bought online. The powder on analysis was found to be Vitamin C.

Vitamin C or Ascorbic acid is a water-soluble essential nutrient. Being water soluble, it is not stored in the body and requires daily intake. It is a powerful antioxidant with an important role in controlling infections and promoting healing of wounds. It has numerous functions such as synthesis of collagen (important component of bones, cartilage, nervous system, immune system etc) chemical messengers in brain and hormones. Deficiency of Vitamin C is rare and but when it occurs, it is called scurvy. It was reported in sailors in the past since they had no access to fruit and vegetables. It manifested with bleeding gums, delayed wound healing, skin spots, hair loss and anaemia.

The daily requirement of Vitamin c is 90mg in adult males, 75mg for females which increases to 120 mg in pregnancy. Smokers require additional 35 mg since smoking depletes Vitamin C. The source of Vitamin C is fruits, especially citrus fruits, and vegetables. Sailors were given an orange daily to prevent scurvy. Heat destroys Vitamin C. So prolonged cooking and leaching of the water can reduce the intake of the Vitamin. The Vitamin C consumed after absorption is metabolised in the body to oxalate and is removed by the kidneys.

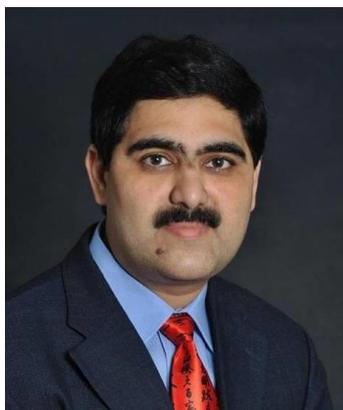
Large doses of Vitamin C called mega doses are popular to improve the immunity and promote wound healing. The

scientific evidence for this is lacking or at best, controversial. Similarly, mega doses have been taken for common cold.

Normally the body can cope with this high dose by reducing the absorption and increasing the oxalate loss in urine. But in some people the oxalate can get deposited in the kidneys resulting in kidney failure. This is likely in patients with intestinal disorders and pre-existing kidney disease. The toxic dose reported has been anywhere from 480 mg to several grams taken over variable periods. Fortunately, this is a rare complication, but lay people and physicians should be aware since there is popular concept that extra vitamins in large doses are helpful during stressful situations. Of course, the toxicity of large dose oil soluble vitamins like Vitamin A and D are well known since they produce high calcium in blood leading to stones and kidney failure.

The Eskimos traditionally would never eat the polar bear whose meat is very rich in vitamin A and D. It is very important that we maintain a balanced diet, regular exercise, and exposure to sunlight as a routine in life. Mega doses of vitamins are best avoided without monitoring.

## Insomnia going viral



N. Ramakrishnan

*N. Ramakrishnan is the Director of Critical Care Services at Apollo Hospitals, Chennai*

The World Health Organisation has increasingly focused on non-communicable diseases such as obesity, hypertension, diabetes, heart disease, stroke and cancer which could lead to long term disability, complications and mortality. Sleep disorders which are more common than these and can, in fact, lead to several of these problems are often forgotten.

With the COVID-19 Pandemic, more people are sleepless and now waking up to this issue. The fear of disease, travel restrictions, social isolation and inactivity, financial losses and the overall looming uncertainty contribute significantly to lack of sleep. When the mind is disturbed, insomnia often follows and may lead to psychosocial problems including anxiety and depression. Untreated sleep disorders could also lead to poor control of blood pressure and diabetes.

In these difficult times, simple measures could go a long way in helping a person sleep better.

Inactivity in general can reduce sleep time. Public spaces such as malls, gyms and parks are not accessible due to restrictions and should be avoided. Simple stretches and yoga at home, walking around the house or in the terrace (which could also help with sunlight exposure) would help.

For those who are working from home, create an appropriate work environment at home and work during specified hours. It is important to have a scheduled sleep and wake up time even though there is no compulsion to sleep on time or wake up early while at home.

Healthy eating at the right time and particularly having dinner at least 2 hours before bedtime is essential. Milk, honey and banana have sleep promoting substances and may be consumed before bedtime if there are no reasons not to. Families can also take this opportunity to have meals together which often doesn't happen when each one is busy with their professional commitments.

Engage in relaxing activities with the family (such as indoor games), reading books and watching television. These would not only prevent boredom but help to keep the mind distracted from worries and fear.

Visiting family members locally if possible (unless anyone involved is quarantined) may be an opportunity to connect and relax. Communicating through video and audio calls with near

and dear who are several miles away would help confirm their wellbeing and allay fears.

While two or three cups of coffee or tea per day is acceptable, it is best to avoid stimulants at least 4 to 5 hours before bedtime. Reducing or preferably stopping smoking and alcohol consumption would enhance quality sleep

Patients who have prior sleep problems should contact their doctor early if they encounter any issues while on their current treatment. If travel is a concern, options of tele-consultations should be considered.

Disasters and mass tragedies can lead to Post-Traumatic Stress Disorder (PTSD) which can be prevented by taking appropriate measures during the Pandemic. Sleep well to stay healthy.

## Non-COVID-19 emergencies in pandemic times



Dr. Aslesha Sheth

*Dr. Aslesha Sheth is an emergency care physician at Kauvery Hospital, Chennai*

Amongst the chaos of the COVID-19 pandemic across the world and in our city, as emergency physicians we find that people are delaying their visits to the hospital, thereby resulting in an increase in complications and jeopardizing their own lives.

During the lockdown, emergencies that led to serious complications could have been avoided if medical aid had been obtained on time.

One such case was a burns patient brought to the hospital after one week of self-medicating on a second-degree burn, with a huge infected blister over the right palm and wrist. If the patient had availed early treatment, he could have easily avoided the complications.

People with chronic conditions such as hypertension and diabetes might need immediate care and attention if symptoms persist or heightened discomfort is experienced.

A hypertensive and diabetic patient, suffering from abdominal pain, constipation, and vomiting, was brought to the hospital after one week of self-medicating, that had led to complications in her small intestine leading to an obstructed hernia and disrupted kidney functions, which required emergency surgical intervention and treatment.

The patient had to be hospitalised and was discharged after 5 days, once her kidney functions normalised.

The elderly are prone to infection and existing chronic conditions can cause life-threatening complications if not treated immediately. It is highly advisable for adults to not delay in getting treatment for even minor symptoms.

To cite an instance, a 70-year-old male, diabetic and hypertensive patient, was brought to our ER with multiple episodes of seizures for two days and in an unresponsive state with persistent seizures.

### Extended treatment

He was found to have increased pressure within the brain cavity, which caused the fits. He had to be in the ICU for a couple of days and receive extended treatment for over a week to reach normalcy.

The list of medical and surgical emergencies is endless, these time-critical emergencies if not treated on time could be life threatening. For instance:

Acute heart attacks are best treated with good reversibility of cardiac function if treated on time and the golden hour being one hour from onset of pain. Delay in treatment can cause complications like irreversible muscle damage leading to pumping failure, fatal abnormalities in electrical conduction of the heart, leading to very low or very high pulse rate, which can lead to sudden death if not treated on time.

Acute onset strokes are best treated within 4.5 to 6 hours of onset of symptoms, but delay in presentation to hospital beyond this can lead to severe morbidity, disability and mortality.

Patients with trauma at home secondary to accidental falls or RTAs — whether limb fracture or head injuries, they should be addressed on time to prevent complications.

Any patient on dialysis needs timely intervention to ensure life-threatening complications are avoided.

Never forget that complications of high and low blood sugar need to be addressed in time, else that could lead to various complications ending up with multi-organ dysfunction.

My only request to all would be — please don't ignore your symptoms. Act smart, act fast. Let the fear of COVID-19 not stop people from treating what can be prevented.

## Do not ignore non-COVID-19 medical emergencies



Dr. Aravindan Selvaraj

*Dr. Aravindan Selvaraj is  
Executive Director, Kauvery  
Hospital*

Fear of coronavirus and the need for quarantine should not deter people from seeking treatment for non-COVID acute medical and surgical emergencies. In recent weeks, we have come across several instances of patients and relatives seeking medical attention very late for even emergencies because of fear. With clinics and many smaller hospitals closed, we had seen quite a high number of patients with cardiac, neuro, stroke, gastro, diabetic and orthopedic emergencies presenting late with all complications leading to delayed intervention and recovery.

### What are the cardiac emergencies, which present late?

It is well known that cardiovascular death is the number one cause of death globally. The intervention in golden hour after acute cardiac events like heart attacks will reverse the harmful effects and save lives. In the last few days, we have seen patients with acute coronary syndrome, heart rhythm abnormalities and complete heart block presenting late with all complications. Cardiac patients are also at increased risk of COVID-19 complications and they can present as heart attack, myocarditis and heart failure. All these patients need to be treated in hospitals with facilities for 24/7 Acute Coronary Care Units (ACCU), managed by senior cardiologists.

### How about stroke and neuro emergencies?

Stroke is another medical emergency, which if treated within the window period of 4 hours will result in near complete resolution of condition. Now, we see many patients with stroke presenting late leading to complications, prolonged stay in ICU and delayed recovery. The delay in seeking treatment in these patients is due to several reasons like fear of Corona and lack of transport.

But, well equipped hospitals with facilities like Hyper Acute Stroke Unit (HASU) are manned round the clock by stroke physicians and nurses to take care even at this time of crisis. We also see patients with epilepsy with fits presenting late.

### What are the gastro-intestinal conditions one should take prompt treatment for?

We also see patients with acute abdominal conditions like appendicitis, cholecystitis due to gall stones and obstructed hernia presenting late with gangrene and perforation leading to peritonitis and sepsis. These patients needed emergency surgery and prolonged stay in ICU because of delay in seeking treatment. The complications could be avoided by early interventions.

### What are the emergencies you see in diabetic patients now?

We see diabetic patients with very high blood sugar levels, presenting acutely with diabetic keto acidosis. Also, we see diabetic patients with cellulitis and sepsis presenting late. Diabetic patients have to be extra careful at this time, monitor glucose levels regularly and seek help early in case of abnormal levels.

### How about injuries and fractures?

Though we see a sharp reduction in road traffic accidents, the number of people with fractures due to domestic fall have remained the same.

In particular, the elderly with hip fractures present to the hospital even a few days after the fracture with complications. They should be treated promptly.

The patients presenting with COVID-19-like symptoms are treated in isolation facilities so that the non-COVID emergencies are managed in the main hospital in an uninterrupted way. Please don't ignore emergencies and call for help immediately.

## Postponing elective surgeries can save lives



Dr. S.M. Chandramohan

*Dr. S.M. Chandramohan is a senior gastroenterological surgeon, and director, International student program, Sri Ramachandra Medical college*

The entire world is facing an unprecedented medical emergency caused by the novel coronavirus disease (COVID-19). Medical professionals and scientists are working hard to halt the spread of COVID-19 and save lives. Many countries had gone into a lockdown, to stop everyone except emergency services personnel from moving about, in a bid to prevent transmission of the infection.

Healthcare teams are struggling to treat patients who have varying degrees of symptoms. Some may require treatment in the Intensive Care Unit (ICU), and a few may warrant artificial respiration with the use of a ventilator. The warriors at the forefront are the intensivists, critical care specialists, critical care nurses, and anaesthetists.

Although most of the people have understood the seriousness of the problem, a few still want to have planned or proposed elective surgeries done in this period, without realising the possible risks and difficulties involved in getting operated now.

The concern and apprehension is multi-fold when the diagnosis is cancer. As individuals and teams have not encountered such a situation before, many organisations such as the International Society for Diseases of Esophagus, the American College of Surgeons, SAGES with inputs from WHO and CDC, are coming out with guidelines to be followed to resolve dilemmas. These professional medical societies are guarded in providing these principles, adding a note that they are based on the evidence available as on date and that the recommendations are subject to change every day.

It is time we understood the implications of having a planned elective surgery at the present time.

Any patient who has to undergo surgery has to consult the surgeon and the physician to get medical fitness certified, and the anaesthesiologist for an assessment. For this, he or she has to visit a hospital or a laboratory, where the patient may not be the only one going for tests. There would be people with emergency situation waiting for tests. There is a need to maintain social distancing too as one does not know the status of the others waiting there. Moreover, in the wake of COVID-19, there may be a need for additional testing.

### Limited resources

The labs and diagnostic centres will be working with limited staff to handle emergencies.

After the tests are done and you wait for the fitness report from the physician and anaesthetist, you will be intruding into the time which they would like to devote to emergencies.

If you have to undergo surgery, even if it is an outpatient procedure, you have to go with a relative to give consent, subjecting them to the risk in the time of lockdown.

The situation becomes complex if the surgery is a major one necessitating long operating hours, obviously warranting a full-fledged surgical team, anaesthetic team, theatre sisters, theatre technicians and workers from the sanitary department.

After the surgery, there may be need for ICU care and even ventilator support, adding to the burden of the ICU staff. All these resources may be needed for another patient in crisis.

Guidelines from most of the professional Societies across the globe suggest: wherever there is a possibility to continue medical therapy, to do so, and to plan surgery for a conducive time; even if surgery is the only option and but not on emergency basis, it can still wait. There is also a growing concern about doing laparoscopy or open surgery, for which we do not have a clear answer yet.

Patients diagnosed with cancers have different problems: their concern will be about the potential advancing nature of the disease if not operated immediately. The medical team's concern is about weighing the balance between the benefit and risk of subjecting them to a major surgical procedure, which may warrant long operating hours, involving a bigger team, ICU and ventilator care.

### Collective decision

In such circumstances, multi-disciplinary meetings are held via video conferencing and a collective decision is made by the experts on what is best for the patient in the current situation. Sometimes, they resort to a treatment strategy like initial chemotherapy and radiotherapy which halts the progression of the disease.

This policy gives the patient and the team the "window period", buying time to operate at a favourable juncture. If the risk of surgery, including ICU stay, outweighs the benefits, they may be subjected to non-surgical treatment modalities.

The government and the entire medical fraternity is fighting a serious pandemic, working hard to save society. If elective surgery is postponed, it is only in the interest of the patient.

It is equally important to understand that their help is required for patients who are in need of more immediate care.

Today's difficult situation calls for understanding from all of us. That advice to postpone elective surgeries is given in the interest of all concerned. We must understand that by waiting, we are not wasting time.

By relieving unnecessary pressure on the health system, based on sound medical evaluation, the patient is actually doing herself a service - saving oneself and society by helping doctors save more lives.

# THE BODY AND COVID-19

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## It's important to protect skin



Dr. D. Dinesh Kumar



Dr. Ishwarya R.

*Dr. D. Dinesh Kumar is the Secretary General, Indian Society of Teledermatology and Dr. Ishwarya R. is a public health specialist.*

It is imperative that we follow the guidelines laid down by the World Health Organisation (WHO) and the government with respect to personal protection against novel coronavirus disease (COVID-19). Part of this is practising hand hygiene -- frequently washing hands with soap and water or application of sanitisers.

While hand hygiene is an excellent method to prevent the infection from spreading, it is also important to protect our skin from adverse reaction to frequent hand-washing or use of alcohol-based rubs. Even though COVID-19 is not skin loving, the pandemic has affected dermatology specialty in more ways than one.

Dermatologists are noticing an increase in patients showing up with hand eczema/dermatitis caused due to irritation by exaggerated hand washing with soaps, predominantly made of chemicals. As we cannot shy away from frequent hand washing, it is highly recommended that such patients apply a moisturiser cream after every hand wash. Also, there have been instances where a few patients have mistakenly wiped their faces with alcohol-based sanitisers, resulting in irritation of the facial skin or aggravation of an existing skin condition.

### Stress and anxiety

These problems are common in people with dry skin and with an atopic (skin allergy) background. During the pandemic, it is likely that we are under continuous stress and anxiety at a subconscious level. Since, skin disorders also have a co-relation with emotional/mental stress, the current scenario is expected to exacerbate the existing skin conditions in patients. Patients with chronic skin condition and who are on long-term medication for the same are advised to consult their dermatologists on continuing the medicines.

Health care professionals, including doctors, nurses and other paramedical staff, too develop skin problems due to prolonged use of personal protection equipment (PPE).

Continuously wearing gloves can cause hand dermatitis and wearing of occlusive masks, goggles for long hours has led to facial itching, rash, and dermatitis and use of protective caps has led to itching, folliculitis, and seborrheic dermatitis of scalp in some professionals. Therefore, it is important to continue using PPE along with skin emollients, barrier creams, moisturisers, and skin-friendly soaps/shampoos.

With regard to direct manifestation of COVID-19, there have been reports about skin changes in patients. The skin changes were seen in 20.4% of the 88 patients in a study from Lombardy

region of Italy (published in the Journal of European Academy of Dermatology & Venereology by Relcalcati S.).

Another study from China by Guan W J. et al., in the New England Journal of Medicine noted rash in only 0.2% of 1,099 COVID-19 patients.

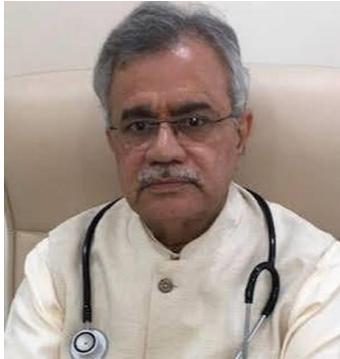
### Use teledermatology

Some skin disorders worsen with stress requiring immediate attention of dermatologists. With lockdown in force, patients were unable to access dermatological care, since most clinics were temporarily closed as a precautionary measure.

It is prudent to provide teledermatology care to non-emergency skin conditions and the dermatologist will be the right person to decide whether a patient needs in-person consultation.

There are some general ways to keep your skin and body in good health during this period. People should maintain a proper schedule with respect to food, sleep and moderate physical activity. One should engage in a constructive activity (like yoga, meditation, reading, other hobbies), regulate their news feed, stay positive and practise social distancing.

## Breathing hard



Dr. R. Narasimhan

*Dr. R. Narasimhan is a Senior Respiratory Physician, Apollo Hospitals, Chennai*

On one hand, COVID-19 infections are on the rise, and on the other, people with chronic lung diseases are worried. This is because the presentation of COVID-19 is with nasal symptoms, loss or decrease in smell, chest pain and breathlessness. This is always associated with fever, body pains and fatigue. Most of the bronchial asthma and COPD patients too are present with these symptoms, when they get an infective exacerbation.

In bronchial asthma, the symptoms are sporadic and patients respond well to inhaled bronchodilators and if necessary, they respond to antibiotics rapidly unlike in serious COVID-19. The lungs get affected in serious COVID-19 when a cytokine storm occurs with stiff lungs, small clots in lung vessels and the oxygen carrying capacity of the blood becomes low.

The combination of these factors pushes the person into full blown respiratory failure and recovery from this becomes difficult.

This is quite in contrast to what happens in infective exacerbation of asthma. The response to treatment is quite dramatic and within 48 hours they start finding symptomatic relief. I advise most of my patients who call over the phone and it is only if they don't respond, do I ask them to come in for a consultation. With this lockdown, the number of infective exacerbations have come down significantly and most of them do well with telephonic advice. I have not found any increase in admissions due to this problem.

### Cancer and COVID-19

This is in contrast to people who have suffered from lung cancer or had treatment for cancer with chemotherapy or are on treatment with biologicals, or those who have undergone surgery and/or are on chemotherapy now. Most of these individuals are around 60 years with their immunity compromised. The symptoms of cough and breathlessness cannot be brushed aside casually in them as COVID-19, if it occurs, can proceed at a galloping pace. This is because of co-morbidities that reduce the immunity along with the treatment that reduces the immunity.

This somehow does not appear true of TB. I have not had any patient who had treatment for tuberculosis regularly call me and ask me whether he should undergo any tests for COVID. A lot of talk about the correlation between BCG immunisation and vulnerability to COVID-19 is going on.

Although there may be an argument that we are not doing enough tests to pick up more infections we have not seen any unusual increase in mortality during this season in hospitals both government and corporates put together. Mortality rates cannot be hidden though there may be some undetected asymptomatic infection in the country due to non-testing. Some are also making a case that malarial endemicity and consequently the persistent use of hydroxychloroquine might have offered India some protection.

## Does SARS-CoV-2 affect the liver?



Dr. Harikumar R. Nair

*Dr. Harikumar R. Nair is a senior consultant hepatologist and a liver transplant physician. He is a hepatologist at Gleneagles Global Health City, Chennai and Kinder Multi speciality hospital, Kochi*

There have been few predecessor viruses for this one, which share similarities in structure and in the way it inflicts damage to human body. Viruses self-mutate periodically, change its structure and form and take new avatars. The current avatar inducing COVID-19 spreads rapidly and has more death rate than previous generations. All previous coronaviruses were respiratory pathogens.

Liver impairment has been reported in up to 60% of patients with the preceding coronavirus — SARS-CoV. Given the fact that this novel corona (SARS-CoV-2) has 80% genetic similarity to the preceding strain of the virus (SARS-CoV), does it act similarly with reference to the liver?

Let us look at information from China. Liver damage in mild cases of COVID-19 is often temporary and the organ can return to normal without any special treatment. This could be due to the state of direct infection of liver cells or could as well be due to liver cells getting caught up in the immune war between body's immune system and the virus with chemicals produced by our body, namely cytokines. More patients with severe disease had abnormal liver function tests than did non-severe patients with COVID. Those who tested positive for the virus (sub-clinical phase, identified by contact tracing), but did not develop symptoms had much less involvement of the liver. In short, liver injury depends on severity of COVID-19.

### Cases of acute liver failure have not been reported yet from China or from other countries

What about people who already have liver disease? People with non-alcoholic fatty liver disease (NAFLD) or its more severe form, non-alcoholic steatohepatitis (NASH), often have cardiovascular risk factors, including metabolic syndrome, obesity and diabetes, raising the risk for severe COVID-19 complications.

Although hepatitis B virus (HBV) is common in China and other Asian countries, studies so far have not reported whether HBV-related liver disease influences COVID-19 outcomes. All these liver diseases without advanced scarring or cirrhosis would not have more chance to get the virus infection though.

That is not the case with cirrhosis of liver — cirrhosis per se may be considered an immune dysfunctional state; those under medical management and those in whom a liver transplant is planned and waiting for organ allocation should also be considered at more risk.

### Pre-existing disease

Those who have pre-existing liver disease, should they undergo check-up and LFTs to see if coronavirus has entered the liver? The answer is an emphatic NO. What has been mentioned here is abnormality of LFT in those patients who already developed COVID-19. COVID is a respiratory illness and will have symptoms pertaining to lung. Severe cases who are hospitalised alone may develop jaundice. Liver injury will not occur in the absence of respiratory illness and hence no screening tests/ LFT are indicated in patients with liver disease.

### Are liver transplant recipients at higher risk for COVID-19?

Certainly. Those who have undergone liver transplant and are on immunosuppression medicines (anti-rejection medicines) are certainly at higher risk of getting this infection and logically, can end up with severe disease.

People with a weakened immune system may be unable to fight off the virus. So transplant patients have more chance of getting the virus, but paradoxically transplant recipients may not exhibit symptoms — fever, breathlessness — to begin with. Apart from the routine measures of frequent hand washing, hand sanitising, cough etiquette and avoiding putting hands to mouth, they should try to avoid crowds and non-essential travel.

## What does COVID-19 mean for kidneys?



Dr. Rajan Ravichandran

*Dr. Rajan Ravichandran heads the MIOT Institute of Nephrology and is also Chairman of Sapiens Health Foundation*

First of all, the disease itself can damage the kidneys. Secondly, the spread and isolation in dialysis units will be a problem. Thirdly, dialysis and transplant patients may succumb to it more easily.

What does the data from Wuhan show so far? The main causes of death for patients infected with COVID-19 are pneumonia and respiratory failure. Early reports from Wuhan showed only up to 9% kidney involvement in these patients. But a subsequent report covering 59 patients showed that 34% had a protein leak in urine on admission, which increased to 63% later. The kidney function was reduced in 27% of the patients and in two-thirds of those who died. Among the 710 hospitalised patients, 44% had a protein leak and 26% microscopic blood leak in urine.

The CT scan showed dense kidneys in those who died. The reason for this was the direct involvement of the kidneys with the virus and also the inflammatory toxins (cytokines) released in sick patients.

One interesting finding was that among the patients who were taking certain BP drugs like ARB and ACE inhibitors, the death rate was higher. The treatment of patients with kidney failure is not different from that of any other patient in ICCU, including dialysis or CRRT.

There are no reports on patients who are not on dialysis. There are 7,184 patients in 61 centres in Wuhan city. Only seven deaths have been reported, with 37 out of a total of 230 patients having been affected, besides four staff members. Reports from other centres are not available. In the affected patients, the disease seems to be milder. Dialysis centres are likely to spread the infection due to close spacing between patients and frequent visits by patients.

Both the Chinese Society of Nephrology and the Taiwanese Society of Nephrology have issued guidelines for dialysis units, including education and training of staff and patients, collection of travel data, isolation of suspected cases, use of cap mask, gowns and sanitisers, hand washing, disposal of waste, sterilisation of machines, increasing the distance between patients and cleaning and disinfection of units. It would be very difficult to follow these guidelines in India due to the total non-uniformity of dialysis units and the reuse of dialysers in many centres. Universal precautions should be followed in dialysis centres, irrespective of epidemics.

### Transplant patients

There are no reports of COVID-19 in transplantation patients. Though we expect kidney transplantation to have special concerns, immunosuppression late after transplantation may result in less severe manifestations of the disease. Obviously, these patients are required to follow the same precautions — hand washing, fewer visits to hospitals and avoidance of travel.

## COVID-19's gut connection



Dr. T.S. Chandrasekar



Dr. K. Raja Yogesh

*Dr. T.S. Chandrasekar is chairman, Medindia Hospitals and Dr. K. Raja Yogesh is a gastroenterologist at Medindia Hospitals*

### Fact File

*50% of COVID-19 patients present with digestive symptoms*

*Infected patients actively shed the virus in the stools*

*Proper hand-washing protocol must be stressed after every bowel movement*

*Ensure closure of commode lid before flushing to avoid bio-aerosols*

*Avoid lavatory use immediately after usage by another*

In the wake of the present the COVID-19 pandemic, there has been a much-needed increase in awareness among the general public of the importance of handwashing, social distancing and observing cough and sneeze etiquette. Observing a healthy 'toilet hygiene' must also be stressed, in view of the fact that COVID-19 affects the gastrointestinal tract too.

Most of us are aware that the COVID-19 presents with symptoms such as fever, cough and difficulty in breathing.

What is to be noted is that recent scientific data suggests that nearly 50% of the COVID-19 patients present with predominant digestive symptoms as their primary complaint. The digestive symptoms include lack of appetite (83.8%), loose stools (29.3%), vomiting (0.8%) and abdominal pain (0.4%).

Although these patients usually do have coexisting respiratory complaints as well, a few of them (3%) can present with only digestive symptoms without any respiratory symptoms.

It appears that patients who report gastrointestinal symptoms usually have a more severe course of the disease and consequently a poorer outcome, compared to patients with COVID-19 infection without gastrointestinal symptoms. As the disease progresses in severity, digestive symptoms also increase.

### Shed in stools

Scientific studies have proven that apart from nasal and respiratory secretions, the COVID-19 virus is actively shed in the stools of infected patients. This shedding may continue to occur for as long as five weeks after the patient recovers from the respiratory symptoms.

In this regard, besides the already known measures such as avoidance of close contact, social distancing, observing cough/sneeze hygiene etiquette and wearing personal protective gear, the importance of a proper handwashing protocol, especially after bowel movements, must be stressed. Since there is a likelihood of bioaerosols being released in the air during flushing of the toilet (toilet plume), it is advisable to ensure that the commode lid is closed before flushing. Avoiding the lavatory immediately after it has been used by another may also reduce exposure to the virus. Since infected individuals may be asymptomatic and testing everyone would not be feasible, assuming everyone to be potentially infective and observing the mentioned personal hygiene measures universally may be the best way to break the chain of infection.

## Don't ignore abdominal symptoms



Dr. Deepak Subramanian

*Dr. Deepak Subramanian is a laparoscopic and bariatric surgeon. He is the Clinical Lead of the Department of Minimal Access and Bariatric Surgery at MGM Healthcare*

The abdomen is a “Pandora’s box” is a well-known phrase described by many surgeons around the world. Abdominal pain has always been a tricky symptom to assess. And now, during this lockdown, we are getting a lot more calls from our patients complaining of abdominal symptoms. These may vary from simple gastritis-like pain to acute/severe abdominal pain. These symptoms need to be evaluated and their medical history studied before the diagnosis and appropriate treatment.

Abdominal discomfort has been identified as one of the less common symptoms of the COVID-19 infection. Recent literature has revealed that about 20% of patients report to the hospital with a digestive symptom, such as diarrhoea, vomiting and/or pain, accompanying their respiratory symptoms. And roughly 5% show up with abdominal complaints alone. A study in China found that a third of the people with mild COVID-19 experienced diarrhoea that lasted, on an average, five days. It took them longer to clear the virus from their bodies, compared to those without gastrointestinal symptoms.

So, when should a patient with abdominal symptoms visit a hospital? If the pain or associated symptoms like vomiting, diarrhoea, bloating or fever show an increasing trend over a few hours since the onset, it is better to consult a specialist at the hospital.

Any acute abdominal pain could mean that the patient may have an intestinal obstruction, infection or inflammation of the appendix, gallbladder stones causing infection and pus within the biliary tract, intestinal perforations and more. These signs would be intolerable and will limit regular activity or movement.

How do we diagnose once we see you? It’s a combination of complete history taking and clinical examination with blood tests and radiological tests like USG abdomen or CT abdomen. Once diagnosed, treatment choices are offered which may be medical or surgical in nature. In some situations, emergency surgery may be recommended to avoid further sepsis as this may hamper the overall outcome of the treatment and life of a person.

### Delayed consultation

About 90% of these procedures can be completed by laparoscopy (keyhole surgery) which is a minimally invasive method of performing surgeries. Most of these patients get discharged within two days and are able to do their routine work soon. When there is a significant delay between onset of symptoms and arrival at the hospital, that is where the chances of performing these procedures through the keyhole method decreases and the rate of complication rises.

But during this current situation, I am sure you are probably wondering how safe it is for people to visit the hospital. All hospitals are taking utmost precautions to safeguard the health and safety of their patients and, of course, the healthcare workers. Effective screening of every person, including doctors and staff, is performed as they enter the hospital daily. All patients are screened and their attenders screened. If anyone has any suspected symptom related to COVID-19, they are isolated and admitted in specialised isolation suites till the test results are out.

All patients undergoing surgery are tested for COVID-19 and all healthcare staff dealing with the patients wear full personal protective equipment while treating or handling these patients, even if the results of tests for COVID-19 are negative. Patients who are recuperating from surgery must take extra precautions as their general immunity will be a bit more compromised.

People must stay at home if they are fine and healthy, eat healthy food and indulge in some form of exercising like walking and breathing exercises within the house to keep themselves fit. Physical distancing is a very important principle to follow during this period but in the case of an abdominal or a gastrointestinal (GI) emergency, healthcare distancing need not be practised. The best outcomes in all these GI emergencies can be fully achieved if the patient reports early to the hospital.

## Does COVID-19 have a link with the eyes?



Mohan Rajan

*Dr. Mohan Rajan is Chairman & Medical Director, Rajan Eye Care Hospital, Chennai*

We ophthalmologists are used to the red/pink eye, called Madras Eye, which is a viral conjunctivitis caused by Adenovirus.

This conjunctivitis used to be seasonal until a few years back, but now it is seen right through the year. The symptoms of viral conjunctivitis are red eye, sore throat, fever.

The infection spreads from droplet source (aerosol spread), wherein it can spread from one person to another, in close proximity/contact with the surface that is infected.

The virus is very contagious and spreads very easily in closed spaces and air-conditioned rooms. The Adenoviral infection is self-limiting and is generally not vision threatening or life threatening.

COVID-19 also spreads from droplet source (aerosol spread) and has respiratory symptoms such as breathlessness which is not in the case of adenoviral infections.

COVID-19 presents as fever, dry cough, breathlessness and can be fatal.

Those affected experience symptoms such as fever, cough, shortness of breath or conjunctivitis, which can appear between two to 14 days, after being exposed to the virus. In addition to this, according to a paper published in The Lancet, patients can transmit the virus even before experiencing symptoms.

### How is the new coronavirus related to your eyes?

Patients who have contracted the new coronavirus may have ocular symptoms. Conjunctivitis is an inflammation of the membrane covering the eyeball. It is often referred to as 'pink eye'. Conjunctivitis often presents as an infected/red, "wet and weepy" eye. Viral conjunctivitis is known to present with upper respiratory infections (colds, flu, etc.) and may be a symptom of the COVID-19.

A recent study of hospitals across China, published in the New England Journal of Medicine, found "conjunctival congestion" or red, infected eyes in nine of 1,099 patients (0.8%) with a confirmed diagnosis of COVID-19.

A study in The Journal of Medical Virology showed that of 30 patients hospitalised for COVID-19, only one was diagnosed with conjunctivitis. Based on this information, the occurrence of conjunctivitis is low. The American Academy of Ophthalmology has released new recommendations regarding urgent and non-urgent patient care on March 18. Patients typically present with respiratory illness,

including fever, cough and shortness of breath; conjunctivitis has also been reported.

The only way is to follow regular hygiene practices — frequent handwashing, sneezing or coughing onto a sleeve as recommended by the WHO, and social distancing. Approach a doctor if you notice any of these symptoms.

## Are diabetics more prone to COVID-19?



Dr. V. Mohan

*Dr.V. Mohan is the chairman and Chief of Diabetology at Dr. Mohan's Diabetes Specialities Centre.*

Because of the present scare due to the COVID-19 infection, many people with diabetes have been contacting us asking whether people with diabetes are more prone to COVID-19. It is true that the people with diabetes are prone to all infections.

There are some emerging data to suggest that people with diabetes are also more prone to COVID-19. Moreover, even in those with infections such as COVID-19, which leads to pneumonia, the chances of a secondary bacterial infection complicating the viral pneumonia is there.

Hence, people with diabetes should take particular precautions with respect to COVID-19, as they already have a slightly immuno- compromised state.

### What can be done?

As with everyone else, it is important to maintain good hygiene, especially frequent washing of hands with soap and water and also with a sanitizer, especially in a health care setting. If you know someone has cough, cold or fever, it is better to avoid contact with them.

The spread of the virus is known to be through droplet infection. Hence, if somebody with COVID-19 coughs or sneezes, you are likely to catch the infection. It is not necessary to wear a mask unless you already have an infection. However, if you have the infection you should wear a mask to prevent infecting others.

### Special precaution

It is important to keep your blood sugar under good control. Any infection is likely to increase blood sugar levels and uncontrolled diabetes can further lead to worsening of the infection. Increased testing of the blood glucose levels with a glucometer or Continuous Glucose Monitoring may be necessary. If blood sugar levels are found to be very high, consult your doctor and bring your sugar levels under good control as quickly as possible.

Unless you have type 1 diabetes or severe insulin-requiring type 2 diabetes, wherein the sugar levels tend to go very high and signs of ketosis or diabetic ketoacidosis (DKA) develop, it is not necessary to get admitted to hospital.

Follow all the usual precautions like washing your hands with soap and water regularly and 'social distancing', i.e., keeping a distance from people who are likely to be infected.

Although spreading of the infection through a needle used for blood glucose testing or insulin injections is highly unlikely, it is better not to share your blood testing lancet or insulin needles with anybody else.

To summarise, all people with diabetes should be aware of the COVID-19 infection and avoid coming into contact with an infected person. If by chance, you have already developed the infection, please see that you keep yourself isolated and don't infect other family members or people whom you may be in contact with. Most importantly, keep your diabetes under good control and seek medical attention as soon as possible.

## Some tips to avoid diabetic amputations during lockdown



Dr. Vijay Viswanathan

*Dr. Vijay Viswanathan, Head and Chief Diabetologist, M.V. Hospital for Diabetes*

We are seeing an increased number of lower limb amputations during the lockdown period among people with diabetes. The reasons given by the people who underwent these amputations were that they were not able to get proper wound care and access to their regular doctors who were attending to their 'diabetic foot' infection.

In the last one week, we had 5 patients who required a major below or above knee amputation due to diabetic foot infection. Before the lockdown we used to get some 5 patients in 2 months who required a major lower limb amputation.

The warning signs that should alert someone with diabetes to seek immediate help and avoid a major amputation are as follows:

- High fever
- Redness and warmth in one foot compared to the other foot
- A foot ulcer that changes colour and becomes discoloured or appears yellow due to pus formation
- Pain in the foot
- Past history of reduced blood flow in the foot (peripheral arterial disease)
- Swelling in one foot (indicating damage to the joints or bones of the foot)
- Increased white cell count (WBC) in blood tests
- People with a foot ulcer whose blood sugar is not getting under control

### What should people do to prevent a major lower limb amputation:

In people who have loss of sensation in their feet (neuropathy), it is very necessary to take utmost care of their feet

Daily foot examination is necessary to detect any minor injury which may go unnoticed

Avoid dry feet by applying a moisturiser cream on the feet but avoid in the space between the toes

Look for fungal infection in between the toes

Do not cut nails with scissors and cause injury, but use a nail filer to file the nails

If the warning signs are present, an immediate consultation with the doctor is required

People who have a foot ulcer must examine and dress the wound regularly with the help of a local nurse

Use moist wound dressings which are available that will help the patient to avoid daily dressing. It may be possible for a patient with a foot ulcer to do dressing on their own with these modern moist wound dressings which are available

Avoid putting pressure on the foot ulcer which will create more damage to the ulcer. Proper offloading with a cast may be recommended for some people

Start antibiotics after consulting the doctor if there are signs of infection because this will help to contain the infection and help to avoid spread of the infection upto the knee level

Visit the surgeon regularly if there is an active foot infection and take intravenous antibiotics, if necessary

Control diabetes well with oral medications and use insulin, if necessary, especially if there is evidence of foot infection

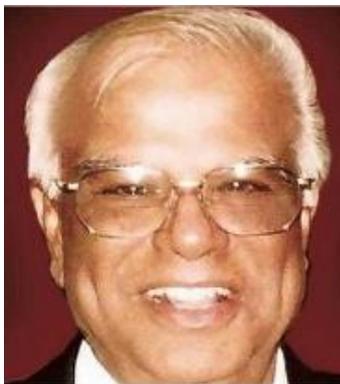
Check the blood sugar both before and after meals on a regular basis and keep the fasting blood sugar between 110 and 120 mg/dl and the after-meal blood sugar between 160 and 180 mg/dl. This will help to prevent a serious foot infection

Therefore, proper foot care during this period will help to avoid many lower limb amputations.

## Can DPP-4 inhibitors play a role?



Prof. Vijayam Balaji



Prof. V. Seshiah

*Prof. Vijayam Balaji is Chairman, and Prof. V. Seshiah is founder, Dr. V. Balaji Dr. V. Seshiah Diabetes Care and Research Institute*

The whole world has been shaken by the COVID-19 pandemic. Scientists working in different fields such as epidemiology, virology and immunology are struggling to find the remedy to control and prevent this epidemic. A number of theories are going around about the cause and effect of this virus on human beings. The protective role of smallpox and BCG vaccination from COVID-19 is also being analysed.

Morbidity and mortality due to COVID-19 is high in those with co-morbid conditions including Diabetes.

Type 2 diabetes is associated with low grade chronic inflammation induced by the excessive visceral adipose tissue (belly fat). Persistent hyperglycemia (high blood sugar) and inflammation can cause ineffective immune response resulting in decreased defense mechanism against any infection.

As a consequence, uncontrolled diabetes along with advanced age is a major factor of poor outcome during an infection with COVID-19.

Recently a ray of hope has appeared in the usefulness of the class of drug, DPP-4 inhibitors. DPP-4 inhibitors are used to control blood sugar levels and widely used in the treatment of Type 2 Diabetes.

We need to know the function of DPP-4 to understand the role of DPP-4 inhibitor. DPP-4 is a type 2 transmembrane glycoprotein expressed in many tissues including immune cells. Although its functions are not fully understood, it plays a role in post meal glucose regulation.

DPP-4 expression is high in visceral adipose tissues and increases inflammation and insulin resistance.

In a simple way we can now understand a drug that inhibits DPP-4 will reduce blood sugar, reduce insulin resistance, and reduce inflammation.

Coming to COVID-19, excessive inflammatory response after an infection has been shown to be the major cause of an adverse outcome including acute respiratory distress syndrome and acute kidney injury. So, harnessing the protective role of DPP-4 inhibitor in decreasing the profound inflammation seems logical.

Few studies published on the anti-inflammatory protective role of DPP-4 inhibitors in diabetic mice with MERS –CoV infection support this concept. A meta-analysis in human beings also

showed that upper respiratory tract infection does not increase significantly with DPP-4 inhibitors treatment.

It concluded that DPP-4 inhibitors have been associated with anti-inflammatory and anti-adipogenic effect.

We need more data on the anti-inflammatory effect of DPP-4 inhibitors in minimising the risk and the progression of acute respiratory complications in COVID-19 patients with Type 2 Diabetes.

## COVID-19 and the nervous system



Prof. K. Ganapathy

*Prof. K. Ganapathy is the past President of Neurological Society of India, and the past president of the Telemedicine Society of India*

In the last few weeks several articles have appeared from various specialists pointing out how the novel coronavirus disease (COVID-19) can affect their respective specialties. SARS-CoV-2, the scientific name given to the virus, appears to be truly omnipresent. Its signature appears in many parts of the human body directly or indirectly. Initially, it was believed that SARS CoV-2 was not neurotropic, or it has no preference to hitch on to nerve cells, the nervous system is at a lesser risk than other organs. Now, researchers are not sure.

### Neurological manifestations

Papers published in the most respected peer reviewed international journals from April 14 onwards indicate that primary and secondary involvement of the nervous system is gradually coming to light. A study of 214 COVID-19 patients from Wuhan, China, revealed that 36.4% had neurological involvement. Symptoms included seizures, unsteadiness, stroke, dizziness, impaired consciousness, confusion, agitation, cognitive impairment, and localised neuralgia.

Loss of smell and taste (temporary or permanent) is being increasingly recognised. The last could occur early or late. Some patients did not initially have the classic diagnostic triad of fever, cough, cold and breathing difficulty. More research is required. The damaging effects of COVID-19 may extend beyond the lungs to our brains and minds, scientists are warning.

In studies on mice, the SARS-CoV-2 has been shown to enter the brain from the nose through the olfactory system, said Avindra Nath, clinical director of the U.S. National Institute of Neurological Disorders and Stroke, and chief of the section of infections of the nervous system. In some countries where the pandemic is spreading clinicians are being advised to consider SARS-CoV-2 infection as a causative factor in the differential diagnosis, even for primary neurological presentations. This is to avoid delayed diagnosis, misdiagnosis and prevention of transmission. Hopefully this will not apply to India.

### Important repercussions

It is essential that serious neurological disorders are not overshadowed by the COVID-19 crisis. Patients with critical head injuries and stroke, normally accommodated in ICUs, may now have to be transferred elsewhere. Interestingly, worldwide, as per just published literature, there is a perception that a smaller number of patients with stroke and brain haemorrhage (non-COVID-19) are coming to hospitals. The significant reduction in head injuries can, of course, be directly attributed to the

lockdown. COVID-19 patients operated on for neurosurgical problems had pulmonary complications more than expected.

Objective criteria are being drawn to prioritise patients with brain tumours, whose surgery is being delayed. No doctor likes to play God. Now, limited resources must be judiciously used.

Unfortunately, in the real world, “all are equal, but some are more equal than others”. The tendency of super specialists to know more and more about less and less will now change as COVID-19 will make everyone view things holistically. It is no longer only about technical competence to manage a brain tumour. The new norm, more than ever before, will have to factor in COVID-19 for each and every management decision. Forty-five years ago, the concept of treating tumours in the base of the skull, without opening the skull, was introduced. Operating pituitary tumours through the nose became the accepted norm. Last month, the British Society of Neurosurgeons suggested that, as the viral load is high in the nose, this route may have to be avoided. We are indeed coming a full circle. The world is turning upside down.

## Judiciously managing brain tumour patients



Dr. Rakesh Jalali

*Dr. Rakesh Jalali is Medical Director of Apollo Proton Cancer Centre (APCC), Apollo Hospitals, Chennai*

Brain tumours affect people of all ages and can be benign or malignant and require well-coordinated multi-specialist care. Brain tumours in children are especially associated with very high chance of cure and treatments have to be administered to ensure tumour control as well as minimal late toxicity, to maintain quality of life.

Like other cancer patients, brain tumour patients can be at an increased risk of COVID-19 infection due to their immunocompromised state caused by the tumour and treatments given to them.

Our team recently published a collaborative effort with modified recommendations as per available evidence for managing brain tumour patients optimally during the COVID-19 pandemic. Health care professional involved in management of brain tumour patients must take into cognisance the ongoing situation with limited resources and optimise treatment strategies along with prioritising patients based on disease severity. Here are some suggestions:

### Virtual clinics

Adequate screening needs to be done in clinics to take care of brain tumour patients with suspected COVID-19 symptoms. Adequate usage of PPE and distancing should be encouraged. Visits of asymptomatic or mildly symptomatic patients and patients with benign tumours can be rescheduled to later date.

Virtual consultations on various digital platforms must be put in place to take care of brain tumour patients. Patients should be called for follow-up consultations only when they are symptomatic (moderate-to-severe headache, hemiplegia, incessant vomiting, and seizures).

### Proper prioritisation

For patients requiring definitive treatment, their management can be discussed in virtual multi-disciplinary tumour boards (MDT) with only key decision-making members. Surgical management should be planned judiciously during this time and should be done only for urgent cases, such as patients who have increased pressure (e.g., hydrocephalus) and require measures such as emergency shunt placement. Minimisation of hospitalisation and critical care stay should be encouraged to reduce burden on in-patient resources. Procedures where aerosol risk is high should be avoided and alternative approaches adopted. For brain tumour patient requiring radiation therapy, identifying, and stratifying patients according to the priority of treatment can be done as follows:

Malignant brain tumour patients can be considered for radiotherapy on high-priority basis.

Radiotherapy in benign tumour and low-grade gliomas can be put on moderate to low priority.

Radiation dosage using fewer sittings should be employed wherever applicable.

All staff administering treatment should use appropriate PPE.

Similarly, brain tumour patients requiring chemotherapy should get priority based on their diagnosis (type and grade of brain tumour).

### Emergency care

In case of intractable seizures that may be life threatening, the patient must be given intravenous anti-epileptics with due COVID-19 precaution. In case of seizures in COVID-19 patients, neurological symptoms due to COVID 19 should be considered as a rare possibility of acute necrotizing encephalopathy also needs to be kept in mind.

### Compassionate Care

Health care professionals should be in touch with their brain tumour patients more frequently during this time of the pandemic through video and telephonic consultations and assure them of continued care and support even if they are unable to visit clinics.

Brain tumour patients may experience increased anxiety due to the fear emanating from the COVID-19 pandemic situation, hence adequate psychosocial support through virtual platforms should be provided to alleviate their concerns. Patients should be extremely careful and maintain adequate physical distancing and their diet and physical activities even during the lockdown restrictions.

## Stroke is an exception, rush to hospital



Dr. K. Sridhar

*Dr. K. Sridhar is Director and Group Head, Institute of Neurosciences and Spinal Disorders, MGM Healthcare, Chennai*

The COVID-19 pandemic has changed patient care protocols at hospitals all over the world. However, it is important that, in these difficult times, we do not forget the basics of staying healthy and safe.

Stroke or brain attack still remains one of the main causes of death and disability, even during the pandemic. One should not forget the basic concept “time is brain” or the golden hour emphasising that time is crucial in any brain emergency. The reason for this emphasis on time is because the brain is extremely dependant on a constant supply of oxygen and nutrition, as it does not have any storage capacity. Its requirements are also very high – almost 20% of the blood that is pumped from the heart goes to the brain. A stroke may occur because adequate amount of blood does not reach the brain, or because there is bleeding in the brain.

### Stroke recognition

Remember the mnemonic B (Balance), E (Eyesight), F (Face), A (Arms and legs), S(Speech) T (Time to go immediately to the hospital) – this will help in the early recognition of a stroke. Add to this severe headache and loss of consciousness or fits.

The question asked is – should we go to hospital even when there are only mild symptoms? The answer is that one has to go to the appropriate hospital even when there is a doubt of symptoms. These should be taken as a warning and treatment started immediately.

While going to the hospital for minor ailments has been discouraged currently, please remember that a stroke is an exception. It is an emergency and therefore, even when in doubt, one has to rush to hospital.

What happens when a patient reaches hospital?

A CT scan is done to see if there is bleeding and depending on the clinical status of the patient and the time from onset of symptoms, a clot dissolving medicine can be given intravenously. A CT angiogram is also done which will show if there is any involvement of a large vessel. If yes, then the patient will be immediately shifted to the cath lab for a procedure called Mechanical Thrombectomy, where through a small catheter placed into the artery in the groin, the clot is removed. Remember, for this to happen the patient must reach the hospital at least within 4 hours from the onset of symptoms.

Occasionally, surgery may be indicated as a life-saving procedure, to remove a large blood clot or to prevent bleeding from happening again. Decisions and actions are taken in a very short period of time. For this to be effective it is necessary for the concerned hospital to have not only the equipment and infrastructure but also a comprehensive stroke team including specialised doctors in Neurology, Neuro Critical Care, Neuro Radiology, Neuro Intervention and Neurosurgery, other than specialised nursing and technicians.

Currently many stroke teams are working on the concept of tele-stroke, where the stroke team leader at the hospital can remotely direct the general practitioner or family physician on starting the treatment even before the patient reaches the designated hospital. Education of, and good communication between the different health care professionals is key to the success of this initiative that promises to reduce the time taken to initiate treatment of a stroke.

### Safety in hospital

All hospitals are taking precautions to keep patients and healthcare workers safe. Limitations on visitors, rational use of PPEs and screening with segregation ensure that the stroke patient is not exposed to a potential COVID-19 positive patient. Sometimes patients may hesitate to go to the hospital for fear of getting infected with corona virus, or that doctors would be too busy treating COVID-19 patients. Both assumptions are untrue.

People in an extremely vulnerable group need to follow the specific advice about their health condition. A healthy diet, regular physical activity (at home) and reduction of anxiety and stress will help maintain your brain health. Smoking and alcohol are to be avoided at all costs.

While the anxiety of contracting the virus is understandable, emergencies like a brain attack or stroke cannot wait – prompt attention at the earliest is the only way to achieve the best outcomes.

# MENTAL HEALTH AND COVID-19

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## Because the mind matters



Dr. Lakshmi Vijayakumar



Dr. R. Thara

*Dr. R. Thara is Vice Chairman, Schizophrenia Research Foundation, and Dr. Lakshmi Vijayakumar is founder of suicide prevention helpline, Sneha*

Pandemics have never been just medical events or crises, they have affected lives of societies and nations in many ways. The mental health sequel of many pandemics has been documented.

How one copes with an outbreak like COVID-19 depends on three factors, the individual, the community and the health system.

A study conducted in the early phase of the outbreak in China by Wang and colleagues found that 53.8% of the respondents rated the psychological impact as moderate or severe and 16.5% reported moderate to severe anxiety.

The mental health issues have been related to how widespread the pandemic is, how fast the spread is and lack of control over it.

It is also related to the mortality rate due to the infection and availability of good and effective treatments and vaccines.

### Symptoms of stress can be:

1. Excess worry about one's health and that of family, friends, etc
2. Difficulty in sleeping, loss of appetite and fatigue
3. Some symptoms of depression including suicidal ruminations
4. If isolated at home, the need to use more of alcohol and other substances of addiction
5. Irritability, anger borne out of helplessness and disruption of routines
6. Exacerbation of physical ill health such as increase in blood pressure / blood sugar etc
7. Need to hoard items like sanitisers or masks or some essential medicines itself can result in anxiety
8. Fear of acquiring a novel, yet unpredictable disease can increase negative thinking and behaviours

### Who is more vulnerable?

The individuals who are likely to be more psychologically distressed are:

1. Older people with chronic diseases such as diabetes or hypertension who are more vulnerable to contracting COVID-19.
2. Children/adolescents as their routines are disrupted and they perceive the parent's anxiety, stress, and change in lifestyle.
3. Physicians and other health workers who face the constant threat of exposure, overwork, inadequate resources and experience secondary traumatic stress.

4. Persons with pre-existing mental health conditions who may experience new or exacerbation of their symptoms.
5. People in quarantine. They are confronted with uncertainty about their state, fear for their family and friends, guilty and depressed about their isolation. Research during the previous SARS outbreak found 29% of those quarantined showed signs of PTSD and 31% had symptoms of depression.

The connectedness and resilience of the community is strongly reflected in the mental health of the people during an outbreak. When a member / family is stigmatised, isolated and ostracised, mental health suffers.

Mental health consequences of short-term social distancing have not been studied in detail. Dr. Lunstad suggests two competing hypotheses. One, that it may exacerbate those who are already isolated and might trigger others to connect less. The other is that heightened awareness will prompt people to stay connected and focus on reaching out to others.

### Help yourself

1. Educate yourself about the infection
2. Maintain basic hygiene, but do not overdo it. Persons with previous Obsessive-compulsive traits may have an exacerbation due to constant washing
3. Do not over stimulate yourself with news from various sources, especially social media. This can lead to fatigue, anxiety, and stress. Do not constantly engage in conversation on this subject
4. Find ways to relax — be it yoga, music, walks, reading, family time etc
5. Healthcare professionals must ensure they do not burn out in the process of caring
6. While physical social distancing is advocated, stay connected with friends, family and well-wishers. Emotional isolation does not help
7. Do not hesitate to seek help if you are not able to help yourself

The schools have been closed and children at home also need support. Talk to the child, share simple information, don't underplay the seriousness since they pick up information from other sources also. Reassure them they are safe and have all the support they need, do not make your own anxiety very evident while you are around them, limit their sources of information since they could get frightened or misinterpret what they hear and plan home based activities together.

WHO chief Tedros Adhanom Ghebreyesus said that a crisis like COVID-19 can bring out the worst or best in humanity. We hope that it brings out the best in us.

## Be alert, not anxious



Dr. Suresh Rao K.G.

*Dr. Suresh Rao K.G. is the Co-Director of the Institute of Heart and Lung Transplant & Mechanical Circulatory Support, MGM Healthcare, Chennai*

The COVID-19 pandemic is on everyone's mind right now. A majority of those infected recover from the disease. Twenty per cent of the patients may require hospitalisation, especially when there are complaints of breathlessness.

If they have coexisting conditions like chronic renal disease, cardiac disease, respiratory disease, cerebrovascular diseases, uncontrolled diabetes, or hypertension, they carry a higher risk of mortality. Mortality in COVID-19 positive cases ranges from 2% to 8% worldwide.

When we talk about COVID-19 infections and heart diseases, we face four scenarios — patients with known cardiac disease; cardiac patients developing COVID-19 infection; patients with COVID-19 infection developing cardiac complications and patients waiting for or have already had cardiac transplant

For cardiac patients: The most important thing to remember is to continue taking your medication if you have a known cardiac condition. You must also take the following precautions: Avoid physically visiting the hospital for your routine check-ups. Utilise their online consultation facility, if available, to speak to your doctor. Stay at home to prevent contact with carriers. Practise social distancing in case you have to interact with others.

Consciously avoid touching your face. If it's absolutely necessary, wash your hands with soap and water for at least 20 seconds or use a hand sanitiser containing at least 70% alcohol.

Work on optimising your immune system. Getting adequate sleep, staying hydrated, eating a balanced diet, and exercising every day are paramount.

Keep in touch with friends, colleagues, family, and others remotely. Your mental health can affect your physical health, so don't neglect that!

Remember this: Even if you don't catch the infection, stressing about the situation can worsen your heart condition. So, it's important to be alert and not anxious.

For cardiac patients who develop an infection: Maybe you've come to the hospital with chest pain. You may not have COVID-19 but the hospital may have to test you for it. This is for everyone's safety. If you test positive, you and anyone you have come in recent contact with you should be quarantined for two weeks. There's some evidence that shows a fever may actually be beneficial to your immune system in fighting the infection. So, for mild infections, fever can be treated with antipyretics.

Antibiotics may be prescribed to you to treat secondary bacterial infections if the symptoms are worse. Remember to consult your physician and do not self-medicate!

If you develop breathlessness or other serious respiratory symptoms, you may be admitted to the ICU. Any kind of infection may worsen cardiac failure or cardiac disease as it can produce inflammatory reactions that include vascular and myocardial inflammation.

COVID-19 positive patients who develop cardiac complications are conservatively managed. For example, a patient with Triple Vessel Disease who is a candidate for coronary bypass surgery may instead be managed by angioplasty or medically managed with plaque stabilising drugs such as statins and antiplatelet agents.

What about end-stage heart failure patients? End-stage heart failure patients are medically managed at present as the pandemic is making the logistics of transplantation difficult.

Patients who have already had heart transplantation are at a much higher risk for infection as they are on immunosuppressive drugs.

Our strategy is to prevent the infection among such patients by advising them to stay at home, use personal protective devices and maintain physical distancing. It's normal to get worried about the pandemic given all the free time you have now and the exposure to several myths and misinformation. But worrying is not good for your health. Let the healthcare workers do their job and you focus on following the necessary precautions. Remember — stay alert, not anxious.

## 'How I fought COVID-19 and won!'



Dr. Arulvel Kathiravan

*Dr. Arulvel Kathiravan is Medical Officer, Apollo Emergency Clinic, Apollo Hospitals, Chennai*

As a doctor posted at the Apollo Emergency Clinic at the Chennai Airport, I was worried about the exposure to the SARS-CoV-2 virus while on duty. However, I continued to work until passenger operations stopped as part of the national lockdown, taking precautions such as wearing a mask and washing hands regularly.

My tryst with COVID-19 began on March 31 when I started to get a fever and a sore feeling in my throat. It was okay with paracetamol for a day or two but then the symptoms increased in intensity — a high fever accompanied by chills, headache, and sore throat. The headache stood out in its severity. I had never experienced such a severe headache in my life. The fever went up to 102 degrees and left me feeling exhausted.

Keeping in view the situation and the fact that I had been working at the airport with the potential risk of exposure to the virus from any infected passengers, I decided to get my COVID-19 testing done immediately. I had already isolated myself in my room and was taking all precautions to avoid contact with others. I waited anxiously for the test results, which came back positive for COVID-19. I right away informed the head of my department at Apollo Hospitals, who advised me to go to our hospital at Vanagaram that had been converted into a COVID-19 speciality hospital.

Taking due care, I reached the hospital in Vanagaram, where I was immediately admitted to the isolation ward on 4th April. I underwent a complete medical check by a team of senior consultants across specialities, with various tests for any other existing co-morbidities. There was no other serious problem and I was glad for my healthy lifestyle at 40 years of age.

### Confirmatory test

The confirmatory test also came back as positive for COVID-19 and my treatment began. I was prescribed hydroxychloroquine and other medicines for my symptoms as per the guidelines. The medical staff took the utmost care of me. My condition was monitored continuously. A team of doctors visited me every day and gave updates about my health. Even though they used to be dressed up in PPE with faces hidden behind masks, their visits helped me a lot, as being in isolation is not easy. With no other visitors and only a television for company, I looked forward to the doctors' visits. The staff nurses sincerely attended to me, giving me my diet, and medications administered on time without delay. The housekeeping staff ensured that my room and the surroundings were clean and tidy.

I was fortunate that my symptoms did not include any respiratory complaint and there were no other complications. I began to feel better. The fever subsided and the medication stopped after the course was completed. On 13th April, I was re-tested for COVID-19 and to my great relief, the result was negative. The test was repeated after 24 hours as per the protocol and guidelines from WHO and when that too came negative; I was discharged on 15th April, after being successfully treated for COVID-19.

It was while I was walking out of the hospital that the realisation struck! I had been one of the over two million patients around the world who were confirmed cases of COVID-19. I had been successfully treated for this infection and discharged after a full recovery. I raised a silent prayer of thanks from my heart to the doctors, nurses, lab technicians, housekeeping staff and others who took care of me. I wish them and the thousands of doctors working round the clock all the best to continue their noble job and keep saving lives!

# PREGNANCY, CHILDBIRTH AND CHILDREN

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## Managing pregnancy and childbirth



Dr. A. Jaishree Gajaraj

*Dr. A. Jaishree Gajaraj is a senior consultant, obstetrics & gynaecology, in MGM Healthcare, Chennai*

“Doctor, I am in my 31st week of pregnancy; neighbours and friends tell me that I am more prone to get the infection. I am afraid. What should I do?”

As obstetricians taking care of mums-to-be, we have received many a phone call seeking help and reassurance. The fear and anxiety is understandable. Thorough knowledge of the infection and its consequences will certainly help allay this fear and anxiety.

Does pregnancy make a woman more susceptible to coronavirus infection? Although pregnancy is an immuno-compromised state, we know from years of experience that most pregnant women go through pregnancy without any major compromise. Compared to the general population they are more likely to contract the infection and hence categorised as a high-risk group. There is, therefore, a need for more strict measures to be followed by both the pregnant women and their caregivers.

Sneezing, running nose, sore throat, fever and sometimes cough – extremely common symptoms. Then, how does one differentiate the common cold from a possible corona infection? Common treatment for such symptoms would be steam inhalation, paracetamol and antihistaminics (for cold).

In the absence of exposure to or contact with a known COVID suspect or history of travel within close contacts (family and friends), the initial treatment should contain the infection. If however your symptoms persist, become more severe or recovery is delayed – it may be an indication of a more severe respiratory infection and you should contact your doctor. Please do not panic as this may still not be indicative of a COVID infection. Kindly ascertain from your doctor regarding the place of consultation. It may not be the clinic where you regularly visit.

The need for social distancing and self-isolation cannot be overemphasized. Pregnant women should stay indoors, not participate in social gatherings and postpone “baby showers”. If a family member develops a cough or cold you should isolate yourself for a minimum of two weeks in a separate room or until he/she recovers.

Our knowledge of the infection itself and its spread is limited. Given the limited information currently available, it would be prudent to strictly adhere to social distancing, especially beyond 28 weeks of pregnancy.

### COVID infection and pregnancy

There is insufficient evidence at present to support vertical transmission from mother to baby in utero, during delivery or breast feeding. Reports of miscarriage, growth restriction in the baby, especially when the infection occurs in the last trimester and induced preterm labour, though occasional, should be kept in mind.

### Routine Antenatal (pregnancy) Care

You may be at various stages in your pregnancy. Trimester I or upto 12 weeks, after pregnancy confirmed on ultrasound scan, there is no need for an urgent AN visit.

Certain scans i.e., the first trimester scan, anomaly scan and growth scan are time-bound, and you should contact your doctor. If you do not have any significant risk factors i.e., age, multiple pregnancy (twins), raised blood pressure, diabetes or other medical or pregnancy related disorders, you can at your doctor's discretion reschedule your monthly visits. The aim would be to minimise exposure to the women and their caregivers. Routine clarification of doubts can be over telephone or video calls.

### Delivery and immediate post-partum

Your obstetrician and maternity unit may not be able to comply with all aspects of care you may have agreed to in your birth plan. Safety is of utmost importance and this will be definitely ensured. Risks of airborne transmission is high during normal delivery and precautions will be taken even if you are not a COVID suspect. If an emergency caesarean section is required, your doctor will advise you accordingly.

You can breastfeed your baby. Isolation may be advised only if there is suspicion or history of exposure.

### Home Delivery

We have had requests for "home delivery" as it is presumed to be a "safer" place than a maternity unit in a hospital. Delivery at home certainly has many attendant risks and should be strongly discouraged in the current scenario. Monitoring of the mother and foetus may be sub-optimal. Access to emergency care, if it becomes necessary, i.e., transport, availability of blood and maternity units and personnel may be very difficult to organise.

### Working women

Working women without any co-morbid factors can continue to work but must follow social distancing. If you are more than 28 weeks pregnant or have any risk factors it is best to coordinate with your workplace and your doctor and make a decision.

There could be a number of asymptomatic individuals among us who are carrying the virus.

The care of pregnant women affected by the coronavirus will be protocol driven and is not discussed here.

Remember, my dear parents to be. Our priority should be reduction of transmission and safety first. My wishes to all of you for a smooth, safe pregnancy and delivery.

## COVID-19 in neonates and infants



Dr. Rahul Yadav

*Dr. Rahul Yadav is a practicing paediatrician and a neonatologist at Rainbow Children's Hospital, Chennai*

Here is some good news for pregnant and lactating mothers:

Coronavirus infection is less frequent and less severe in children (Child Sparing Pattern)

During and after pregnancy, a woman is not at increased risk of coronavirus

COVID-19 does not increase in severity in pregnancy as compared to other people

Transmission from mother to baby before, during and after birth can happen but it is less common than anticipated

Most of the breastmilk samples tested for risks have negative results. So most European countries, most international authorities such as WHO, UNICEF, many Indian professional bodies recommend continuing breastfeeding even if the mother has COVID-19.

### Be careful with testing

COVID-19 in newborn infants is suspected in only two situations:

Born to mother with suspected or confirmed COVID-19

Related to cluster outbreak or exposed to infected relatives or caregivers

Indiscriminate testing of all infants with respiratory symptoms is not recommended. One should note that occasionally babies infected before birth can have RT-PCR test negative and many babies with RT-PCR test positive can be quite healthy.

### Newborns and mothers

During this pandemic, no extra care is needed for a normal newborn born to a normal mother. Regular precautions such as hand washing and breastfeeding should be enough. Social events such as baby shower before birth or naming ceremony after birth should be performed in a symbolic way only. Crowding of relatives and well-wishers near mother and baby should be avoided till this pandemic is over. Vaccinations should be given as usual, avoiding crowding in hospitals. Parents should not delay visit to hospital if baby develops any medical complication.

In summer season, dehydration is common. Please avoid over-wrapping the baby and visit the paediatrician if the baby stops feeding and urine output becomes less. They are treated like any other pregnant women. Full medical and obstetrics care is given by designated hospitals. An attempt is made to postpone the delivery beyond the eighth month of pregnancy. If mother's health is at risk; then baby is delivered early. So far, Indian perinatal and neonatal outcomes are satisfactory. After birth, mothers must wear a mask and breast-feed the baby on demand. The baby and mother can be kept in the same room or different rooms depending on availability of accommodation and nurses. If in same room, a 2-metre distance should be maintained between mother and baby. The baby is monitored for signs such as fever, difficulty in breathing, lethargy, rash, and diarrhoea.

All over the world, mothers have mixed feelings. According to UNICEF, 24 million babies are expected to be born in India during next year. One can be optimistic of better perinatal and neonatal care due to better awareness of hygiene, better health infrastructure.

Even if COVID-19 lingers, good habits such as handwashing and physical distancing can make our world a better place for newborns.

## Will COVID-19 be polite with children?



Dr. S. Balasubramanian

*Dr. S. Balasubramanian is Medical Director, and head of the department of paediatrics, Kanchi Kamakoti Childs Trust Hospital, Chennai*

With the looming threat of the COVID-19 pandemic, paediatricians have been getting frequent queries from parents on the risk of their children getting this new viral infection which is threatening the entire world.

In the coming days, we can expect large number of children to be brought to clinics and hospitals for trivial and major symptoms alike because the fear of unknown diseases is obviously even higher for children.

In the first largest series of cases reported from China, only one child aged 15 years was treated, indicating that there could be a children-sparing pattern in this infection.

In 2003, during the SARS epidemic in Hong Kong, among over 1,700 infected individuals, 6.9% were under 18 years of age with a case fatality rate of 0%. Similarly, when the Middle East Respiratory Syndrome (MERS) spread in 2012, also caused by corona virus, only 2% of cases occurred in children.

Coming to the hottest topic, worldwide data suggests that the paediatric population, even in this very-high risk area, appears to be at an unexpectedly low risk to develop COVID 19 infection. It is unclear why this may happen.

Reports from China suggest that infection of children is possible, although apparently extremely rare.

One possible reason is that children have fewer outdoor activities and undertake less international travel, making them less likely to contract the virus.

Are children cross-protected by having met other Coronaviruses? Coronaviruses (CoVs) is one of the common viruses that invade the lungs as rhinoviruses, respiratory syncytial virus (RSV), and influenza, which all have an RNA genome and are very frequent in children. Innate immune evasion links to the innate immune responses elicited by respiratory and other (RNA) viruses. One explanation could be that pneumonia results from virus-induced immune response causing destruction of pulmonary tissue. Such mechanisms could be less effective in children.

The good news so far is that children are apparently at a minimal risk to develop this new disease, and at virtually no risk of a fatal course.

Are children going to have different symptoms and signs in this dreaded disease?

Most infected children have mild clinical manifestations. They have no fever or symptoms of pneumonia with a good outcome. Most of them recover within 1–2 weeks after disease onset. Few may progress to lower respiratory infections.

### Children with infection can fall into any of the following 4 categories:

1. Asymptomatic Infection
2. Acute Upper Respiratory Tract Infection
3. Mild Pneumonia
4. Severe Pneumonia

William Osler said “The only way to treat the common cold is with contempt.” Ogden Nash defined Family as a “Unit composed not only of children but also of men, women, an occasional animal and the common cold.” Most children in our country and across the world are going to get this Common Cold due to COVID 19 for sure as the pandemic looks unstoppable.

However, we need to remember a few scientific facts in this scenario. Even the most experienced paediatrician cannot distinguish COVID 19 infection from other viral respiratory infections with confidence. Only virus testing will confirm or exclude the diagnosis. Treatment as of today is mainly supportive and symptomatic in the majority of children. A wide variety of drugs is being tried in desperation in critically ill without hard evidence. Vaccine is not yet a reality.

Children may play a major role in community-based viral transmission since quite a few of those infected may be asymptomatic or mildly symptomatic. However, we need to remember that children with chronic diseases, malnutrition, immunodeficiencies may suffer from serious consequences of this seemingly benign viral infection in children.

Balanced diet, oral health, adequate exercise, regular rest, avoiding excessive fatigue, and boosting immunity are the powerful measures to preventing infection, as well as maintaining emotional stability and mental health.

It is necessary to stress that there is a need to practise appropriate hand hygiene and cough hygiene practices meticulously than ever before.

## Sensitising parents of children with special needs



Dr. B. Balaji

*Dr. B. Balaji is a senior occupational therapist and founder, Buds to Blossom, Chennai*

During these challenging times, our children with needs are more likely to be disorganised because of the sudden halt of their routines.

These are testing times for every one of us, especially for children with needs. Paediatric occupational therapists are allied health professionals who focus on their resumption of age-appropriate functions (occupation), be it eating, drinking, sleeping, talking, or playing. During these challenging times, our children with needs are more likely to be disorganised because of the sudden halt of their routines. A change in routine leads to deprived stimulus, which might hamper their development. This may cause anxiety and distress even for the parents who may run out of ideas.

Self-engagement is always a concern for children with autism, slow learners and those who have praxis issues, since doing any new task is a bother. So, parents are encouraged to facilitate engagement in a more therapeutic way, using home resources.

The following are some of the suggestions to be incorporated along with your given programme:

Hand hygiene is of paramount importance during these days, but it is extremely challenging for our children since they tend to mouth their hands, objects, frequently. So use of teethers, chew tubes, blowing toys, constant supervision, sanitising their toys, objects and teaching them hand washing techniques through physical cuing, visual scheduling (drawing simple icons in a step by step sequence) will be of great help for visual learners.

Parents can lead by example like doing their regular chores of waking up in time, carrying on morning rituals without any delay or postponement. The above said modelling drives our children to continue their morning chores without any fuss even if they don't have to go out.

Explaining the current situation in short, simple and in clear phrases to nonverbal children with autism helps them reduce unwanted anxious behaviour and facilitates the desired behaviour; this technique is called social stories. A social story makes them ready to anticipate the day's new schedule and makes them to acclimatise it imaginatively. Morning chores such as brushing the teeth, toilet, and bathing can be facilitated through modelling, physical cues, verbal prompts and including various positive reinforcements over a period of time, since these can well become part of their ritual.

### Sensory stimuli

Allowing children to observe the kitchen during meal preparation gives those rich sensory stimuli through visual, touch, olfactory (smell), and gustatory (taste) inputs. Precautionary measures for hot, sharp objects must be factored in. Mothers can teach children with real objects in more real-life situations like naming, identifying vegetables, fruits, colours, feel different textures of cereals, and smell various spices.

This can be followed by food play/ messy play during their lunch time to desensitise touch, smell, and taste, visual over responses.

Avoid showing the child a mobile phone while feeding, instead go to the balcony and point to things. Parents can gradually substitute junk foods, with homemade organic and healthy snacks.

### Best time for stories

Early evening are the best time for listening to stories from their grandparents or picture book stories which encourages good sitting, listening skills and expressive language. Playing music over speakers or wear noise cancelling headphones helps them to counter auditory over responsiveness and organises them. Letting loose to make funny movements and shake a bit relaxes them immensely. Dads can take over evening sessions by taking them to the balcony/terrace to water the plants, to encourage loads of sensory motor activity such as running, jumping, hopping, cycling, climbing, balancing, and ball skills. Children who don't have access to terraces can arrange furniture for an obstacle course and climb over/crawl under to do picking and dropping tasks. This will help with the much-needed proprioceptive input. A cotton sari hammock suspended from ceiling hooks can be provided to ensure vestibular inputs so as to calm and facilitate muscle tone especially for children with tonal imbalance, Down syndrome and Cerebral palsy. Tabletop activities such as drawing, colouring, pattern writing, grid diagrams, coping different geometric figures and shapes will integrate visual and motor components which are the prerequisites for academics and writing skills.

Sleep hygiene is very essential, so start with a warm bath, followed by warm food, bedtime stories, lullabies in a less distracted, cozy environment to put them to sleep. The above-mentioned ideas are general guidelines and not individualised and parents are encouraged to follow their respective Occupational Therapist-given sensory diet for your specific needs.

# SOCIETY

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## Needed, a transfusion for public health care



Raj B. Singh

*Dr. Raj B. Singh is a pulmonologist in Chennai.*

A news channel in India alleged recently that several private hospitals in the country were “exposed” by a “sting operation” to be levying fees in excess when COVID-19 patients went to them for care. It is not clear why a “sting operation” was necessary; the high cost of medical care in the top hospitals of the country is well known. Anyone who has had major surgery or received intensive care in any of the hospitals can testify to that. The debate now is whether such exorbitant rates are justified during a pandemic such as the one we are amid, or indeed, ever.

Before we address this question, however, an equally important question arises: why do we have so many private hospitals in a poor country such as India? We have more hospital beds in the private sector than in the public sector. It is estimated that there are 19 lakh hospital beds, 95,000 ICU beds and 48,000 ventilators in India. Most of these are concentrated in seven States, Uttar Pradesh, Maharashtra, Tamil Nadu, Kerala, Karnataka, Telangana and West Bengal. Except for Tamil Nadu, Delhi and West Bengal, there are far more beds and ventilators in the private sector than in the public, according to the Center For Disease Dynamics, Economics & Policy.

### A mirror to public care

The reason for this abundance of private health care is obviously the lack of adequate public health care. This situation has developed due to two main reasons. Since Independence, India has, quite rightly, focused attention on the larger picture. The priority in a developing country would be the provision of primary care at the peripheral level, preventive measures, immunisation, maternity and paediatric care as well as dealing with common infections such as tuberculosis. We have done this well, resulting in impressive improvements in many health-care indices in the last few decades. However, not enough hospital beds and specialised facilities were provided by the public sector during this time. At the same time, the burgeoning middle class and increasing wealth produced an explosion in the demand for good quality health care. Private medicine was quick to capitalise on this demand.

The second reason for the dominance of private medicine in India is the lack of adequate investment in public health. The Indian government spends an abysmally low 1.3% of GDP on public health care, which is woefully inadequate. Allocation has to be at least double this to address some of our pressing needs. Greater transparency and tighter administration are necessary to ensure that our resources are utilised appropriately. Specialists should be adequately compensated to obviate their need for private practice.

Private medicine in India is by no means uniform. It is estimated that there are more than one million unqualified medical practitioners, mostly in the rural areas. Most of them provide basic health care, charging a modest fee. Some may have claims of expertise (often unproven) in alternative systems of medicine such as Ayurveda and Homoeopathy. It is not unheard of them to sometimes venture into minor surgery. At the other end of the spectrum are state-of-the-art corporate hospitals, that are well equipped and well-staffed, and which provide excellent service at high cost. These are often set up in metro cities at huge cost and have successfully engineered a reverse brain drain of many specialists from pursuing lucrative jobs abroad and staying back in or returning to India. Between the two extremes are a large number of private practitioners and institutions providing a wide range of services of varying quality. Some are run by trusts, charitable organisations and religious missions, often providing excellent quality at modest costs.

The wide range of quality in medical services in India reflects the wide range of income and wealth in India. It is estimated that the wealth of the top 1% in India is four times the combined wealth of the bottom 70%. The wealthy demand, pay for, and often get, world-class health care. The middle class, seeing what is possible, is beginning to demand similar care at affordable cost. The poorer 70% are left to the vagaries and mercy of an unpredictable public health-care system and low-cost charlatans.

### What needs to be done

The public health-care system desperately needs higher government spending. Health care cannot be left to private medicine in a developing country, or indeed, in any country. The United States, despite spending more than 15% of its enormous GDP on health care in the form of largely insurance-based private medicine, has poorer health-care indices than Europe, where government-funded universal health care (e.g. The National Health Service of the United Kingdom) is available, though the per capita health-care expenditure in Europe is substantially less than in the U.S.

Health-care spending by the government must be appropriate, based on evidence, and transparent and accountable. Training of doctors and health-care workers also need to be the responsibility of the government mainly. Recent reforms in the selection of medical students need to be scrutinised to see if they are having the desired result.

Private hospitals and institutions will need to be regulated. Costing and auditing of care and procedures need to be done by independent bodies. This will not only ensure appropriate care at the right cost but also prevent unreasonable demands of suspicious patients and family.

### **The crisis now**

No hospital, business, institution or individual should profiteer from a national calamity such as the COVID-19 pandemic. Hospitals, like any other institution, have a social responsibility to provide care in times of need. But one should be also aware of the actual costs involved which have to be met. The cost of medical care often follows the law of diminishing returns; as the treatment gets more sophisticated, further and further increments, although small, cost enormously more. Some of the drugs used in the care of severely-ill COVID-19 patients may cost more than ₹50,000 a shot, for example, and may provide only a marginally better outcome. “Capping” costs may necessitate sacrificing some of these expensive options. Private hospitals should, and will, be prepared to forego profits and even suffer losses during a national disaster. But if losses become unsustainable, they may be forced to lay off employees, close beds or even entire hospitals, like any other business. That will hardly benefit anyone.

## We need social physicians



Soham D. Bhaduri

*Dr. Soham D. Bhaduri is a Mumbai-based doctor, healthcare commentator, and editor of 'The Indian Practitioner'*

While medicine remains central to public health, medical academia has never been a torchbearer for the public health cause. Apart from the inherently individualistic character of medicine, part of the reason can also be located in Indian medical education originally “carrying the cultural accretions of the West”, as D. Banerjee puts it. Multiple policy deliberations have upheld the idea of training a socially oriented physician responsive to community and public health needs. However, a deficient social emphasis is still a stark feature of India’s medical curriculum.

This orthodox edifice of medicine has come under attack thanks to the COVID-19 pandemic, which is both a medical and a social calamity. The pandemic has served to water down the elitist and individualistic barriers of medicine that have hitherto kept apart the private and the public, the rich and the poor, and the individual patient and the community. COVID-19 has delivered one strong message: when it comes to a nation’s health, private care is of public concern, and public health is of medicine’s concern.

### Creating ripples at the societal level

Early this year, there were debates on why elite professional institutions such as top medical colleges rarely become the centre of political ruckus and remain free of strong ideological leanings, unlike many of their humanities counterparts. The perception about medical academia is that it is too preoccupied with cultivating scientific and professional excellence to cast an eye upon politics. One reason given to explain leftist dominance in humanities academia is the keen social orientation that humanities education inculcates. By the very virtue of their education, humanities students feel strongly about inequity, stratification, and deprivation. This element remains missing in technically oriented, competition-driven professional fields such as engineering and medicine. But while engineering is irredeemable in this respect, the same cannot be said for medicine. Both the number and profundity of emotional experiences that medical college-hospitals see on a regular basis can scarcely be fathomed in any other category of educational institution. The Competency-based Undergraduate Curriculum applicable since 2019 emphasises on inculcating communication skills and empathy in medical students to improve clinical practice. However, that such empathy can create stronger positive ripples at the societal level has been given little attention.

This is not to suggest that medical colleges must be modelled after the highly politicised humanities institutions. The idea is to emulate purely the ‘social orientation’ element. The same

empathy shown at the singular-patient level, and which improves clinical practice, can manifest at the societal level to confront the inequalities and deficiencies of public health. It is common knowledge that public health has perennially been one of our highly neglected items. It is also a concern that cuts across party lines and stands little chance of being viciously contested and politicised. Besides, a deficient social orientation among physicians has significantly contributed to their maldistribution.

### Remodelling the foundation

For this, the foundation of India's medical education would need to be radically remodelled along bio-social lines. There is need of radically enhancing community exposure during both undergraduate and postgraduate years. For this, medical training will need to shift a considerable part of its base away from medical colleges in cities to lower-level health facilities and the community, along with seamless integration of medical colleges with the health services system. Also, there is need to pep up the community medicine curriculum and teach health policy to medical students emphasising particularly the sociological and political-economic aspects. All of this should confer the ability to critically analyse how health and medicine function in the bigger picture — creating a socially oriented physician capable of relating with macro-level challenges in public health apart from practising social medicine.

Some might say that that the biggest stumbling block to realising socially oriented physicians is the commercialisation of the medical profession. But commercialisation is something that has largely arisen from within the profession. Given this, corrective measures will also need to be effected from within. The aforementioned measures can actually help us combat commercialisation among multiple others, given an environment conducive for the same. In the wake of the pandemic, we have started entertaining ideas such as private hospital nationalisation and mainstreaming of alternative medicine. A push for any reform cannot do without acknowledging the imperative of social physicians for better public health.

## India's disease surveillance system needs a reboot



Maya John

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In its press briefings, the Ministry of Health and Family Welfare have reported noticeable trends with respect to COVID-19 cases in India. In May its data showed that 75.3% of deaths had been concentrated in the age group of 60 years and above, and in 83% of deaths, the deceased were battling pre-existing identified health conditions. Evidently, we have reason to fear the novel coronavirus for which we have no established cure. However, there is even more reason to fear a combination of COVID-19 with existing illnesses and medical complications. The disease is lethal for those with compromised immunity brought on by age, existing respiratory infections, or essentially, malnutrition. In technical medical terms, this is a situation of comorbidity, which in ways makes it difficult to differentiate between dying of COVID-19, or, dying with COVID-19.

### Issue of disease watch

In comparison to many western countries combating the disease, India appears to have the advantage of a relatively young population. This is, of course, negated by the poor health conditions of the vast majority of Indians. It is then imperative that we do not ignore already prevalent diseases and illnesses. Unfortunately, the recent experiences of the public health-care system in India indicate the side-stepping of precisely this issue.

There are many among the poor who are battling various diseases but now have little access to major public hospitals in the wake of the lockdown. Routine functioning, particularly of out-patient department services in public hospitals, has been severely affected, and largely, emergency cases are being entertained. Patients now complain of even greater high-handedness of hospital staff in the still functioning emergency intensive care unit, labour rooms, tuberculosis (TB) wards, etc. Ironically, cardiology and neurology departments that cater to elderly sick patients are turning away many in the bid to streamline "critical" cases. In such circumstances we can expect an aggravation in the poor health conditions already affecting large sections of people who have limited access to health-care services.

Let us scrutinise this issue more closely. Many of the adverse medical conditions prevalent among the vast majority of our country are not even identified due to the lax disease surveillance system. The failure of disease surveillance requires explanation. For one, a significant number of the infected (poor and marginalised people) do not have access to health-care facilities and so fail to report their condition to certified medical practitioners. Even when an infected person has access to such facilities, their clinical case does not always culminate in the

required testing (blood/serum, throat swab, sputum, stool, urine). Third, there is a widespread practice among pathological laboratories to categorise diseases on the basis of the pre-existing classificatory system, which results in failure to identify the definitive cause (aetiology) for an illness by differentiating and separating pathogens (disease-causing microorganisms) on the basis of variations in groups, subgroups, strains, etc.

### Silent epidemics

There is, consequently, pervasive non-identification of a definitive cause behind a number of illnesses. Many ailments are simply clubbed together and referred to by generic names such as 'Respiratory Tract Infection' (RTI), 'Urinary Tract Infection', 'Acute Febrile Illness (AFI)', 'Acute Undifferentiated Fever', 'Fever of Unknown Origin' (FUO). Certain of these undifferentiated illnesses are known to affect lakhs of people every year worldwide. They claim many lives, especially of the poor who are victims of low immunity and have limited access to health care. Sources claim that RTI kills over 900 people in India every day. Likewise, Acute Lower Respiratory Tract Infection (ALRTI), which affects mostly children below the age of five years, has been known to infect approximately 3.40 crore people every year worldwide. In recent years it has led to roughly 66,000 to 199,000 deaths. Shockingly, 99% of these deaths are reported from developing countries, and India has a larger share in it. The large number of hospitalisations, enormous deaths and suffering caused by contagious undifferentiated diseases indicate the prevalence of persistent but undeclared silent epidemics.

Even if the definitive cause of an illness is identified, it does not necessarily gain the focused attention of scientific research. As the disease evolves but "interest" in it remains fleeting, the differences developing in the sub-groups, strains in genotype of the pathogen concerned fail to be consistently tracked. Knowledge of the pathogen, and, consequently, the required disease control soon lag behind. This overall process is due to the selective, biased approach of mainstream scientific research that is driven by the profits of private pharmaceutical companies, and is the fallout of the lack of priority that governments assign to general health care and diseases of the poor.

Even when the identity of a contagious disease and its treatment are well known it does not mean that the disease's prevalence will generate the necessary reaction. TB is a suitable example. According to public health experts, one person in every 10 seconds contracts TB, and up to 1,400 people in India die every day of the disease. This indicates that TB has a R0 value (basic reproduction number) and fatality rate that is way higher than those attributed to COVID-19 so far. However, it is important to note that TB and many other contagious diseases are ignored as "ordinary" and elicit very low attention. In contrast, some

diseases are quickly identified as epidemics of greater public concern.

Diseases are being selectively discovered and have the propensity to be identified as an epidemic when they have a signalling effect for the scientific community. In a majority of instances, it is only when there is a threat of transmission to the well-to-do sections of society or wealthier regions that the disease actually has such a signalling effect. It is not a coincidence that a relatively downplayed disease such as TB is largely a poor man's disease.

Clearly, we are confronted by a skewed relationship between our ways of knowing (social epistemology) and epidemiology. It is precisely in this context that COVID-19 has gained singular prominence over several other lethal diseases. Importantly, pre-existing diseases have the potential to combine with COVID-19, and with devastating consequences. It becomes imperative to identify the comparative fatality rates of many of the silent epidemics, which in their own right require urgent attention.

## Private sector and patient safety



Dr. S. Asokan

*Dr. S. Asokan is the CEO of GEM Hospital, Chennai*

Everyone has a family member who has some medical issues — someone waiting to check his blood sugar levels, some waiting for their pregnancy ultrasound scan and others waiting for a surgery — the list is never ending.

The big question is, “Is it safe to go to a hospital for consultation/procedure during these times?”

The private healthcare sector has also evolved its strategies in the past few weeks.

A pandemic this large is a new learning experience for everyone alive at this moment in the world. It’s important for the private sector in India, being a major healthcare deliverer, to learn, evolve and adapt newer strategies to cope up with the unprecedented disaster.

The learning process and adaptation of knowledge in implementation has kept India significantly proactive. The patient safety measures and personal protective equipment (PPEs) against the virus have been a result of the knowledge shared across the continents after analysing the rapidly evolving scientific data.

When the world is struggling with the availability of proper PPEs for the healthcare workforce, thanks to our innovative and indigenous textile infrastructure in the cities of Coimbatore and Tiruppur, we could get sufficient international standard PPEs, including Hazmat Suits, N95 protective masks etc., in a short time. The synergy between the government and the private healthcare sector has also been evident — from diagnostics to treatment areas. These form the foundation behind the crusade against COVID-19.

As more doctors are falling ill across the world and even in our country, the question of patient safety takes no back foot in any standard along with the safety of the healthcare workforce. As a patient, the fear is understandable and inevitable, even in emergency situations, leave alone the planned visits.

However, with the increasing availability of the rapid screening for COVID-19, and laboratories performing the PCR testing (some with in-house collection facilities), the hospitals can literally function as individual units with Safe Zones, free from COVID-19, and designated COVID-19 isolation zones.

The entire structure of hospital operations has to be segregated, minimising contact among patients, with the highest safety standards with adequate PPEs for patient and healthcare teams alike.

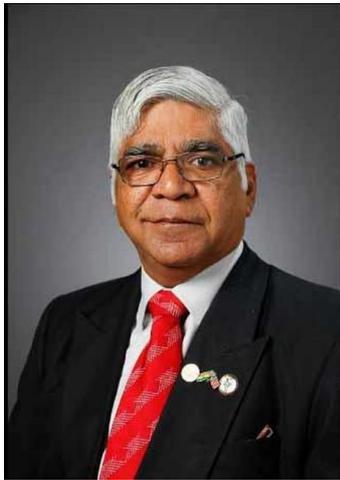
The safety measures implemented across our own chain of hospitals is a standing proof of this evolution of our understanding and implementation of patient safety measures.

Based on the data collated and analysed by more than 100 doctors, we have formulated 'GEM Patient Safety Initiatives — GPSI', which are implemented across our facilities in Tamil Nadu and Kerala. Identification, isolation, providing information, educating the patients are the key functions of GPSI. Making all facilities adopt a unidirectional flow, segregating the visitors with physical distancing, sanitising the facilities, equipment and personnel to maintain utmost safety for both the public and healthcare workers is the idea behind this initiative. We are happy to share our practices with others so that the public are benefited more.

With the unavailability of a vaccine or proven antiviral therapeutic option at present, the fight is still preventive but the other medical issues plaguing the human race can't wait or we may equally lose lives over cancers, heart issues, strokes and other critical issues. These preventive safety measures will guide and help us, the medical professionals to continue the services in these tough times safely.

Most medical conditions fall in the bracket of semi-emergences (Eg: ulcer diseases, hernias, gallstone disease, obesity etc..) which may not require immediate attention, however with the suffering prolonged and without medical attention may be left undetected of something bigger going within. The flattening the curve may take its time, but its time to move on, slowly, steadily and more importantly safely and definitely. Most tertiary care centres have evolved strategies to ensure the same.

## COVID-19 enhances reliance on telemedicine



K. Ganapathy

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### What is telemedicine?

Telemedicine is an all-encompassing term for providing remote virtual healthcare with the healthcare provider and the beneficiary physically in different locations. Information and communication technology (predominantly the internet) are used for history taking, reasonable relevant clinical examination and review of any investigations available. Telemedicine-enabled devices such as the thermometer, torch, stethoscope, BP apparatus, ECG, glucometers etc. convert the patient's location to a clinic. The diagnosis (provisional or final) is communicated to the patient electronically along with specific advice including a prescription.

### When did telemedicine start?

The world's first telephone call made by Alexander Graham Bell on March 10, 1876 was actually a request for medical help. "Watson, come here I want you," he said after acid from a Leclanche cell fell on his hand. From 1925, the radio was used on and off to make medical diagnosis. In 1970, a telemedicine link was established between Mass General Hospital Boston and the Logan Airport in Boston. In India formal telemedicine commenced on March 24, 2000 when Bill Clinton commissioned the world's first VSAT (ISRO supplied)-enabled village hospital at Aragonda, the birthplace of P.C. Reddy, chairman, Apollo Hospitals.

### What are the components of telemedicine?

Technical requirements include hardware, software, connectivity, acquisition, storage, retrieval, display, while health care providers have to be oriented, trained, helped with customisations, to be cost effective, self-sustaining, and follow all the regulations in order to be future-ready.

### Can prescriptions be given remotely?

Yes. The recently notified Telemedicine Practice Guidelines enables Registered Medical Practitioners to send prescriptions electronically. There are several in-built safety methods to prevent abuse of the system. Pharmacists have to dispense from a digital screen with the doctor's registration no and facsimile of the signature.

### What are the different types of telemedicine?

Different modalities includes a) Telephonic consultation, b) Chat mode, c) WhatsApp, d) SMS, e) Video consult, f) Proper full-fledged telemedicine using an approved EMR (Electronic Medical Record) where case records, images, investigations, tele consults can be stored, retrieved and a good video camera is used for

interaction. Peripheral medical devices located remotely can be controlled and results obtained in real time.

### Are there any limitations in using telemedicine?

Technology is only an enabler, not an end by itself. The decision when to limit use of Telemedicine and insist on a face-to-face consult is always a clinical decision. The context, professional judgement, and the patient's interest alone matter. Some doctors may be satisfied with an ultrasound image showing a mass in the pelvis. Others may want to do a rectal examination. Patients may not be comfortable without seeing the doctor face-to-face at least for the first time.

### What is the future of telemedicine?

The 'future' of Telemedicine started in December 2019. Worldwide, Covid-19 is causing millions of people to try telemedicine for the first time. Telemedicine will continue to grow rapidly. Enforced habits of today will become the new normal. Life will never again be the same in the AC (After Corona) era. Gradually obligatory preferences of today will switch to a default mode. Patients may not want to return to the BC era when face-to-face consults were the norm and telemedicine was a bystander!!

With technology becoming sophisticated and automated, doctors can do what they really want to do – spend more time with the patient – rather than spend time commuting, to go to their offices. Overheads in establishing a posh office will come down.

Patients too will now have more time, avoiding the hassles of travel, and waiting outside the doctor's room. Virtual visits can make group care possible. Today considerable time is spent, and effort has to be put in to get opinion of multiple specialists sequentially. Imagine if all the specialists discuss various options with the patient together. Transparency at its highest. Shift to virtual care has always been there in India — after all the Telemedicine Society of India was started 18 years ago! COVID-19 has only accelerated the process.

## The virus versus women



Dr. Usha Sriram

*Dr. Usha Sriram is a senior consultant endocrinologist and Director, ACEER, Chennai*

We are just beginning to learn and feel the magnitude of the direct and indirect impact that this pandemic is having on the lives of women across the globe. COVID-19 is not just a health issue. It has complex interactions at the social, economic, cultural, political and gender relations level. Data reveals that the virus does not impact women as severely as men. Women do get infected and develop complications. Just less than men.

Women are bigger casualties due to the nature of their work, the impact of the economic downturn, the lockdown and the stay-at-home mandate, adding to the existing deep fissures in gender parity. These will have a negative impact in the short term and will be more pronounced in the long term.

### Health workers

Women make up nearly 70% of the global health care work force. As nurses, doctors, therapists, cleaners and caregivers they are in harm's way with gruelling schedules, compromised safety, lack of protective equipment and poor representation at leadership levels. The thought of how the pandemic will affect their own lives, and their families is a major source of anxiety and stress. Watching many patients die is a heavy emotional burden for many of these women with the potential for serious post-traumatic stress disorders soon.

The economic downturn will have the harshest impact on women. More women work part time, provide a major share of childcare and elder care. They are under paid, unpaid, unorganised and undervalued. Small businesses such as salons, fruit and flower shops are often women-owned. This also exacerbates the economic insecurities and gender inequalities that already exist. The economic shocks felt by women can drive them to take heavy interest loans, multiple jobs and low paying or risky jobs.

It is well known that during times of crises, violence against girls and women becomes real. We are seeing this yet again. Lockdown, unemployment, financial hardship and access to alcohol are making men/spouses angry and edgy, leading to domestic abuse. The WHO and the UN Women are deeply concerned and flagging this aspect of the pandemic regularly.

Pregnancy should be viewed as a high-risk state. Women missing their antenatal visits/ scans and post-partum visits due to fear of infection and lack of transportation will compound to the existing crises. Maternal morbidity and mortality are likely to go higher now. Gender based violence, economic insecurities, care giving, front line health care work, loss of physical and emotional support

from family and friends due to physical distancing and lockdown, concerns about pregnancy, contraception and abortion, worries about the future of education, physical and mental well-being of their children.

Nearly 700 million girls are out of school now and many adolescent girls who are forced to stay at home run the real risk of being burdened and exploited with domestic chores and caregiving. Many may never return to school. It is important to anticipate these challenges and begin the remedial measures at local and the national levels.

Transwomen's lives have been upended even more during this lockdown. Begging and commercial sex work are not options. Discrimination and lack of family support for many have made them more marginalised now. Many trans women on hormones are unable to access and afford the medications and getting good health care has always been a challenge for the LGBTQIA+ community.

### Way forward

How can we make this pandemic a catalyst for building a better tomorrow for our girls and our women? By taking a gendered approach to the entire situation.

- a) We need women included in decision making and in leadership roles.
- b) Healthcare workers need to have adequate Personal Protective Equipment and mental health support.
- c) Data needs to be disaggregated based on gender
- d) Special needs of pregnant women to be addressed through a hotline
- e) A plan to offer Wellness Clinics post COVID for everyone, particularly women
- f) Transwomen and disabled women to be assisted through the local government
- g) Prioritising physical and mental health of women now and beyond the pandemic

These are very unusual times. They need more than the usual solutions. We need a bright light, a gender lens and good leadership. What are we waiting for?

## Retaining the humanitarian approach in times of COVID-19



Dr. V. Shanta

*Dr. V. Shanta is the chairperson of Cancer Institute (WIA), Chennai*

There are many questions that plague us every day, as health care professionals. But in times of COVID-19 the very core of medical practice – its humanitarian approach is under threat. The questions now in front of health care professionals, for different reasons are: “To treat, or not to treat”

“Is it right, or is it wrong?”

Further, “How long can we defer treatment?” This decision is neither simple nor easy, as treating doctors, we have to think of the patient and the family in the context of the pandemic, and what we do based on strong evidence.

For instance, early common cancers are curable. In such cases, it will be unethical to delay treatment. An advanced disease can be controlled, and if untreated, it might progress to the stage of palliative care. Again, palliative care cannot and should not be denied to patients.

And then, uncommon cancers with a doubtful outlook, advanced age, and with multiple co-morbidities form a category all by themselves. They have to be treated based on individual decisions and are ideally deferred. The expenses involved, in relation to survival, will not be either risk or cost beneficial.

### Treating institutions

As of now, only partial, selected cases are being treated. Should this continue?

NGOs, and voluntary charitable institutions providing free cancer care, of which Cancer Institute is one, are facing a major crisis.

Patients have a serious problem, with the lockdown, they are not able to find transportation to reach the centre for treatment.

While with residential staff, there are no issues, because they live on campus. However, non-residential health care staff, too, face the same problem – lack of transport to reach the hospital. As for housekeeping staff, who are key to running a hospital well, the institution has to make transport arrangements until the condition improves. Some medical staff members too, who do not have their own personal vehicles, need assistance to reach the centre.

### General criteria

We need specific guidelines or criteria for providing personal protection equipment, masks, gown etc for professional and paraprofessional workers. For one, it will be helpful to reduce

staff fear/panic and convince them that they are well protected with the gear.

This is for those who are not working with those who tested positive, are on routine hospital duty, including doctors, technicians and nurses who are working with patients who have not been tested.