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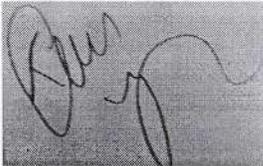
Notice

Kind Attention: MCA, BBA, BA (J&MC), BCA

Subject: Regarding the Webinar on "Meeting the Challenge of COVID-19 – An Integrative Medicine Approach" by AICTE.

Under the subject cited above, it is informed you that the Inter-University Centre for Yogic Sciences (IUC-YS) under the aegis of the Ministry of Human Resource Department (Ministry of Education), Government of India in collaboration with Swami Vivekananda Yoga Anusandhana Samasthana (S-VYASA) and National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru successfully conducted a Webinar on 'Meeting the Challenge of COVID-19 – An Integrative Medicine Approach' on the 1st and 2nd of August 2020 and the outcome has been published in the form of the report on "Meeting the Challenge of COVID-19 – An Integrative Medicine Approach".

In view of the above, as per direction of AICTE our Institute hereby disseminates outcome of the webinar among the students and faculty members of all the respective departments to avail the benefits of this webinar. So all are requested to go through and spread the awareness in your family and surrounding areas.



Dr. Rohtash Kumar
Incharge-Fitness –Club



Director, TIAS

CC to:

1. HOD – MCA, BCA , BBA, BJMC, Dean and Head IQAC
2. IT Dept. For uploading on the website.

Encl: Report on the Webinar on "Meeting the Challenge of COVID-19 – An Integrative Medicine Approach"

Webinar

Meeting the Challenge of

Covid-19

An Integrative Medicine Approach

on 1st & 2nd Aug 2020, Sat & Sun

Report and Recommendations



By

Inter University Center for Yogic Sciences (IUC-YS)

In collaboration with

Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA), Bengaluru
and

Department of Integrative Medicine
National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru

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Message from
the Hon'ble Union Health & Family Welfare Minister
Dr. Harsh Vardhan ji

The initiative taken by Inter-University Centre for Yogic Sciences (IUC-YS) in collaboration with NIMHANS & S-VYASA to conduct this brain storming webinar focusing on ways to meet the challenges posed by COVID 19 through Integrative Medicine approaches is commendable. This pandemic has demonstrated that health is central to the overall well-being of a country and we are well versed with the standard guidelines by our health system of how



to prevent COVID19 infection i.e. by testing, tracing & isolating and treating with available methods to break the chain. But still we haven't found a proven method to deal with the same. Evidences show that regular practices of yoga and Ayurveda based lifestyle can help in reducing severity of symptoms and improve quality of life in infectious conditions such as Tuberculosis and HIV-1 infections. From thousands of years these ancient lifestyle principles have been used to deal with the pandemic situations in India. Thus, it is the need of the hour that we explore the potential of traditional systems of medicine and combine them with modern medicine to provide the best possible healthcare to the patients. We also should also explore innovative ways of delivering such healthcare facilities using cutting edge technology, for e.g., we now see that Tele-yoga has become more popular. This webinar was proposed to have brainstorming & discussion by stalwarts from MHRD, UGC and various departments of medicine including Integrative Medicine to bring forth the large resource of traditional knowledge practiced under various branches of Integrative Medicine for the benefit of mankind.

So, the aim of this webinar is to mainly identify the integrative medical approach to deal with the current pandemic such as:

- Prevention aspects that include methods to reduce psychological stress & strengthen the immune system and respiratory system.
- Early identification of the infection to ensure timely care & help.
- To identify & strengthen home and hospital based treatment modalities based on the Integrative approaches & to procure knowledge about latest developments regarding public health findings.

- Validate Integration modern and traditional health care systems in an Integrative way with modern technological advancements to deliver best possible care to the patients.

Thus, we expect by the end of this webinar to come out with some innovative ideas and approaches that can be used as guidelines to issue advisory on the role of Integrative Medicine in partaking the management of COVID-19.

Message from
the Hon'ble Union Education Minister
Dr. Ramesh Pokhriyal Nishank ji

The Inter-University Centre for Yogic Sciences (IUC-YS) has taken the initiative of conducting this webinar in collaboration with NIMHANS & S-VYASA. This webinar focuses on innovative approaches to meet the challenges posed by COVID-19 through Integrative Medicine.



Definitely this pandemic has shifted our attention towards the vitality of our healthcare system and need for reinforcement & strengthening of the same, as health is central to the overall well-being of a country. Till now we don't have any established bio-medical approach of dealing with this situation, it is high-time to take up & explore the immense source of traditional knowledge practiced under various branches of Integrative Medicine for the benefit of the entire mankind. To achieve the same, it is urgently needed that we train the professionals from these backgrounds. Such training is already being provided in various universities for e.g., IUC-YS is training the yoga professionals in Tele-yoga to deal with this situation through yogic management. Similarly, professionals from other disciplines of traditional medicine should be empowered by exchange of relevant knowledge across the disciplines. They should also be trained in using cutting-edge technology for delivery of their health care and lifestyle related approaches. This can help in enhancing the solidarity of our healthcare system by providing significant support in the form of trained professionals who can act as frontline Corona warriors until we find a definite solution to this problem.

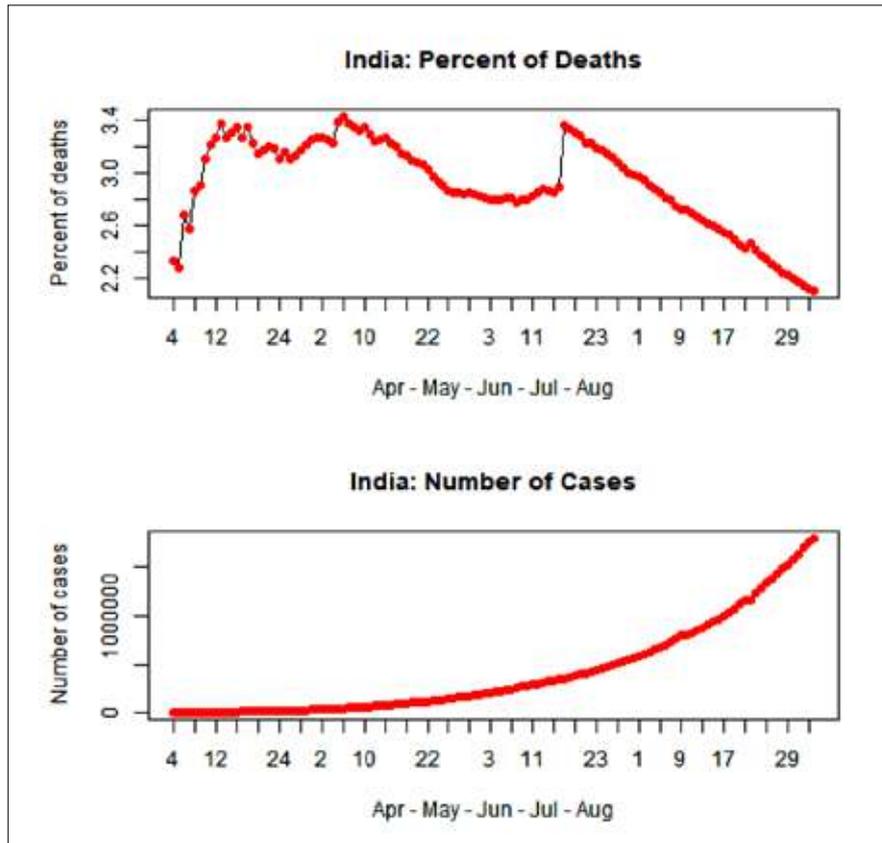
Preface

While the COVID 19 has continued its devastation all over the world, India has become number two in the world, we should find ways to flatten the growing curve as shown below:

SNo	State	Cases	Deaths	y. cases	y. deaths	mort
1	India	1803695	38135	54735	853	2.11
2	Maharashtra	441228	15576	19921	587	3.53
3	Tamil Nadu	257613	4132	11760	196	1.60
4	Delhi	137677	4004	2313	53	2.91
5	Karnataka	134819	2496	10655	182	1.85
6	Gujarat	63562	2486	2178	46	3.91
7	Uttar Pradesh	92921	1730	8009	90	1.86
8	West Bengal	75516	1678	5085	93	2.22
9	Andhra Pradesh	158764	1474	19652	126	0.93
10	Madhya Pradesh	33535	886	1646	19	2.64

SNo	Region	Cases	Deaths	Active Cases	% Deaths
	Total	18056310	689219	3573466	3.82
1	USA America	4667955	154860	894695	3.32
2	Brazil America	2733677	94104	635288	3.44
3	Mexico America	439046	47746	94822	10.87
4	UK Europe	304695	46201	8993	15.16
5	India Asia	1803695	38135	685652	2.11
6	Italy Europe	248070	35154	3636	14.17
7	France Europe	187919	30265	13245	16.11
8	Spain Europe	288522	28445	23686	9.86
9	Peru America	428850	19614	75260	4.57
10	Iran Asia	309437	17190	35649	5.56
11	Canada America	116870	8945	6532	7.65

So it was proposed to have a **brain storm webinar to meet the challenge of COVID** under IUC-YS and Department of Integrative Medicine, NIMHANS collaboration on **August 1st and 2nd, 2020**. It is essentially the integrative medical approach to meet the challenge.



The objectives of the webinar were:

- a. To deal with Cost effective approaches to Diagnosis;
- b. Development of online processes to identify high risk population;
- c. Preventive measures –
 - i. distancing, Masks, Quarantines;
 - ii. latest developments in Vaccine/s;
 - iii. developments from AYUSH to strengthen immune system and Respiratory systems;
- d. Treatment modalities - House and Hospital based modalities including emergency care;
- e. Latest developments about Public health findings and
- f. The way forward with recommendations to be submitted to MOHFW for implementation.

The webinar was attended by the stalwarts from the field of Medicine, Virology, Psychology, Psychiatry, Gynecology, Integrative Medicine (Yoga and Ayurveda) and technology and engineering from India (see appendix 1 at the end of the report for details). The webinar was attended by 125 people via the online platform.

Chapter 1

Introduction

1. Introduction

Review of the Data of these seven months of COVID has shown that Virus is not as lethal as originally feared, but is more infective than previously believed.

This was an organism unknown to science five months ago and has infected 16.8 million in at least 180 countries and in seven months. India has reported 1.5 million cases and 34,000 deaths. There is massive under reporting of the numbers. Sero-prevalence studies from many countries indicate that the infection numbers are about 20-50 times more than the test positives reported in the same areas.

Very important and paradoxical but true - this fast-spreading virus does not infect all the members of an infected person's family. On an average, only 10-20% of family members develop the infection after one infection in their family. This rate of secondary cases in a close contact in the family is called household Secondary Attack Rate (SAR). Most studies showed that 80-90% of family members do not develop Covid-19 after a primary case is diagnosed in the family. ICMR data indicates SAR in India is 6%, which means that 94% of family members did not develop Covid-19 even when one member was tested positive.

This is surprising for a highly infectious disease. This **tells us something about the infectiousness of the virus and individual immunity** against disease. One obvious interpretation is that around 80% of people who remain uninfected in a family are resistant or not susceptible to the coronavirus in spite of close contact without any precautions. One competing explanation is that most cases are very mild with a low viral load, which carries a lower risk of transmission. Only 7-15 % of cases have a moderate or high viral load, which leads to the transmission of infection.

British neuroscientist Karl Friston from University College, London, has modelled data from many European countries and proposed a new concept called "Immunological Black Matter". **The practical implication of this is that with 20-30% infection rates in the community, the city or area will start seeing effects of herd immunity as observed in Dharavi- Mumbai, central Ahmadabad and New Delhi.**

Usually, the virus becomes negative in 14 days. In Bangalore, we have come across cases where the virus has remained active even after 30 days. This needs to be seen if similar reports are there elsewhere in the county. The recovery rate in India is around 64%. In Bangalore the recovery is prolonged and stays at 45%.

How deadly is the virus? People are in Panic! They see the ever-increasing numbers. They call it - Corona on rampage!

Illness Severity

Asymptomatic cases - 50 to 60%

Symptomatic cases - 40 to 50%

Secondary attack rate is 6% - (10 to 20%)

Of those 40 to 50% who throw up symptoms belong to

- Mild to moderate category (mild symptoms up to mild pneumonia): 81%
- Severe category (dyspnoea, hypoxia, or >50% lung involvement on imaging): 14%
- Critical category (respiratory failure, shock, or multiorgan system dysfunction): 5%

The World Health Organization held a two-day meeting of 1,300 scientists from around the world, the agency's chief scientist has said the fatality Rate is about 0.6% - which means that the risk of death is less than 1%. If we calculate the figures of the world corona numbers and the deaths, the percentage comes to 2.2 %. We are getting the same figures for India!

It is interesting that nearly 50 to 60% of the infected are Asymptomatic! **Then, probably the virus may not be as deadly as it is made out to be!** Risk Factors for Severe Illness show Age related Mortality risk as below:

80 years and above- **14.8%**; 70–79 years, **8.0%**; 60–69 years, **3.6%**; 50–59 years, **1.3%**; 40–49 years, **0.4%**; <40 years, **0.2%**. Case fatality was higher for patients with **comorbidities like heart disease, diabetes, high BP, Cancer etc: 6% to 10.5%**.

Community transmission

Now a Full-blown Community Transmission is happening in Bangalore, in Karnataka and India! The virus is more widespread now than a month ago across India! The virus is travelling fast, often leaving no trace to establish the chain of transmission. **The challenge is that the pandemic is in different stages in different parts of India, which makes it difficult to overhaul the policy altogether.**

2. The virus and the genome sequence

The corona virus is 120 nano-meters across and looks like a ball with spikes. They resemble the Sun's corona seen during an eclipse. The genome size of the virus ranges from 26 to 32 kilobases. Approximately 20,000,000 viruses can fit on the head of a pin.

The data surrounding the biology, epidemiology, and clinical characteristics of the COVID19 virus have been growing. The virus genome has been sequenced, which allows the development of diagnostic tests and for research into vaccine and therapeutics to start.

Novel coronavirus-induced pneumonia, which was named as Coronavirus disease 2019 or COVID-19 by the WHO on the February 11, 2020, has become a pandemic.

COVID-19 is not the first severe respiratory disease outbreak caused by the coronavirus. Just

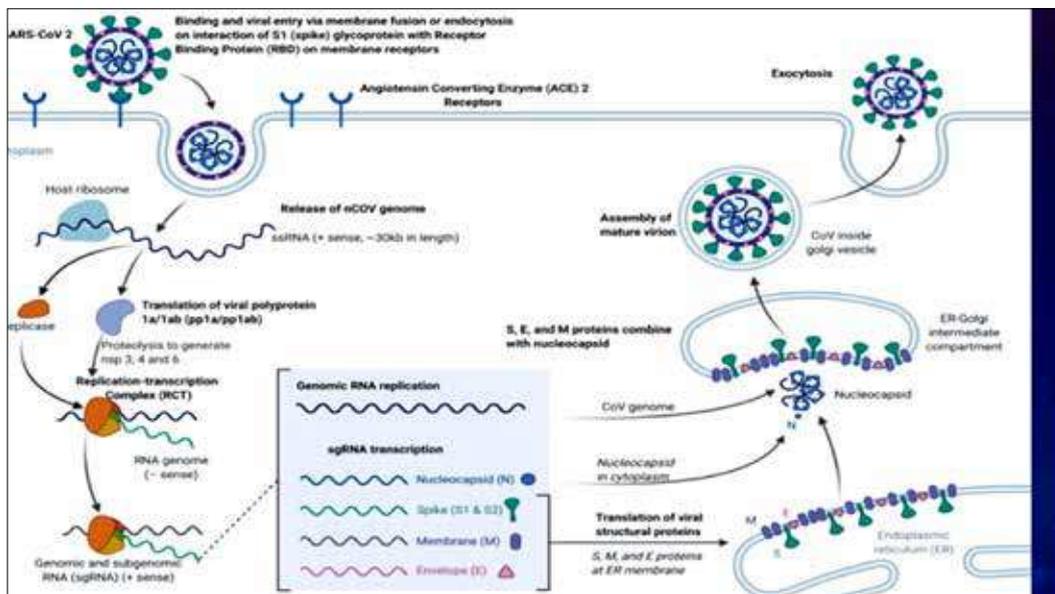
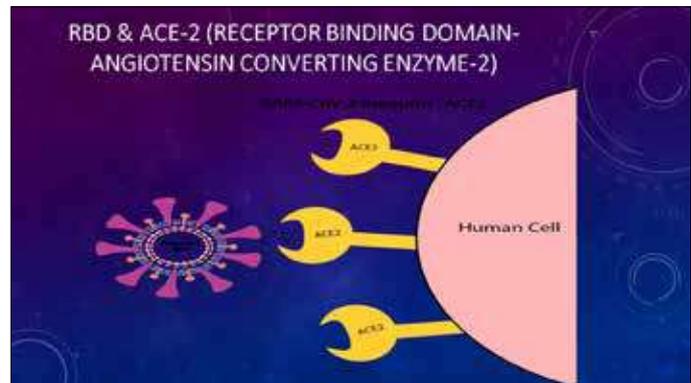
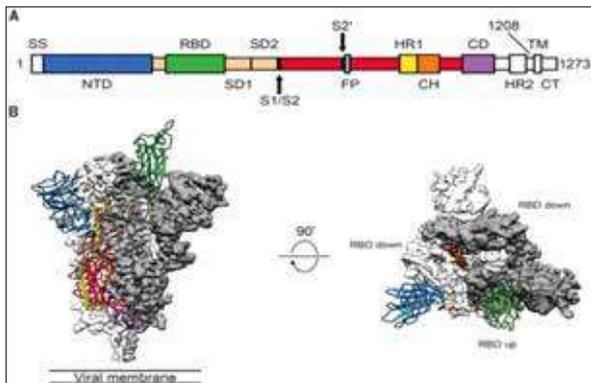
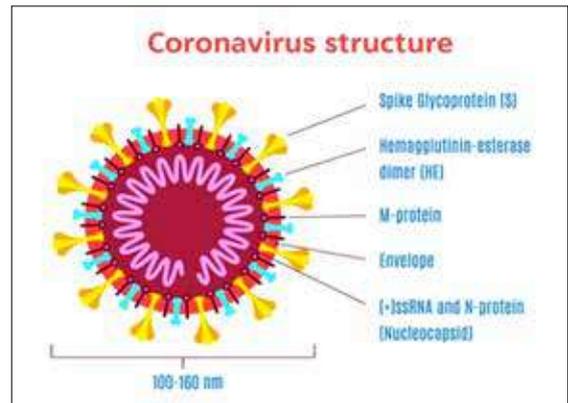
in the past two decades, coronaviruses have caused one pandemic and two epidemic diseases, namely, COVID-19, severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS)

3. Coronavirus entry and replication

The virus is a new human-infecting *Beta-Coronavirus*. The virus uses a densely glycosylated spike protein to enter host cells and binds with high affinity to the angiotensin-converting enzyme 2-ACE2 Receptor in humans. After the virus enters the cells, the viral genome begins to replicate.

THE PANDEMIC, CORONA VIRUS INFECTION
SARS-COV-2, COVID-19

- Alpha, beta, gamma & delta
- 229E & NL63, OC43, HKU1, MERS CoV, SARS CoV
- 15% of common cold
- Dr June Almeida in 1964.



4. Cytokine storm in COVID-19

The report in *Lancet* Journal shows ARDS is the main cause of death in COVID-19. One of the main mechanisms for ARDS is the **cytokine storm**, the deadly uncontrolled systemic inflammatory response resulting from the release of large amounts of pro-inflammatory cytokines. The cytokines cause ARDS and multiple organ failure and finally lead to death in severe cases.

5. Epidemiology

The incubation period ranges from 1 to 14 days with a median of 5 to 6 days. WHO and the US Centres for Disease Control and Prevention (CDC) give 14 days and have been used in quarantine policies?

The virus appears to be transmitted primarily through large droplets. Air borne particulate nuclei is a potential mode of transmission. It is said that a viral load of a minimum of 1000 viral particles is necessary to infect. The act of a productive cough releases a viral load of 200 million particles. The act of sneezing releases the same amount of viral shedding.

Mechanism of Drug Action for COVID: As described in Table below.

MECHANISM OF DRUG ACTION			
Drug	Spike protein attachment to ACE-2 receptor	Inhibition of RNA dependent RNA polymerase	Inhibition of protein synthesis in the cell
Hydrochloroquine	Binds to salicylic acid on ACE-2	Alkaline PH inhibits enzyme	
Zinc	Binds to ACE-2, transmembrane Metaloprotein	Inhibits enzyme	
Lopinavir-Ritonavir			Inhibits proteases
Doxycycline & Azithromycin			Inhibits protein synthesis by ribosomes
Remdesivir		Adenosine analogue and attaches to Uracil molecule	
Convalescent plasma	Antibodies to spike protein		

Chapter 2

Latest Developments on Diagnosis of Covid-19

1. Diagnosis of COVID-19 Modern Medicine Perspective

Clinical diagnosis of COVID-19 is mainly based on:

- a. epidemiological history,
- b. clinical manifestations and
- c. some axillary examinations, such as
 - i. Nucleic Acid Detection,
 - ii. CT scan,
 - iii. Immune identification technology (Point-of-care Testing (POCT) of IgM/IgG,
 - iv. Enzyme-Linked Immunosorbent Assay.

2. Screening and Testing

The Swab specimen - a nasopharyngeal and an oral swab and/or a lower respiratory tract sample such as expectorated sputum, tracheal aspirate, or broncho-alveolar lavage is submitted for reverse transcriptase–polymerase chain reaction (RT-PCR) testing. Serum is not recommended.

Viral cultures are not recommended.

2.1. Tests for Viral RNA - Reverse Transcription-PCR is the Standard test.

Direct detection of CoVid-19 is identifying viral RNA through nucleic acid amplification, usually using PCR. Viral RNA is extracted from that solution and subsequently amplified by reverse transcription-PCR.

This RT-PCR technique, though very sensitive, is not available at Taluka places or villages. Its availability needs to be improved.

2.2. Tests for Serology These are not yet reliable

RAT TEST- Rapid antigen test has shown false negativity of more than 60%. But its specificity is quite high. Thus, this test should be used to screen, if the person is positive by this test then he is definitely positive but if he is negative then he may or may not be negative.

The other broad category of tests is those that detect IgM, IgA, IgG, or total antibodies-typically in blood. Development of an antibody response to infection can be host dependent and takes time.

2.3. The high-resolution CT-HRCT scan

This is important-The findings of *ground glass shadow of Acute Respiratory Distress Syndrome (ARDS) on HRCT scan have been noticed even before the presentation of symptoms.*

The typical CT images show bilateral pulmonary parenchymal ground-glass and consolidative pulmonary opacities, sometimes with a rounded morphology and a peripheral lung distribution. CT scans have a great clinical diagnostic value for COVID-19. It is a necessary auxiliary diagnostic method because it is more sensitive.

2.4. CT imaging of asymptomatic cases with COVID-19

All asymptomatic cases have had abnormal CT findings. Ground Glass Opacities are the main CT manifestation in this cluster of patients- consolidation was present in these patients. The lesions of CT imaging in asymptomatic patients were predominantly located in the peripheral and sub-pleural area of the lung (75.9%), mostly involving one or two lung lobes (65.5%).

3. Clinical Characteristics

- Asymptomatic in 50 to 60%.
- Mild symptoms in 80%

There appears to be a slight predominance of men and people with blood group 'A'.

- Approximately 20% of patients require oxygen supplementation and intensive care
- 10% required mechanical ventilation.

Presentations of COVID-19 have ranged from asymptomatic/mild symptoms to severe illness and mortality. In general, the clinical presentation has involved fever in 83% to 98% of patients, dry cough in 76% to 82%, and fatigue or myalgias in 11% to 44%. Other symptoms have been reported, such as headache, sore throat, abdominal pain, and diarrhoea.

- Severe disease: in 15% of cases
- Breathlessness - respiratory frequency of 30/min and mor
- Blood oxygen saturation pO₂ –93% and less
- PaO₂/FiO₂ ratio or P/F < 300, [the ratio between the pressure of the oxygen (partial pressure of oxygen, PaO₂) and the percentage of oxygen supplied (fraction of inspired oxygen, FiO₂)] and/or
- Lung infiltrates > 50% within 24 to 48 hours;
- Critical disease: 5% of cases: respiratory failure, septic shock, and/or multiple organ dysfunction or failure.

4. Extra-pulmonary Manifestations and Systemic complications

- Kidney damage and AKI is emerging in the context of critical forms of COVID-19,
- Sepsis and septic shock
- Gastro intestinal-cramps
- Colorectal-diarrhoea
- Olfactory loss of taste
- Loss of speech etc.

5. High Risk Population

Vulnerable population like senior citizens, population with comorbidities, those with compromised immunity should be carefully watched and should be on the screening Radar. ***Based on emerging predictors of COVID-19 disease severity such as obesity, presence of heart disease, type 2 diabetes or kidney disease, older age etc a scale need to be developed to screen people who are at higher risk for developing severe symptoms.***

6. Online strategy/tools to screen population for serious mental health consequences of the pandemic

Couple of scales have been developed to assess psychological impact and anxiety due to COVID-19:

Initial psychological impact of COVID-19 and its correlates in Indian Community: An online (FEEL-COVID) survey- RESEARCH ARTICLE (By: Mohit Varshney, Jithin Thomas Parel, Neeraj Raizada, Shiv Kumar Sarin)

Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety (By: Sherman A. Lee. Pages 393-401 | Published online: 16 Apr 2020. <https://doi.org/10.1080/07481187.2020.1748481>)

7. Diagnosis of COVID-19: Traditional Medicine Perspective

Ayurveda research papers published in Journal of Ayurveda Integrative Medicine, 2020 have revealed through a case study on 14 subjects that COVID-19 disease ***is vata-kapha dominant with pittanubandha.***

Need for using Ayurveda Prakriti Based Diagnosis as a Predictor of COVID-19 disease Severity and Prognosis

During the webinar, discussions emerged that recent evidences show increased propensity towards more severe manifestation of COVID-19 in individuals who suffer from obesity than

those who are not obese. Discussions on these lines led to an idea that *probably individuals with a particular dominance of humor (doshas such as vata, pitta and kapha) may be more predisposed to disease severity*. Experts in the webinar unanimously agreed that such research should be performed. Those developing severe symptoms should be assessed for their prakriti and if consistent dominance of one of the prakriti is seen then prophylactic measures can be taken to follow lifestyle measures which help balance the aggravating dosha.

8. Brainstorming: Rationale for Recommendation

1. As per observation, it has been found that 80-90% of family members do not develop Covid-19 after a primary case is diagnosed in the family which means that though the virus being rapid-spreading does not infect all the members of an infected person's family. This is suggestive of them being either resistant or not susceptible to the virus in spite of close proximity without precautions. Also as per the illness severity statistics, 50 – 60 % of the cases remain asymptomatic with remaining 40 – 50 % being symptomatic, out of which also 81% cases remain in mild to moderate category. Thus it was concluded that a lot of time, energy and money being spent on tracing and testing can be prevented by testing only the symptomatic cases. So the following recommendation came up:
 - **Can testing be limited to only symptomatic cases sparing the asymptomatic contacts?**
 - As per the experiences of Dr. Prabhudeva, Dr. Latha Venkataraman & Dr. Indumathi from the scenario in their hospitals that many asymptomatic cases are filling up the beds in the hospitals leaving little or no availability for the needy symptomatic cases. So most of the members in the panel unanimously agreed that asymptomatic cases should be spared from admission to hospitals and can be treated on out-patient basis. Also as per the opinion of Dr. Nagarathna & Dr. Prabhudeva, positive cases with co-morbidities like diabetes, hypertension, obesity, heart disease, old age or any other health issue should be admitted on priority basis even if they are mildly symptomatic. This will prevent sudden collapse as observed in many cases with hypoxia condition. **Only severe cases and those with mild to moderate symptoms + co-morbidities such as hypertension, severe obesity, heart disease, and kidney disease can be considered for admission.**
2. Tests for Viral RNA- Reverse Transcription-PCR is the Standard & very sensitive test, but not available at Taluka places or villages. So the recommendation was to:
 - **Increase the availability of RT-PCR technique at Taluka level and/or villages.**
3. Vulnerable population like senior citizens, population with comorbidities, those with compromised immunity should be carefully watched and should be on the screening Radar. Based on emerging predictors of COVID-19 disease severity such as obesity, presence of heart disease, type 2 diabetes or kidney disease, older age etc., development of a scale to screen people at higher risk for developing severe symptoms can help in providing timely

intervention. So the recommendations came up as:

- **Strengthening of routine care, follow up and availability of services for those with comorbidities and vulnerable population like senior citizens can be focussed on,.**
 - **Based on emerging predictors of COVID-19 disease severity such as obesity, presence of heart disease, type 2 diabetes or kidney disease, older age etc. development of a scale to screen people at higher risk for developing severe symptoms can help in providing timely intervention.**
4. During the webinar, discussions emerged that recent evidences show increased propensity towards more severe manifestation of COVID-19 in individuals who suffer from obesity than those who are not obese leading to an idea that probably individuals with a particular dominance of humor (doshas such as vata, pitta and kapha) may be more predisposed to disease severity. Thus experts agreed to the view of assessing Ayurveda prakriti to explore if severity is associated with dominance of any Prakriti such that prophylactic measures can be taken timely to help balance the aggravating dosha. So the recommendation was:
5. **Assessment of *Ayurveda Prakriti* at mass level can be taken up as this assessment of *prakriti* for those developing severe symptoms may help in understanding if dominance of one of the *prakriti* is seen consistently. This may help in taking timely prophylactic measures such as following lifestyle measures to help balance the aggravating dosha.**

Chapter 3

Prevention & Limiting the Spread

1. Modern Medicine Perspective

In the absence of a definitive treatment and vaccine, preventive measures are the current strategy to limit the spread of cases.

Reinfection(R): The epidemic will increase as long as R is greater than one. For now, the R of COVID-19 is 2.2. Control measures must focus on reducing the value to less than 1.

- Preventive strategies are focused on
- isolation of patients,
- careful infection control,
- contain droplet transmission,
- prevent contact transmission and
- Prevent Air-borne transmission.

The WHO and other organizations have issued the following general recommendations:

- **Wear a mask compulsorily-** This simple covering is safe and effective. It may be lifesaving! It is a zillion times cheaper than any known treatment or vaccine for the COVID. Only if people were to wear it religiously it would have flattened the curve long back.
- **Maintain a healthy physical distance**
- **Take all general hygienic measures**
- **Make lifestyle changes and eat a balanced diet**
- **Take measures to build innate immunity**

2. Immunity can be strengthened by:

A. Modern methods

1. Improve your gut health: gastrointestinal (GI) tract makes up a large part of your immune system — up to 70 percent of your immune cells live along its path.
2. Take a daily probiotic
3. Avoid processed foods

4. Vit D- supplement with 2,000 IU to 5,000 IU daily. Vitamin C- Supplement with 1,000 mg to 5,000 mg daily, Vitamin E is also a powerful antioxidant. Zinc is an essential mineral involved in the production of certain immune cells. Omega-3 Fatty Acids- flaxseed, walnuts, and chia seeds.
5. Aim for a balanced diet
6. Walk every day at least 30 minutes
7. Reduce stress
8. Get adequate sleep- seven to eight hours each night.
9. Improve mental resilience by having a brain-healthy diet to support strong mental health such as Omega-3s contained in Nuts such as walnuts, almonds, cashews, peanuts, Avocados, Flaxseed, Leafy greens such as spinach, kale, Brussel's sprouts, Fresh fruit such as blueberries.

Resilience is the ability to cope with challenges and withstand pressure. It is subjective and affects individuals differently. Emotional Resilience Is a Trait You Can Develop. Resilience is one's ability to adapt to stressful situations or crises. We cannot prevent adversity, but adversity can make us more resilient.

The Seven C's of Resilience

- Control. Provide opportunities which lend a sense of control. ...
- Competence. Help a young person feel more competent by helping her identify how she is handling her challenges and already coping. ...
- Coping. ...
- Confidence. ...
- Connection. ...
- Character. ...
- Contribution.

Helpguide's 6 Keys to Mental Health



3. Integrative Medicine Perspective

Following lifestyle advices should be adopted from Ayurveda/Yoga systems

1. Drink warm water daily
2. Practice the art of meditation including Yoga and Pranayama for at least 30 minutes every day.

3. Start the day with Tulsi, Pippali (fruit of long pepper) and ginger tea to strengthen and cleanse the upper respiratory tract.
4. Use turmeric and black pepper in the meals daily, to boost immunity and reduce ama (toxins). Further make sure to add spices like haldi, jeera, dhaniya, garlic to your cooking to strengthen immune system.
5. Turmeric can be taken as a drink with almond milk or added to morning oats to prepare a nourishing golden porridge.
6. One tablespoon full of Chyavanprash every day
7. A herbal concoction of Tulsi, Dalchini, Kalimirch, Dry Ginger can be taken once or twice a day
8. Apply sesame oil, coconut oil or ghee in both your nostrils in the morning and evening
9. Improve mental resilience through – Yoga, a discipline based on an extremely subtle science, which focuses on bringing harmony between mind and body. It is an art and science of healthy living. Yoga leads to a perfect harmony between mind and body, man and nature, individual consciousness and universal consciousness. Yoga helps to build up psycho-physiological health, emotional harmony; and manage daily stress and its consequences.

In contemporary science, the insights of the gut-brain axis have opened a new dimension to the way we understand and treat mental illness.

10. Minimize intake of red meat and avoid usage of any processed meats like bacon, sausage, nuggets, ham, etc.
11. Always maintain good personal hygiene, eat seasonal fruits and vegetables and be stress-free.

CONCLUSION

- AYUSH has the potential to discover new drugs
- In vitro studies & animal experiments
- Double blinded Randomized controlled trials
- Meta Analysis of three Randomized controlled trials

4. Current implementation of Integrative Medicine:

AAROKYAM special program with AYUSH interventions for COVID-19 issued by Health & Family Welfare Department, Govt. of India as per the guidelines developed by a panel of 20 senior Yoga & Naturopathy physicians (Mostly with more than 20 years of experience, comprising clinicians and academicians)

Treatment	Process
<i>Essential care for all participants</i>	
Natural immune boosting fresh juice	Indian Gooseberry juice – 50ml, Basil Juice – 50ml, Ginger Juice – 10ml Fresh Lime juice – 5ml, Turmeric powder – ¼ tsp, Water – 150 ml Dosage: twice daily
Natural immune boosting hot drink	Peeled Crushed Ginger 5 gm, Tulsi (Basil) leaves 10 gms, Pepper powder ¼ tsp, Crushed Adhimaduram 5 gms (liquorice root), Turmeric powder ¼ tsp and drinking water 250 ml. Boiled and administered twice a day.
Yoga therapy	Vajrasana, Bhastrika, Brahmari, Quick relaxation technique Deep relaxation technique, Jala Neti Twice or thrice as recommended by the physician

Treatment	Process
Hot water gargling	Taking 30-50 ml of water and whirl it around pharynx & oral cavity.
Steam inhalation (nose and throat)	Inhalation of steam with or without essential oils
Sun bath	Sun exposure (10 minutes) in the morning and in the evening
Aromatherapy	Eucalyptus/ Peppermint/ thyme/ lavender/ Ajwain oil: 1-2 drops in tissue paper or mix with gingelly oil & apply

GYNMC developed the concept with a team of Yoga & Naturopathy doctors and developed an immune boosting butter milk which was launched by Aavin, a trademark of co-operative farmers society. This has *Ginger, Tulsi, Pepper, Turmeric, Lemon, Jeera, Asafotida, curry leaves, coriander leaves and rock salt.*

5. Prophylactic role of Ayurveda

The preventive measures of Ayurveda such as medicated water, gargles, oil pulling and nasal oil administration can be practiced as home-based care and that may offer a ‘physiological masks’. Health promoting immune-modulator (Rasayana) botanicals like *Withania somnifera*,

Tinospora cordifolia, Piper longum, Glycyrriza glabra may improve host defense and could be an effective prophylaxis approach against COVID-19. ***Ayurveda lifestyle advices of dinacharya and ritucharya can be added as treatment protocol in all COVID-19 treating hospitals , which is activelypromoted through social media, TV and radios.***

Prophylactic role of Yoga

Since number of researches show that yoga can be useful in modulating immune responses and improving respiratory functions. ***It would be interesting to see the prevalence of COVID-19 disease in its mild, moderate and severe categories among long-term yoga practitioners at different yoga schools in India.***

Similarly, ***yoga video could be played at all COVID treating hospitals in India*** to strengthen the respiratory system, reduce stress and modulate the immune system. Research should be done to understand primary, secondary and tertiary prevention value of yoga. Importance of ***Yoga needs to be promoted through social media, TV, radios and news channels.***

Sattwik Diet for Prevention: as there is a definite association between **consumption of junk food, fried food items, food items with high content of mono-unsaturated fatty acids and high salt content with inflammation resulting in leaky gut.** Promoting sattwik diet is the need of the hour. ***Sattwik diet and its effect in modulating immunity and reducing stress during COVID can be promoted through social media, TV, radios and news channels.***

What is known about mental health impact of the pandemic?

COVID -19 Pandemic is akin to a disaster like situation. The emotional health of populations exposed to disasters is a well-recognized public health priority by the World Health Organization. Equally important is the mitigation of the negative impact of the disasters on mental health, by building **community resilience.** This aspect is well recognized:

This recognition of the importance of the psycho-social dimension of disasters and pandemics such as COVID -19 is recognized by the ‘National Disaster Management Authority’ (NDMA) which has developed detailed guidelines for psychosocial care.

Ten important components of the guidelines:

- i) **Integration of Psycho-social Support and Mental Health Services** into various health programmes, NMHP, DMHP and evolving of legal instruments necessary for implementation of such policies under the guidance of National subcommittee on Psycho-social Support and Mental Health Services constituted by the Ministry of Health and Family Welfare.
- ii) **Development of skilled and competent human resource at all levels** with the help of nodal institutions through standardized training practices.
- iii) **Mainstreaming the knowledge about preventive and mitigation strategies** for adverse psycho-social effects of disasters into **education system.** Training of Community level workers, NGOs and various professionals for providing Psycho-social Support and Mental Health Services in the aftermath of disasters.

- iv) **Normalization of survivor's psychological impact** could be hastened by providing 'Psychosocial First Aid'. Later provision of psycho-social support during rehabilitation and rebuilding phase would be integrated into the overall community development interventions.
- v) **Research and development** for effective intervention should focus on community needs, integration of professional referral system with existing community best practices, vulnerability and epidemiological factors that compounded the psycho-social impact on any emergency.
- vi) **Systematic documentation**, procedures to enhance community participation, elements of Psycho-social Support and Mental Health Services in deliverables like relief, transportation, care of vulnerable groups, psycho-social first aid supported by adequate infrastructure will be undertaken as planned objectives.
- vii) **Inclusion of Psycho-social Support and Mental Health Services in hospital disaster management planning**, effective communication and networking, counselling session areas, pooling of resources amongst network of health care services and identification of all the critical issues in state/district health disaster management planning.
- viii) **Identification of designated institutions** for training under Disaster Mental Health Program and models of Public-Private Participation will be developed, tested and practiced.
- ix) **Long-term management of mental health interventions** will be undertaken through standardized and structured need assessment tools followed by scientific studies, evaluation and development of specific intervention modules thereupon.
- x) **Adoption of international best practices**, provisions for special care to vulnerable groups, care to caregivers, role of Psycho-social Support and Mental Health Services.

The **emotional health needs of the survivors** of disasters at FOUR levels:

- **First level relates to the 'strengthening of emotions'- promotion of mental health**, also referred to as community resilience that contributes to subjective well-being and resilience of the total population - mainly by self-care and social-economic/ environmental and spiritual interventions. This is also building of community resilience
- **Second level is 'distress care'**. A large majority will experience distress of varying degrees and for varying periods. This can be considered as, 'normal reaction' to an abnormal situation. The service goals for this group is both self-care and early identification of behavior changes and mental disorders. The self-care can be by the individuals and support can be provided by paraprofessional and social action.
- **Third level relates to 'behavior changes'**. The most important ones in this group are risky behaviors like suicide, increased substance abuse, increase in domestic violence, increased health seeking behaviors. The interventions to address this are self-care, support by general medical professionals and paraprofessionals, along with appropriate referral for professional care;

- **Fourth level relates to care of mental disorders by treatment and rehabilitation** by professionals. This would include both the pre-existing mental disorders and new episodes of mental disorders.

6. Interventions for Emotional Health

Interventions shown to be beneficial are at the level of individuals, families, communities and at the state (govt.) levels.

The central goal is to help people, to not decompensate and to find meaning out of the experience. Effort should be to move individuals to think of the disaster situation as ‘transition’ rather than ‘loss’.

Psychosocial interventions directed at all the above four levels are shown to be effective in minimizing the long term impact on emotional health.

Total population level interventions are towards ‘Emotional Strengthening’ by a number of measures at the immediate, short term and long term measures.

During the acute phase the following five measures promote emotional health, namely,

- **Daily 30 minutes of exercise,**
- **Sleep-8 hours of sleep daily,**
- **Integrated Yoga including asana, pranayama and meditation 20 minutes twice a day**
- **Eating healthy food and**
- **Faith practices with a balanced non-reactive spiritual attitude.**

The need in this area is to use the mass media, informal communication channels to share the information and also assist individuals to make these a part of their routine life.

Here the health workers and AYUSH team members can be very valuable.

The second group of people who need help are those with ‘distress’ symptoms like fear, anxiety, irritability, fatigue, feeling of uncertainty, fear of death etc.

The interventions to address, ‘distresses should be of higher level than the first, to maximize the coping capacity. Measures known to address are:

- **Teaching individual to reach out for help,**
- **Availability and full utilization of supports,**
- **Sharing of emotions,**
- **Writing down feelings and thoughts,**
- **Art/ music and daily pleasurable activities and**
- **Spirituality or finding a meaning for life from the event.**

Disasters provide an opportunity to ‘rebuild the community’ and enhance community resilience. There is need for addressing the social- economic factors like inequalities in the community, intolerance, discriminations, adequate health care/ mental health care infrastructure and welfare support to the vulnerable groups. Spirituality has an all-encompassing role for making sense of the disaster/ emergencies and find a meaning / purpose of life.

In disaster situations like the current pandemic, it is best to avoid using diagnostic labels such as anxiety, depression, and posttraumatic stress disorder except in clinically well-established situations.

The focus should be on emotional support to make sense of the loss, find reason to go with life and have a new purpose of life. In these efforts use of social, cultural, religious practices related to loss as part of the recovery programs is most appropriate.

Strategies for implementation of the above interventions:

- A. Public mental health education, as the goal to total population intervention and empowerment. The specific steps to address this action is to prepare multimedia educational materials and widely disseminate them through both the mass media and the social media. When the schools and colleges open, they will be an excellent setting for sharing of these self-care skills.
- B. Use of screening tool for identifying the personas with special needs for emotional health support- two tools are widely used, namely, W.H.O. Self Reporting Questionnaire(SRQ) and PHQ-9.

Both of these are easy to use and take about 5 minutes at administer.

- C. Training of all categories of health personnel- ASHA workers, MPWs, health assistants, AYUSH Doctors, PHC doctors, welfare workers. Panchayat members should be an essential group to be trained so that they can make it part of developmental activities. When the schools and colleges open to involve the teachers of schools and colleges.

Another very important group is the staff of voluntary organizations.

- D. Support by specialists both in person and through teleconsultation.
- E. Monitoring and evaluation along with documentation at the level of individual experiences, community needs, recording of innovative ways of addressing emotional health, surveys of sample populations and record of the need for specialists for support of the program.

7. TASKS to achieve the above goals

The biggest challenge is to present the SELF-CARE measures as effective interventions. Most often, they are presented as, ‘actions that can be taken’ rather than presenting them as ‘SPECIFIC ACTIONS’. They should receive the same importance as the current focus on PHYSICAL interventions like 20 second hand washing, wearing a mask when outside the home, maintaining social distance, and avoiding crowd situations.

What is needed is to present the information both with evidence as well as practicable actions.

This is a challenge in the country with different levels of literacy, access to mass media and different community norms.

A successful program can bring about massive changes in the behavioral responses and emotional health of the population.

WHAT WORKS? BEHAVIOUR CHANGE GUIDELINES

In this context the recent National Academy of Science, Engineering and Medicine (NASEM) Washington is relevant (**NASEM, August 2020- Encouraging Adoption of Protective Behaviors to Mitigate the Spread of COVID-19: Strategies for Behavior Change**)

Normalizing use of protective measures and increase the likelihood of behavior change

1. Make the Behavior Easy to Start and Repeat
2. Make the Behavior Rewarding to Repeat
3. Tie the Behavior to an Existing Habit
4. Alert People to Behaviors That Conflict with Existing Habits and Provide Alternative Behaviors
5. Provide Specific Descriptions of Desired Behaviors

10 Risk Communication Strategies

1. Use Clear, Consistent, and Transparent Messaging
2. Avoid Undue Attention to the Frequency of Socially Undesirable Behaviors
3. Foster a Sense of Efficacy and Avoid Fatalism
4. Appeal to the Collective Good of One's Community
5. Use Messengers Trusted by the Target Audience
6. Tailor the Framing of the Message to the Audience
7. Link Prevention Behaviors to People's Identities
8. Highlight Social Disapproval of a Target Audience Member's Failure to Comply When It Occurs
9. Highlight the Growing Prevalence of Behavior Change within the Target Audience When It Occurs.
10. Avoid Repeating Misinformation, Even to Debunk It.

8. Brainstorming: Rationale for recommendation

1. Seeing the prophylactic role of Ayurveda & Yoga, it was suggested by Dr. Hemant, Dr. Nagarathna, Dr. N Srikanth, Dr. Bhushan and Dr. Shirley that Ayurveda and yoga based lifestyle advices can be taken into consideration for incorporation in the treatment protocol of all COVID-19 treating hospitals. So recommendation points emerged as:
 - **Ayurveda lifestyle advices of *dinacharya* and *ritucharya* can be given consideration to be added in the treatment protocol in all COVID-19 treating hospitals and the same may get promotion through social media, TV and radios.**
 - **Development of specific drinks based on Ayurvedic concepts can be taken up & publicized with its health benefits.**
 - **Usefulness of sattwik diet can be publicized & promoted through social media, TV, radios and news channels.**
 - **On similar lines, sattwik diet can be provided for all inpatients in breakfast, lunch, dinner, etc. to suit the local culture in 3 zones of India - south, north, east (*rutucharya*) .**
2. Yoga known for its immunomodulatory and health enhancing impact, in view of establishing the impact of yoga in current situation, Dr. Nagendra, Dr. Bhushan & Dr. BN Gangadhar were of the opinion to testify the impact of COVID-19 in long-term yoga practitioners, so it was recommended to assess:
 - **To know the impact of yoga on long-term practitioners in terms of contacting COVID-19 disease and the level of severity they acquire, doing prevalence assessment can be thought of in long-term yoga practitioners from different schools of Yoga with their due consent. Also along with that the categories they may reach - mild, moderate or severe can also be looked upon.**
3. To meet the challenge of shortage of health care workers, the panelists suggested training of health personnel from other systems of medicine, ASHA workers, yoga therapists etc. So the recommendations were made as:
 - **To consider training of all categories of health personnel- ASHA workers, MPWs, health assistants, AYUSH Doctors, PHC doctors, welfare workers in teaching yoga and providing Ayurveda lifestyle advices for COVID-19 at grass-root level. Panchayat members should be an essential group to be trained so that they can make it part of developmental activities. When the schools and colleges open this activity can involve the teachers of schools and colleges.**
 - **To consider employing volunteers and AYUSH faculty to monitor the house visits as was done in Chennai.**
4. For meeting the challenge of addressing & maintaining of emotional health, Dr. Srinivas Murthy, Dr. BNG and Dr. Aarthi suggested following points which made up for the recommendations:

- **Two screening tools being widely used, are W.H.O. Self-Reporting Questionnaire (SRQ) and PHQ-9 can be made use of for identifying the persons with special needs for emotional health support -**
- **Help line can be provided for counseling the sick and anxious.**
- **Another very important group is the staff of voluntary organizations.**
 - **Support by specialists both in person and through teleconsultation.**
 - **Monitoring and evaluation along with documentation is important and needs to be strengthened: at the level of individual experiences, community needs, recording of innovative ways of addressing emotional health, surveys of sample populations and record of the need for specialists for support of the program.**

Chapter 4

Current Treatment Strategies for Covid-19

1. Modern Medicine Perspective

There is currently **no clinically proven specific antiviral agent** available for COVID-19 infection. The supportive treatment, including oxygen therapy, conservation fluid management, and the use of broad-spectrum antibiotics to cover secondary bacterial infection, remains the most important management strategy along with symptomatic treatment.

Corticosteroids: methylprednisolone 1 mg/Kg/day). Of note, a recent large-size RCT (the RECOVERY trial) demonstrated that dexamethasone reduces deaths by one-third among critically ill COVID-19 patients. In the intervention group, patients received dexamethasone - 6 mg/day for 10 days

2. Virus targeted inhibitors

Remdesivir, a novel antiviral drug, developed by Gilead Sciences Inc., is considered to be one of the most promising drugs which can be used for treatment against Covid-19. The drug works by inhibiting the virus's ability to copy itself inside cells.

Another potential drug against Covid-19 is **Favipiravir**, which is used to treat RNA viruses, the drug has been reported to shorten the duration of patients' fever from an average of 4.2 days to 2.5 days. Both these drugs are presently patent protected in India.

Favipiravir tablets are being manufactured at Strides facility in Bangalore, which can produce up to 6 billion units of solid orals annually and is approved by USFDA among others. Strides has also entered into a preferred arrangement with an Indian API manufacturer for the supplies of Favipiravir API.

Cipla's antiviral drug **Cipremi** is the latest to join Glenmark's Fabiflu and Hetero's Covifor to treat Covid-19 patients in the country.

3. Antibody and plasma therapy

It has also been reported that there are many convalescent patients donating plasma against COVID-19. It has shown favourable results in acute patients. Moreover, the generation of recombinant human monoclonal antibody is a fairly straightforward path to neutralize COVID-19.

4. Vaccines

There are 24 vaccine candidates in human clinical trial stage, 150 vaccines in pre-clinical stages worldwide-WHO.

Four vaccine candidates are in the Phase-3 trial stage:

- Co-vaccine from Bharath biologicals from Hyderabad India.
- Oxford vaccine developed by Astra Zeneca,
- mRNA-1273 by Moderna and
- the Russian vaccine- WHO

Effective CoVid-19 vaccines are essential for reducing disease severity, viral shedding and transmission, thus helping to control the coronavirus outbreaks. There are several vaccination strategies including using a live-attenuated virus, viral vectors, inactivated virus, subunit vaccines, recombinant DNA, and proteins vaccines.

5. Based on anecdotal experience

- The disease is not a ‘typical’ adult respiratory distress syndrome (ARDS).
- Microvascular thrombosis in the pulmonary circulation could be oxygen-related or inflammation-related.
- Pulmonary thrombosis has been associated with wedge-shaped infarcts in the lungs on imaging, without the evidence of deep vein thrombosis.
- Many centres use inhaled nitric oxide and prostacyclin with good effect.
- Maintain euvolemia. There is a high risk of acute kidney injury with hypovolemia.

6. Integrative Medicine Perspective

Integrative medicine way of approach in the management of COVID-19 is as follows:

- Improves innate immunity
- By reducing stress
- Alleviation of respiratory symptoms and other symptoms
- Ensures quick re-integration to normal life

Yoga & Naturopathy, a potentially cost-effective, culturally acceptable intervention has shown to be beneficial in the management and rehabilitation of asymptomatic/mild COVID-19 cases as demonstrated by the work done in Tamil Nadu. S. Thanngazham Yoga & Naturopathy Medical College Hospital, Vasudevanallur, Tenkasi dedicated a COVID care center where only Yoga

& Naturopathy treatments was provided to COVID positive patients. Currently, 828 patients have been discharged and 91 patients are under Yoga & Naturopathy treatments. Observational registry started in collaboration with GYNMC, Chennai and NIN, Pune (Government of India) and a clinical trial to evaluate the effects of intervention on viral load is going on. Similar 750 bedded COVID Care Centre has been dedicated by Yoga & Naturopathy Unit at DCH, National Institute of Aging Guindy, Chennai, functional since 9th July 2020. It has yoga hall with a capacity of carrying out yoga sessions for 30 COVID patients at a time with maintenance of all the preventive measures. ***This Tamil Nadu model should be replicated in all the states of India.***

6.1 Proposed Ayurveda interventions in COVID-19 outbreak and their rationale

SNo	Exposure category	Proposed Intervention
1	Unexposed asymptomatic group	Common health keeping approaches such as healthy diet, healthy life-style, adequate sleep, physical activity, good conduct, care for retainable and non-retainable urges, and avoidance of disease causing factors (excessive cold and exposure to pollutants). In addition, use of Chyavanprasha, Brahma Rasayana, Amrit Bhallataka, Sanjeevani vati, Swarna prashan.
2	Exposed asymptomatic (Quarantined)	Sanjeevani vati, Chitrakadi vati, Chyavanprasha, Brahma Rasayana, and decoction of a combination of herbs, Tinospora cordifolia, Zingiber officinale, Curcuma longa, Ocimum sanctum, Glycyrrhiza glabra, Adhatoda vasica, Andrographis paniculata, Swertia chirata, Moringa oleifera, Triphala and Trikatu.
3	With mild COVID-19 symptoms	Pippali rasayan, Go Jihvadi Quath, Kantakari Avaleha, Chitrakadi vati, Vyaghri haritaki, Dashamul kwath, Sitopaladi, Talishadi, and Yashtimadhu etc.
4	With moderate to severe COVID-19 symptoms	Pippali rasayan, Laghu Vasant Malati, Sanjeevani vati, Tribhuvan Keerti rasa, Brihata Vata Chintamni rasa, Mrityunjaya rasa, Siddha Makardhvaja etc.

India is the country where the world's oldest living health care system originated and therefore it is being carefully watched by the world community for how it handles the crisis using its own resources. China has done it. And it is India's turn now to show its traditional healthcare might.

Yoga modules for mild, moderate and severely symptomatic cases

Yoga modules should be validated for different phases of COVID-19 disease and these modules should be taught through India in all COVID-19 treating hospitals.

Conclusion

We'll need to massively strengthen our medical infrastructure, build ventilators and add hospital beds.

We need to train and redistribute physicians, nurses, and respiratory therapists to where they are most needed.

We need to focus our factories on turning out the protective equipment—masks, gloves, gowns, and so forth—to ensure we keep our health-care workforce safe.

Policy recommendations for antenatal and intranatal care of Covid cases should be developed.

Dr Latha Venkatraman and Dr Srimathy Raman gave their inputs on policies in general and specifically about policies related to antenatal and intranatal care of covid positive cases.

Case 1

- G2 P1 L1 low risk pregnancy, 37 weeks
- Cough for two days- Covid positive
- Home isolation
- No complications
- 2 weeks later- negative test
- Came in labour at 39+ weeks; 4 cm dilated
- Routine care
- Normal delivery
- Baby and mom -fine

Case 2

- Similar patient
- G3 P1L1 A1-38 weeks
- Admitted initially at VVH for covid (Fever and cough)
- 2 weeks later- swab negative
- Routine post dates induction at 40+ weeks
- Normal delivery
- Baby and Mom- fine

Case 3

- 39 weeks G2 P1 L1 was noted to be covid positive on routine swab elsewhere
- Referred to us for care
- Asymptomatic and low risk
- Decision for IOL-in view of being 39 + weeks
- Normal delivery
- Baby isolated and swab negative

Route of delivery..

- 49 studies which included 666 neonates and 655 women where information was provided on the mode of delivery and the infant's infection status.
- 28/666 (4%) neonates had confirmed COVID-19 infection postnatally.
- Of the 291 women who delivered vaginally, 8/292 (2.7%) neonates were positive. Of the 364 women who had a Caesarean birth, 20/374 (5.3%) neonates were positive.
- Of the 28 neonates with confirmed COVID-19 infection, 7 were breast fed, 3 formula fed, 1 was given expressed breast milk and in 17 neonates the method of infant feeding was not reported
- SARS-CoV-2 RNA has been detected in breast milk samples from a single woman with COVID- 19, and her infant tested positive for SARS-CoV-2, but whether the infant was infected through breastfeeding is unclear

Plan of care..

- If the patient has another indication for delivery, her COVID-19 positive status should not cause a delay.
- In most cases, delivery management should be guided by usual obstetric practices, but moderately or severely ill patients may need expedited delivery if there is a need to improve maternal oxygenation.
- Asymptomatic or mildly symptomatic woman positive for COVID-19 between 37 to 38 6/7 weeks gestation without other delivery indications may be expectantly managed until 14 days after her positive test result or seven days after symptoms onset and three days after symptom resolution, to allow for decreased viral exposure of health care workers and the newborn, and decreased personal protective equipment utilization in supply-limited areas.
- Patients early in their disease course at 39 weeks gestation or later may be better served by expediting delivery to decrease the risk of worsening maternal status

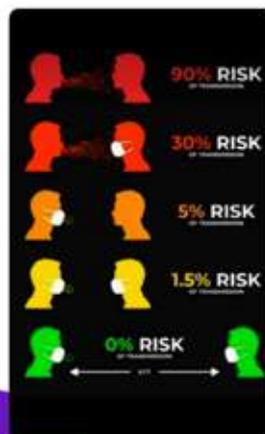
- COVID-19 may be associated with transaminitis, elevated creatinine, and thrombocytopenia
- New-onset or worsening symptoms considered part of the spectrum of COVID-19 disease but also attributable to other causes should still be evaluated to ensure another etiology is not overlooked.
- Among these include other febrile illness, severe preeclampsia/HELLP/ AFLP, and gastrointestinal illness

Remember..

TABLE 1
Suggested PPE based on clinical situation

Individual and clinical situation	Surgical mask	Droplet PPE (gown, gloves, surgical mask/face shield)	N-95 mask
Patient (with or without respiratory symptoms)	X		
Provider during routine patient encounter	X		
Provider during contact with patient with suspected or confirmed COVID-19		X	X
Provider caring for patient during aerosol-generating procedure including second stage of labor		X	X

COVID, coronavirus disease 2019; PPE, personal protective equipment; URTI, upper respiratory tract infection.
Barlig et al. Labor and delivery guidance for COVID-19. AJOG MFEM 2020.



Way forward..

- Universal precautions
- Hand hygiene, social distancing and masks

Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study

Tommy D. Williams, Emily D. Calear, Nicholas B. Hill, Angela F. Hayhoe, Sherry J. Sheehan, Thomas T. Tan, Sabita Soneghetti, Liwei, Hugh Walker

- Our analysis shows that, if the COVID-19 pandemic results in widespread disruption to health systems, LMICs can expect to see substantial increases in maternal and child deaths.
- Childbirth care and child curative services are particularly vulnerable to disruption and would account for the greatest number of additional maternal and child deaths.

Findings Our least severe scenario (coverage reductions of 9·8–18·5% and wasting increase of 10%) over 6 months would result in 253 500 additional child deaths and 12 200 additional maternal deaths. Our most severe scenario (coverage reductions of 39·3–51·9% and wasting increase of 50%) over 6 months would result in 1 157 000 additional child deaths and 56 700 additional maternal deaths. These additional deaths would represent an increase of 9·8–44·7% in under-5 child deaths per month, and an 8·3–38·6% increase in maternal deaths per month, across the 118 countries.

Reality...

- 200,000 people could die because of delays in healthcare and economic effects of coronavirus lockdown
- The UK has so far suffered 45,318 Covid-19 deaths since lockdown was imposed
- Report says that more than 200,000 people could die due to healthcare delays
- Experts estimate up to 12,000 more could die in the next year due to recession



Health Care issues Aggravated by..

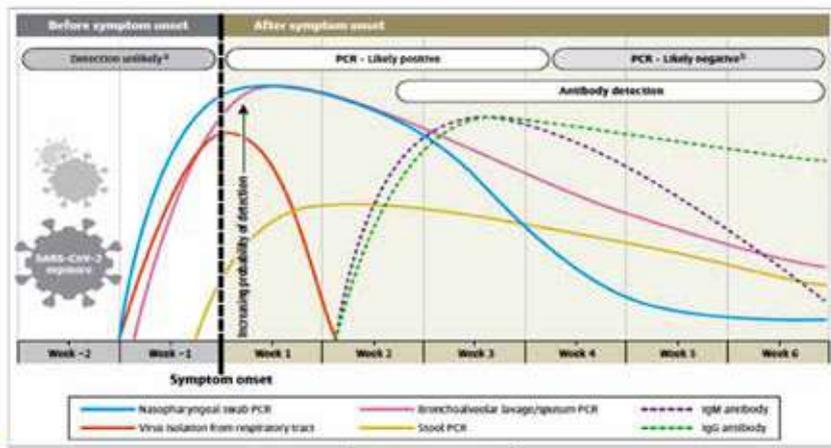
- Restrictions imposed by the pandemic (e.g. stay-at-home orders)
- Delayed care for acute emergencies
- Exacerbations of chronic diseases, and
- Psychological distress (eg. drug overdoses, suicides)

What sample?

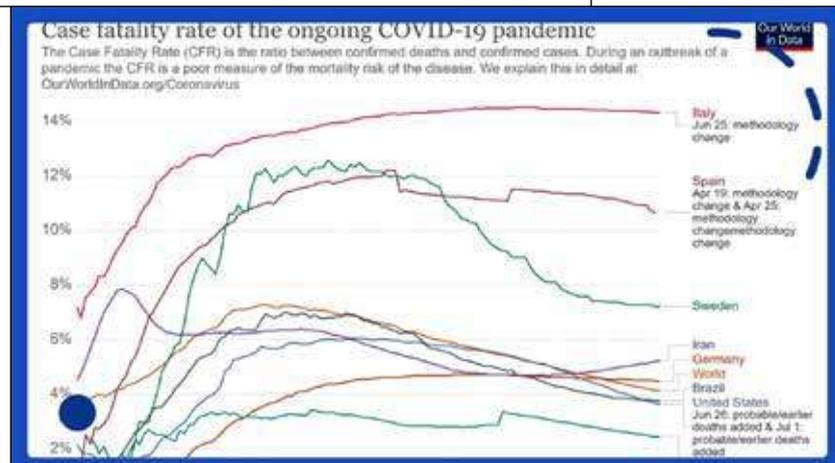
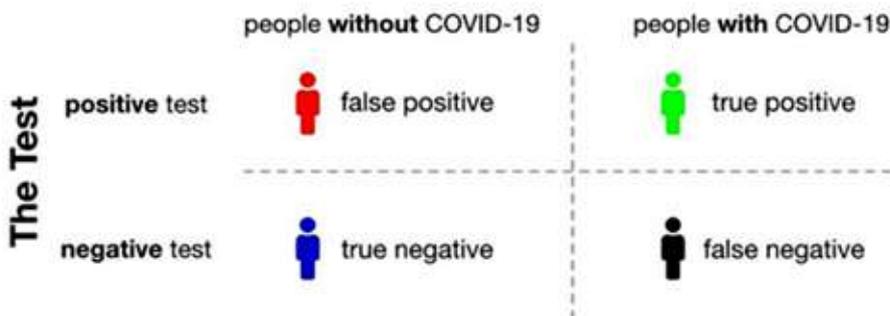
- Uncertainty regarding the optimal upper respiratory tract specimen.
- IDSA suggests nasopharyngeal, mid-turbinate, or nasal specimens rather than an oropharyngeal specimen (or saliva) because of limited data suggesting lower sensitivity with oropharyngeal specimens
- Bronchoalveolar lavage fluid specimens showed the highest positive rates (93%), followed by sputum (72%), nasal swabs (63%), pharyngeal swabs (32%), feces (29%), and blood (1%).

Rt PCR

- RT-PCR has a sensitivity of about 70% for detecting COVID-19, which means we will miss three out of ten COVID-19 patients, a substantial number.
- May occasionally be positive for more than a month-are they actually infective?- may not necessarily indicate ongoing infectiousness-ONLY RNA not live virus
- Ct values are not standardized across RT-PCR platforms, so results cannot be compared across different tests. Furthermore, no clinical studies have validated use of Ct to guide management



The Truth



Case fatality rate

Disease	Estimated case fatality rate (CFR)
SARS-CoV	10% Venkatesh and Memish (2004) Munster et al. (2020)
MERS-CoV	34% Munster et al. (2020)
Seasonal flu (US)	0.1 to 0.2% US CDC
Ebola	50% 40% in the 2013-16 outbreak WHO (2020) Shultz et al. (2016)

Why should we screen?- Patient factors

- Is it because they are more vulnerable (but then why exclude old-aged patients and those with comorbidities), or is it out of concern for the new born (who are actually least vulnerable as per the data we have)?

Questions to ponder...

Why should we test?

Whom all should we test?

When should we test?

What sample should we test?

What test should we do?

Is it enough?

7. Brainstorming: Rationale for Recommendation

1. As per the discussion during the webinar, keeping in mind the benefits of incorporating yoga as a lifestyle and its immunomodulatory effect following points emerged for recommendation:
 - **A Yoga protocol can be developed by IUC-YS in collaboration with CCRYN for prevention and hospital care.**

- **Implementation of this yoga module can be mandated by Government for strict adherence by all health care centers dealing with COVID patients for effective fight against COVID.**
 - **Yoga protocol including sattwic diet can be considered for prescribing to inpatients for breakfast, lunch, dinner including fruits suiting the local culture of the 3 zones of India - south, north, east (rutucharya) .**
 - **Different social media platforms can play a role in fighting against COVID by playing 15 minutes of yoga protocol morning and evening, that will help in promotion as well as encourage people to practice yoga.**
 - **Also audio of separate yoga protocol involving techniques for better sleep like yoga nidra can be worked upon and can be developed in different languages which can be played in hospitals CCCs, media, social media, you tube etc.**
 - **Similarly, yoga protocols can be developed for helping tobacco dependent vulnerable individuals.**
2. As demonstrated by Tamil Nadu, the effective management and rehabilitation of asymptomatic/mild COVID-19 cases, this made a point of recommendation that:
- **Ways to replicate and implement Tamil Nadu model of incorporating yoga and naturopathy in hospitals can be sought out for all the states of India.**
 - Dr Akshay Aanand raised the issues in the Webinar: Should you include “how” to implement the plan of action-identifying groups, designating or commissioning Deans or special Secretaries to oversee the operationalization of plan in hospitals? Will the Yoga therapists or Ayurveda practitioners report to non-Yoga/non Ayurveda trained academics in hospitals? *A recipe to manage expected barriers in translation can be suggested (such as inclusion of IM protagonists or faculty in Institutes and Funding agency framework) to ensure success. Alternatively, we may suggest health care workers to undergo refresher Yoga/Ayurveda training for 4 weeks or something like Yoga Instructors Course so that the ecosystem is ready for operationalization of the recommendations.*
 - Recommendation for the Integrated MBBS or Integrated BAMS, or Integrated MD or Integrated PhD-MD(Research) program, aligned to National Educational Policy for IM education (for sustainable integrative health or IM inclusion of Yoga/Ayurveda) else, as Govts change, the interests will change...
 - When RT PCRs are carried for detection of COVID (for eg 700,000 RT PCRs were done yesterday in our country) the RNA of virus acts as template for primer driven amplification (and detection). Presumably, this sample also contains the RNA from host (person) and hence, with same cost, infrastructure and expenditure, we may suggest the analysis of host mRNA quantification (matches to vital load before and after) for candidate molecules(IL 6, CD 4/8) to be studied between Prakritis and/or Yoga interventions(as it is suggested to be introduced in all hospitals). Please note

that the RT PCRs are done twice for positive cases (hence pre and post data will be automatically generated for IM roll out with potential for worldwide integration).

Brainstorming session also led to following discussions:

Question: Is there any evidence from ancient medicine texts that AYUSH systems could help in managing pandemics? Any scientific evidence in the current scenario?

Management of epidemics is not new to traditional Asian health systems. *Janapadodhwamsa Vyadhi* is a well-defined term for epidemics in the classical ayurvedic texts and siddha classifies fevers into 64 types distinguishing those from intrinsic and extrinsic causes.

In the past 6–7 years, the AYUSH sector has contributed to the management of dengue and chikungunya

Question: Is it possible to add AYUSH systems as an adjunct with modern medicine to treat COVID-19 infections? If yes, then what role can AYUSH systems play?

Prophylactic role

The preventive measures of Ayurveda such as medicated water, gargles, oil pulling and nasal oil administration can be practiced as home-based care and that may offer a ‘physiological masks’. Health promoting immunomodulator (*Rasayana*) botanicals like *Withania somnifera*, *Tinospora cordifolia*, *Piper longum*, *Glycyrriza glabra* may improve host defense and could be an effective prophylaxis approach against COVID-19.

Therapeutic potential

Ayurveda can offer several herbal formulations and dietary measures having immunomodulator potential that may be useful for post-infection prophylaxis. Ayurveda has several potential drug candidates that can be used as an add-on therapy with the empirical modern medicine therapy in the management of COVID-19.

This integrative approach can be initiated in several hospitals across the country in a standardized manner under the supervision of a modern medicine experts and Ayurveda experts.

Ayurveda and Yoga have a lot to offer in this space through its various exercises and meditation programs. The effects of pandemic will be beyond the number of cases. The economical, psychological, and social effects of disease will be beyond measurement. This is the time we should be practicing Yoga with its true meaning and broader approach. We need to adopt Yoga for community-based interventions but following rules of social distancing. This needs innovation in research, education and delivery of Yoga interventions.

Question: Can reinfection occur? Will it be more severe or less? How to prevent re-infection?

The evidence so far - Normally, when a person gets a disease, their immune system makes antibodies to fight the pathogen. After recovering, some of these antibodies stay in our body to recognise and quickly eliminate the same pathogen, in case we get exposed to it a second time.

Antibodies are specific to a pathogen. So an antibody against one pathogen may not protect you against another. Virus-specific T-cells have been noted in patients years after infection with SARS virus (SARS-CoV-1). It is not known yet if the T-cells can protect the person from reinfection with SARS-CoV-2 in the absence of antibodies. Nonetheless, previous studies with MERS and SARS virus (two related coronaviruses) have shown that T-cells are indeed effective against a secondary infection even when antibodies are not present.

How to prevent re-infection?

Can people who have recovered from the coronavirus disease (Covid-19) get reinjected? There is no evidence of reinfection, say experts as of now!

What are the best possible implementation strategies to reduce the impact of COVID-19 pandemic in India?

National weaknesses: Poor infra structure in terms of hospital beds, equipment, and protective equipment. Low testing rates, poor health care is further deteriorating, with community transmission.

On June 15, the average testing rate in India was 4,972 per million.

India went into lockdown almost two months later. On June 8, after 10 weeks of lockdown, India started a phased reopening of its economy. While recovery rates have improved to 65 percent and the death rate is relatively low considering that India is the fourth most-impacted country globally, COVID-19 in India is nowhere close to the peak.

The sudden lockdown had a severe impact on millions of low-income migrant workers and daily-wage earners. It is estimated that between 2 million and 10 million migrants were impacted by COVID-19. Between 100,000 and 200,000 children missed routine vaccinations during February and March. Treatment for tuberculosis also showed declines.

The Atmanirbhar Bharat (“Self-reliant India”) stimulus package announced in May is not small at \$110 billion; this is equivalent to 10 percent of India’s GDP. India’s response is consistent with its 2019 scores on the Global Health Security Index. In terms of health security—pandemic preparedness and capacity—India is ranked 57th out of 195 countries. Its score of 46.5 was above the global average of 40.2, but much lower than Asian middle-income peers such as Indonesia and Thailand.

India ought to be prioritizing measures:

1. **Increase testing capacity.**
2. **Maintain regular health services. Non covid patients had to suffer a lot due to COVID impact**
3. Enforce Universal mask wearing
4. Enforce physical distance
5. Enforce quarantine policies, containment and mitigation
6. Maximise maternal, infant and young child nutrition actions:
7. Migrant population is spearheading transmission of COVID. Enhance testing, tracing and treating.

Chapter 5

Post Covid Recovery

1. Introduction

It is important to strengthen body and mind during this phase to prevent re-infection and late complications of COVID-19 disease. Both yoga and Ayurveda can play an important role in rehabilitation and smooth recovery of the patients.

All the steps mentioned in prevention can be followed in the post recovery phase. Along with it following advices can be useful:

Treatment	Process
<i>Specific Care to be provided to all the patients after recovery from COVID 19</i>	
Hot water gargling	Taking 30-50 ml of water and whirl it around pharynx & oral cavity.
Steam inhalation through nose and throat	Inhalation of steam with or without essential oils
Sun bath	Sun exposure (10 minutes) in the morning and in the evening
Aromatherapy	Eucalyptus/ Peppermint/ thyme/ lavender/ Ajwain oil: 1-2 drops in tissue paper or mix with gingelly oil & apply

One such successful model has been already shown by Govt. Yoga & Naturopathy Medical College and Hospital & Yoga and Naturopathy lifestyle clinic of Omandurar Medical College Hospital where Yoga and Naturopathy intervention was given to COVID-19 patients from the day one. They have treated more than 5000 patients successfully. This successful model intervention was circulated to all COVID-19 hospitals in Tamil Nadu to implement this necessary initiation. This was issued by the Directorate of Indian Medicine and Homeopathy, Government of Tamil nadu.

Also Ayurveda has a potential therapeutic role and can offer several herbal formulations and dietary measures having immunomodulator potential that may be useful for post-infection prophylaxis. Ayurveda has several potential drug candidates that can be used as an add-on therapy with the empirical modern medicine therapy in the management of COVID-19.

Post-COVID-19 patients may experience significant residual symptoms of fatigue, body aches and joint ache persisting for a long time. For this phase, a special yoga module focussing on deeper relaxation, pain reduction and improving stamina could be developed and validated. This ***yoga COVID-19 rehabilitation module could be used unanimously as a part of recommended guidelines throughout the country.***

2. Brainstorming: Rationale for Recommendation

1. It was the opinion of all the panellists that address to the nation by our PM in highlighting the importance of incorporating our AYUSH systems as the treatment protocol for COVID-19 will have a very positive and beneficial impact. So the recommendation came up as:
 - **PM may be requested to announce in Independence day speech highlighting the importance of AYUSH systems as a part of the treatment protocol.**
 - **All hospitals COVID care centers, COVID health centers and COVID nodal centers should think of implementing yoga as a part of the treatment protocol.**
2. Dr. Nagendra, Dr. Nagarathna & Dr. BN Gangadhar were of the opinion that fear & panic should be alleviated by bringing ray of hope & positivity by spreading about recovered & healed cases as done by our honourable PM in his ‘mann ki baat’.
 - **Media can play a instrumental role by advertising and interviewing the healthy and recovered cases/families like PM did in his ‘mann ki baat’.**
3. Post-COVID-19 patients may experience significant residual symptoms of fatigue, body aches and joint ache persisting for a long time. For this phase, a special yoga module focussing on deeper relaxation, pain reduction and improving stamina could be developed and validated.
 - **Validation of Yoga modules for different phases of COVID-19 disease including post-COVID rehabilitation can be taken up on a priority basis followed by teaching of the same throughout India in all COVID-19 treating hospitals.**

Chapter 6

Implementation Strategies

1. Introduction

A very important contribution of India, to promotion of health in general and mental health in particular, is the science of yoga & Ayurveda. They have a lot to offer in this space through its various exercises and meditation programs. The effects of pandemic will be beyond the number of cases. The economical, psychological, and social effects of disease will be beyond measurement. This is the time we should be practicing Yoga with its true meaning and broader approach. We need to adopt Yoga for community-based interventions but following rules of social distancing. This needs innovation in research, education and delivery of Yoga interventions. This integrative approach can be initiated in several hospitals across the country in a standardized manner under the supervision of a modern medicine experts and Ayurveda experts. Currently Yoga has been widely accepted and practiced internationally. (Prasada, 2010, Broad, 2012). Yoga is a discipline, a system that has evolved in India over several thousand years to facilitate the evolution of consciousness. It offers a worldview, a lifestyle and a series of techniques by which changes in human awareness can be brought about. The basic aim of yoga is growth, development and evolution of mind. The yogic techniques when practiced correctly give rise to certain types of reactions within the person, so that there are qualitative and quantitative changes in awareness. There are various systems of yoga. All point towards the same end i.e bringing about altered states of consciousness, which is known as the cosmic consciousness, transcendental illumination or samadhi (Prasada, 2010, Verambally and Gangadhar et al, 2016). It is hence understandable that the United Nations accorded a formal and special status for yoga declaring 21st June as the International Yoga Day.

There is growing popularity of yoga in the general population all over the world. Recent focus on scientific studies to understand the impact of yoga in the general population and specific health conditions. First set of studies focus on the changes among the normal healthy volunteers practicing yoga. These studies point to the positive physical and mental health. Second group of studies describe the physiological and biochemical changes after yoga practice. Many studies in this category point to enhanced physical and mental functioning following regular practice of yoga. There are a number of studies on the various aspects of yoga and its physiological effects. The third set of studies examine the therapeutic application in a number of clinical conditions, pointing to the positive benefits of adding yoga to other treatments. (Verambally and Gangadhar, 2016).

Health promotion implies the creation of individual, social and environmental conditions that enable optimal physical, psychological and psycho-physiological and spiritual development. Such initiatives involve individuals in the process of achieving positive health and enhancing their quality of life. Effective health promotion results in improved well-being, less human suffering, a lower incidence and prevalence of health conditions, better use of services, high quality of life,

improved social functioning, enhanced social integration, and in other related outcomes.

There is empirical evidence that health promotion programs are capable of **increasing resilience and mental health** factors such as: self-esteem; problem solving skills; stress and conflict management skills; feelings of mastery and self-efficacy. There can be **reduction of a range of risk factors** such as: low birth weight, pre-term deliveries, poor parenting behavior, lack of early bonding and parental affection, child abuse and neglect, teenage pregnancies, aggression, and being a victim of regular bullying. Mental health promotion has also **social outcomes** such as better academic achievement, increase in productivity and reduction in productivity loss, lowering divorce rate, reduction in family violence, reduction in youth delinquency and reduction in use of social services.

The area of yoga and the promotion of mental health require (i) greater focus on the study of consciousness from all angles, (ii) development of personal level self-care objective tools to measure wellness, to monitor changes over time which can lead to awareness of personal wellbeing a part of all individuals; (iii) tools to measure the impact of practice of yoga in people living in different social conditions of life; (iv) development of biological markers to longitudinally measure the changes in the practitioners of yoga and (v) longitudinal studies of mental health impact in the general population, (vi) people living through different stages of life, (vii) impact of yoga practice in people with specific health conditions like non-communicable diseases, cancer etc and (viii) comparison studies of yoga with other interventions.

2. Suggestions for implementation of Yoga for COVID in the country

Current need: Seeing the emerging situation in India of rapid spread, we urgently need measures that will take care of internal resistance to fight the Corona virus, so that after contracting the virus, more people remain asymptomatic or even if they become symptomatic, they recover smoothly. This is more important for those vulnerable people who also have some other co-morbidity.

Suggestions: Yoga is influential for various health related conditions as extensively reported in the literature. However, in the context of current pandemic, due to the lack of any concrete evidences from randomized studies, it is difficult/ inappropriate to wait for these studies to complete and then implement in the field. Already, large scale survey, and other observational studies (many in the process of publication) have hinted at the potential use of yoga for COVID.

At the bottom line, yoga is purely a non-pharmacological intervention and with the existing scientific evidences, it is very safe to introduce yoga as an adjunct intervention to fight against COVID. Like we give for any major treatment, general advices for lifestyle and diet, similarly yoga can be considered in that way, just with an addition of a few postures, and breathing practices. We can evaluate the field efficacy of yoga on a large scale once we implement it, as a mandate, in all the Corona health care centers.

3. Strategy of implementation

Appointment of yoga trainers with competitive remuneration at all the government run Corona care centers and in major hospitals. Yoga advices and training can be an integral, mandatory part of the regular treatment procedure.

Requirement: Appointment of trained yoga therapists with good remuneration on a short term-need-basis, with certificate of appreciation from the Ministry. Minimum infrastructure facility to conduct yoga training classes; even temporarily structures can also be erected at important sites if needed. In addition to that, tele-mode of follow up and training can be extensively adopted.

For the above, adequate funding should be provided by the government (state and center), along with yoga institutes in the locale, and IYA chain of institutions for logistics support.

Extensive government supported mass media advertisement and promotion for awareness and communication of potential preventive benefits of yoga.

Government mandates to all health care centers dealing with COVID patients to strictly adhere to the implementation of yoga module for effective fight against COVID.

4. Additional/ Optional component

As an additional translational research component, we can also evaluate the progress and efficacy of yoga interventions given in those centers. This can be made very cost effective through careful planning.

5. Future research directions towards mainstreaming Integrative Medicine

To-date, research to demonstrate and evaluate the **life long impact of yoga** on health in general and mental health in particular, has not been undertaken. This is understandable as such a research will require study of individuals over many decades of life. This is challenging but possible, as demonstrated by the Harvard study of 75 years duration.

It is suggested that NIMHANS, Bangalore, along with the S-VYASA university and Art of living (all located at Bangalore, and already working on some issues of yoga to put together a research project of about 50 years duration.

The essence of this research is to study a large group, around 100,000 individuals each of those practicing yoga and similar control group not practicing yoga.

The longitudinal study will look for changes, over the study period, for the following:

1. **The subjective wellbeing of individuals in the two groups, at specific time periods;**
2. **The adjustment to personal, marital and work adjustments at different points of time;**
3. **The prevalence and practice of lifestyle related behaviors like physical activity, smoking, use of alcohol, social connectedness;**

4. **The prevalence of life style diseases like diabetes, hypertension, cardio-vascular incidents; arthritis, cancer, depression etc;**
5. **The course and outcome of chronic illnesses like diabetes, hypertension, arthritis, depression;**
6. **The recovery from ‘life stresses/disasters’ when they occur in the two groups;**
7. **Adjustment/acceptance/adaptation to old age.**

Outcome of such a life course study, can result, (similar to the ongoing 75 years Harvard study), will evaluate and demonstrate the lifelong benefits of practice of yoga and factors contributing the benefits. This can be singular greatest contribution of NIMHANS to health in general and mental health in particular.

6. Some further possible measures and studies should be planned keeping these key points

- 1 Intervention studies for prophylaxis

General -It should be based on levels of standard evidence as mentioned in the table below
Specific- *Need for Level of Evidence papers on Yoga and Ayurveda for anxiety, insomnia and immune functions.*

Each paper may take 6 months but will be a lasting contribution. Level of evidence papers should be determined using the table below:

2. Intervention studies similar to 1 above,

- (1) Need for a paper to present new paradigms for yoga therapy for specific conditions, distinct from a meta-analysis, focussing on: (A) Rationale, (B) Efficacy and (C) Safety (as shown in above table; Safety - The Science of Yoga by William J. Broad)
- (2) Need for level of evidence papers on Yoga and /or Ayurveda for anxiety, COPD so on. (Ideally, all conditions managed effectively by yoga)
- (3) *Need to make a statement paper for new guidelines for yoga therapy research, to prevent ‘ dilution’ of yoga*, example a single placebo-controlled study on yoga therapy

(Some research queries which can be raised based on these)

- are RCTs the gold standard for yoga therapy?
- can we have placebos?

Note: we do not have ‘evidence’ for any condition. Hence

- (A) We need to know the state of evidence
- (B) Design studies keeping this in mind

Table 1. Criteria Used To Determine Whether a Complementary and Alternative Medical Therapy May Reasonably Be Recommended, Accepted, or Discouraged by Physicians*

Requirements	Recommend	Accept; May Consider Recommending	Accept	Discourage
Basic	Evidence supports both efficacy and safety	Evidence supports both efficacy and safety	Evidence on efficacy is inconclusive but evidence supports safety	Evidence indicates either inefficacy or serious risk
Efficacy	<p>≥3 RCTs have evaluated the therapy</p> <p>≥75% of trials support efficacy or a meta-analysis of trials supports efficacy</p> <p>For ≥3 of the trials that support efficacy: Trial has >50 patients and Trial is of adequate quality†</p> <p>Evidence supporting efficacy must come from >1 research team</p>	<p>≥1 RCT has evaluated the therapy</p> <p>>50% of trials support efficacy</p> <p>Evidence supporting efficacy fails to meet the criteria for therapies that may be recommended</p>	<p>Existing evidence is inadequate to conclude whether the therapy is effective or ineffective</p> <p>Data on efficacy fail to meet the criteria for considering recommendation</p> <p>Data on efficacy fail to meet the criteria for discouragement</p>	<p>≥2 RCTs have evaluated the therapy</p> <p>≥67% of trials suggest that the therapy is ineffective</p> <p>For ≥2 of the trials that suggest lack of efficacy: Trial has >50 patients and Trial is of adequate quality†</p>
Safety‡	<p>Any documented adverse events associated with the therapy are minor (not life-threatening or permanently disabling)</p> <p>and</p> <p>Based on current information, no obvious theoretical potential for major (life-threatening or permanently disabling) adverse events exists</p>	<p>Any documented adverse events associated with the therapy are minor (not life-threatening or permanently disabling)</p> <p>and</p> <p>Based on current information, no obvious theoretical potential for major (life-threatening or permanently disabling) adverse events exists</p>	<p>Any documented adverse events associated with the therapy are minor (not life-threatening or permanently disabling)</p> <p>and</p> <p>Based on current information, no obvious theoretical potential for major (life-threatening or permanently disabling) adverse events exists</p>	<p>There is reliable documentation of a major (life-threatening or permanently disabling) adverse event occurring in association with the therapy</p> <p>or</p> <p>Based on current information, a theoretical potential for major adverse events exists</p>

* RCT = randomized, controlled trial.

† Study quality was assessed for two types of therapies: those supported by RCTs of adequate number and size to qualify for recommendation and those with inefficacy suggested by RCTs of adequate number and size to qualify for discouragement. Quality was assessed by using the Jadad scale, a validated instrument that assigns scores for randomization, blinding, and reporting of withdrawals (3). Studies were rated by 2 authors; discrepancies were resolved by discussion. If double-blinding of a given therapy was both practical and ethical, an aggregate score of 3 points (of a maximum of 5) was considered adequate. If double-blinding was impractical or unethical, a score of 2 points (of a maximum of 3 for unblinded studies) was considered adequate.

‡ In some instances, a given therapy appears to pose a greater risk for a particular group of patients (e.g., patients undergoing radiation or chemotherapy or patients at increased risk for bleeding); the therapy should therefore be avoided by that group. In such cases, the conclusion that it is generally reasonable to recommend or accept a therapy will be qualified by a list of specific contraindications.

3. Intervention for special groups and those with comorbidities - Level of evidence not clear

4. Cross sectional or cohort studies

Example Yoga vs. Non-yoga, need to have strict checks for confounders, bias, appropriate analysis, follow STROBE guidelines (even though these are for observational studies)

5. Mechanisms, small focused groups, simultaneously

Examples:

(A) can biomarkers for respiration help detect onset / diagnosis?

(B) Does humming/ *Brahmari* really increase nitric oxide in the exhaled air?

(C) Is oxygen saturation increased by yoga practice?

6. Patterns in Epidemiological studies

2 areas

(1) have shifts in weather patterns coincided with greater prevalence or even incidence?

- (2) Are aberrant behavior patterns contributors to prevalence?

Example greater time indoors when time outdoors is recommended.

Execution & implementation of all this needs cooperation from several centres, met departments, internet traffic for quantum, categories of use and trends with CSP approval.

7. Use of technology to combat Covid-19

Technology cannot prevent the onset of the pandemics; however, it can help prevent the spread, educate, warn, and empower those on the ground to be aware of the situation, and noticeably lessen the impact. With despair lingering and the world in disarray, had it not been for effective and advanced technology solutions, we would have been staring at an unmanageable crisis.

- Positioning technologies: To track patients and affected places, thus containing the virus, apart from analysing the pattern of the outbreak, to locate make shift hospitals at the hot spots.
- Robotics: prepare meals at hospitals, doubling up as waiters in restaurants, spraying disinfectants to vending rice and dispensing hand sanitizers, robots can be on the frontline to prevent the spread of Coronavirus. In many hospitals, robots are also performing diagnosis and conducting thermal imaging.
- Health sensors and apps: A Mobile app- a color-coded health rating system that is tracks millions of people daily. It assigns three colours to people — green, yellow and red — on the basis of their travel and medical histories. Whether a person should be quarantined or allowed in public spaces is decided based on the colour code. Only those people who were assigned a green colour code could be allowed in public spheres, offices and other public places.
- Artificial Intelligence: AI is playing important role in suggesting components of a vaccine by understanding viral protein structures, and helping medical researchers scour tens of heaps of relevant research papers at an unprecedented pace. Teams at the Allen Institute for AI, Google DeepMind have created AI tools, shared data sets and research results.

Microsoft Bing launched an interactive COVID-19 map to provide widespread disease news.

- Mobile tracking/mass surveillance system: Gather people's smartphone location data, body temperatures, travel history and other details in a centralized database. Thousands of facial recognition-powered CCTV cameras have also been installed at almost every quarantine centre and only those who have been assigned the green colour code are allowed to drive on the roads.
- Technology supported temperature monitoring

Today the greatest risk of worldwide catastrophe is pandemic, an enormously infectious virus that's more devastating and may kill many people. The transparency that we have

gained through this current COVID-19 situation, we now understand that we were not geared up for this pandemic situation.

The next pandemic is not a matter of “if it happens”, but “when it happens”, would we be prepared in advance against the pandemic at an individual and collective level. What we actually need is preparedness. Indeed, the technology has advanced more and will continue to advance exponentially, but the human institutions and societies need to accelerate in adapting to it and continue investing in building the technology systems for the preparedness.

After the COVID-19 outbreak, it is evident that, from AI to robotics, the technology innovations are helping to manage the epidemic and better equip to fight future public health emergency in a timely, systematic, and calm manner.

Referemces for Rationale for Policy Recommendation

Rationale for the above recommendations is provided in the “Brain storm” sections and

Is asymptomatic transmission common for coronavirus disease patients?

Global Scenario WHO [<https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200402-sitrep-73-covid-19.pdf>]

For COVID-19, data to date suggest that 80% of infections are mild or asymptomatic, 15% are severe infection, requiring oxygen and 5% are critical infections, requiring ventilation. Mar 6, 2020 [Coronavirus disease 2019 (COVID-19),Situation Report – 46,WHO]

On 27 May 2020, WHO published updated interim guidance on the clinical management of COVID-19,1,2 and provided updated recommendations on the criteria for discharging patients from isolation. The updated criteria reflect recent findings that patients whose symptoms have resolved may still test positive for the COVID-19 virus (SARS-CoV-2) by RT-PCR for many weeks. Despite this positive test result, these patients are not likely to be infectious and therefore are unlikely to be able to transmit the virus to another person. This scientific brief provides the rationale for the changes made to the clinical management of COVID-19 guidance, based on recent scientific evidence. WHO will update these criteria as more information becomes available.

There are few reports of laboratory-confirmed cases who are truly asymptomatic, and to date, there has been no documented asymptomatic transmission. This does not exclude the possibility that it may occur. Apr 2, 2020 [Coronavirus disease 2019 (COVID-19)]

Asymptomatic Transmission

An asymptomatic laboratory-confirmed case is a person infected with COVID-19 who does not develop symptoms. Asymptomatic transmission refers to transmission of the virus from a person, who does not develop symptoms. There are few reports of laboratory-confirmed cases who are truly asymptomatic, and to date, there has been no documented asymptomatic

transmission. This does not exclude the possibility that it may occur. Asymptomatic cases have been reported as part of contact tracing efforts in some countries. WHO regularly monitors all emerging evidence about this critical topic.

1. [1.. Yu P, Zhu J, Zhang Z, Han Y. A familial cluster of infection associated with the 2019 novel coronavirus indicating possible person-to-person transmission during the incubation period. *J Infect* 2020 doi: 10.1093/jiaa077
2. Huang R, Xia J, Chen Y, Shan C, Wu C. A family cluster of SARS-CoV-2 infection involving 11 patients in Nanjing, China *Lancet Infect Dis* 2020 doi: 10.1016/S1473-3099(20)30147-X. This family cluster study provides evidence that asymptomatic people can be potential sources of SARS-CoV-2 infection.
3. Pan X, Chen D, Xia Y et al. Asymptomatic cases in a family cluster with SARS-CoV-2 infection. *Lancet Infect Dis* 2020 doi : 10.1016/S1473-3099(20)30114-6

This family cluster, although all individuals tested positive for SARS-CoV-2 infection on qRT-PCR, only patient 1 showed clinical symptoms, decreased lymphocyte count, and abnormal chest CT images (figure).

4. Tong Z-D, Tang A, Li K-F, Li P, Wang H-L, Yi J-P, et al. Potential presymptomatic transmission of SARS-CoV-2, Zhejiang Province, China, 2020. *Emerg Infect Dis.* 2020 doi : 10.3201/eid2605.200198
5. Wei WE, Li Z, Chiew CJ, Yong SE, et al. Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020. *MMWR*, 1 April 2020/69.
6. Kimball A, Hatfield KM, Arons M, James A, et al. Asymptomatic and Presymptomatic SARS-CoV-2 Infections in Residents of a Long-Term Care Skilled Nursing Facility — King County, Washington, March 2020. *MMWR*, 3 April 2020, 69(13);377–381. *[an update as more information].*

Indian Scenario

Tests per confirmed cases IN INDIA				
[https://ourworldindata.org/coronavirus-testing#tests-per-confirmed-case]				
	Mar 20, 2020	Aug 7, 2020	Absolute Change	Relative Change
India	67.9	10.2	-57.7	-85%

Should India Worry? - 69% Asymptomatic COVID Cases: [ANKITA SHARMA the economic times 24 Apr 2020]

Prevalence of asymptomatic COVID -19 in India: Dr Raman Gangakhedkar, a senior scientist of the Indian Council of Medical Research (ICMR) says 69% were asymptomatic.

Can Asymptomatic Cases Transmit the Virus?

Like symptomatic cases, they start their viral shedding anywhere after 24 hours but predominantly between 3-7 days but can go up to 14 days. The chances of spreading by asymptomatic patients is relatively less. The reason being that the virus is spread through the symptoms. When you cough or sneeze the fomites and the secretions that go out infect the people. So if a person is asymptomatic the chances are less. I'm not saying that it doesn't happen but the chances of a severe spread of infection are less.[Dr sumit ray,Critical care specialist,] [<https://fit.thequint.com/>]

Herd immunity will reduce the disease as seen in most epidemics.

It was predicted by all epidemiological models before also that a large percentage of young people will remain asymptomatic or mildly symptomatic like most respiratory virus illnesses. Only a small percentage gets a more severe or typical symptom and that's a sign that when these young people build up their immunity - this is what is going to build up the herd immunity that we're talking about and 60-70% of the people have the infection and build an immunity to it then the transmission reduces long term of this viral infection. So actually, mildly symptomatic or asymptomatic cases are a good sign. That means that we have started fighting back and our immune system has started fighting back the virus.]

9. Brainstorming: Rationale for Recommendation

1. Seeing the importance of research in the establishment of Yoga & Ayurveda already known for its health benefits – both physical & mental, all the panelists gave their consensus for generation of evidence by doing assessment through randomized controlled trials, trials with long term follow up. So following recommendation points emerged as a result of discussion:
 - **Future researches can be aimed focusing towards performing randomized controlled trials in Yoga for COVID-19.**
 - **Generation of a good level of Evidence Papers in Integrative Medicine can be targeted in future to implement the available research database in clinical settings. Statement papers writing can be taken up to guide policy decisions.**
 - **Assessment of impact of yoga on a life-long basis can be considered. In view of the same, NIMHANS, Bangalore, along with the S-VYASA university and Art of living (all located at Bangalore, and already working on some issues of yoga to put together), can take up a research project of about 50 years duration.**
 - **Generation of a good level of Evidence Papers in Integrative Medicine can be targeted in future to implement the available research database in clinical settings. Statement papers writing can be taken up to guide policy decisions.**
 - **Assessment of impact of yoga on a life-long basis should be considered. In view of the same, NIMHANS, Bangalore, along with the S-VYASA university and Art**

of living (all located at Bangalore, and already working on some issues of yoga to put together), can take up a research project of about 50 years duration.

2. Yoga is known for its beneficial effects in modulating immune responses and improving respiratory functions. For effective implementation and widespread promotion of the awareness about its potential beneficial & preventive effects it was recommended to have:
 - **Appointment of trained yoga therapists with good remuneration on a short term-need-basis, with certificate of appreciation from the Ministry can be thought of. Minimum infrastructure facility to conduct yoga training classes; even temporary structures can also be erected at important sites if needed. In addition to that, tele-mode of follow up and training can be extensively adopted. For the above, adequate funding can be provided by the government (state and center), along with yoga institutes in the locale, and IYA chain of institutions for logistics support.**
 - **Extensive government supported mass media advertisement and promotion for awareness and communication of potential preventive benefits of yoga is recommended.**

Chapter 7

Recommendations

1. Prevention and Treatment of Covid-19 – Policy Recommendations

- i. It is laudable that many precious lives have been saved from mortality and long term morbidity by the tremendous cooperated efforts of all governmental departments of all states/ UTs, the committee recommends that it is now time to let the public take responsibility.
- ii. The group unanimously feel that testing is done for only the high-risk contacts (elderly and patients with co morbidities and not for asymptomatic contacts.
- iii. All positive cases may be given an app with risk scoring with continuous monitoring at a central KPO (knowledge process outsourcing). Traige all moderate and severe cases online within 2 hours on a priority basis.
- iv. It is laudable that there is a shift in the govt. policy towards home quarantining of all asymptomatic and mildly symptomatic young adults, assisted with a Covid monitoring kit. We recommend that this is enforced more strictly and with online daily monitoring by the medical team.
- v. If admission is needed patients may be given the whole responsibility of initiation, selection of the hospital (private or govt.) and completion of the treatment.
- vi. The mandate in Karnataka regarding 50% beds reservation for the govt. (e.g BBMP) in all Covid holding private hospitals may kindly be removed to facilitate easier availability of beds.
- vii. Blocking of roads and ceiling of houses/ apartment complexes appears to be a futile effort in controlling spread of the disease as it involves enormous financial and human resources. This has also created a strong social stigma and embarrassment. The fear of the stigmatization due to ceiling has deterred patients reporting their illness in its early stage which has costed many lives.
- viii. Facilitation of online team of doctors can be checked upon for regular monitoring of high risk cases
- ix. Support by specialists through tele-consultation can be provided.
- x. Financial ceiling in private hospital charges which is implemented is a very laudable mandate which may be enforced more strongly to ensure affordability.
- xi. RT-PCR technique, though very sensitive, is not available at Taluka places or villages. Its availability should be improved.
- xii. Need to improvise upon the availability of RT-PCR technique at Taluka places or villages.

- xiii. Strengthening of routine care, follow up and availability of services for those with comorbidities and vulnerable population like senior citizens can be focused on, as they may not be going for their usual check-up.
- xiv. Exploration of the potential of traditional systems of medicine and combining them with modern medicine to provide best possible healthcare to patients can be considered.
- xv. Home and hospital-based remedies based on traditional approaches can be identified database and information can be harnessed using public health findings.
- xvi. Cross-exchange of knowledge from professionals of different disciplines may be encouraged for e.g., use of Artificial Intelligence, Big Data in the area of Traditional Medicine and findings obtained from medical report.
- xvii. Strengthening of yoga online and provide online certification courses may be encouraged.

2. Recommendations for Prevention and Treatment of Covid-19 using Yoga

2.1 Immediate yoga related recommendations

- i. All COVID holding hospitals care centers and health centers may be mandated to implement yoga as a part of the treatment protocol.
- ii. Play 15 minutes of yoga protocol morning and evening in all national and private television and social media platforms and encourage people to practice without fail.
- iii. Yoga protocol including sattwic diet for prevention and for patients in hospitals according to principles of Ayurveda and yoga (rutucharya) .
- iv. Prepare videos and audios of specific yoga modules for better sleep(MSRT,yoga nidra),for tobacco cessation, respiratory capacity, immune system health and for co morbidities in different languages may be played in hospitals CCCs, media, social media, you tube etc.

2.2 Training of trainers - Yoga

- i. Consider training of all categories of health personnel - ASHA workers, MPWs, health assistants, AYUSH Doctors, PHC doctors, welfare workers in teaching yoga and providing Ayurveda lifestyle advices for COVID-19 at grass-root level. Panchayat members are an essential group to be trained so that they can make it part of developmental activities. When the schools and colleges open may also involve the teachers of schools and colleges.
- ii. Appointment of trained yoga therapists with good remuneration, on a short term-need-basis, with certificate of appreciation from the Ministry.
- iii. Involve active passionate NGO as member institutions of Indian yoga association to provide yoga and create help line for the sick and anxious cases.

2.3 Short-term Goals-yoga

- i. Minimum infrastructure facility to be provide to conduct yoga classes; even temporary structures can be erected at important sites if needed.

Temporary structures can also be erected at important sites if needed.

- ii. Extensive government supported mass media advertisement and promotion for awareness and communication of potential preventive benefits of yoga is recommended.
- iii. WHO may be requested to include Self-Reporting Questionnaire (SRQ) and PHQ-9 for identifying the persons with special needs for emotional health support.
- iv. Monitoring and evaluation along with documentation at the level of individual experiences, community needs, recording of innovative ways of addressing emotional health, surveys of sample populations and record of the need for specialists for support of the program.
- v. Initiation of an active and easily accessible help line for counseling based on Integrative lifestyle solutions for the sick and anxious is recommended.

2.4. Policy recommendation-yoga in integrative medicine

- i. The committee recommends Integration of Indian systems of medicine (AYUSH) in MBBS curriculum for sustainable integrative health.
- ii. Start Integrated MD and Integrated PhD-MD (Research) programs, aligned to National Educational Policy for Integrative medical education .

2.6. Yoga Research

- i. Prevalence studies and RCTs may be funded
- ii. Validation of Yoga modules for different phases of COVID-19 disease including post-COVID rehabilitation can be taken up on a priority basis.
- iii. As RT-PCRS are done twice for the positive patients (for eg 700,000 RT PCRs were done yesterday in our country). A study can be carried out based on analysis of host mRNA quantification (matches to vital load before and after) for candidate molecules (IL 6, CD 4/8) to be studied between Ayurveda Prakritis and/or Yoga interventions (as it is suggested to be introduced in all hospitals).
- iv. Assessment of impact of yoga on a life-long basis should be considered. In view of the same, NIMHANS, Bangalore, along with the S-VYASA university and Art of living (all located at Bangalore, and already working on some issues of yoga to put together), can take up a research project of about 50 years duration.

3.1. Implementation: For Promotion of AYUSH

1. Immediate Action

- i. Yoga based treatment protocol during admission as well as post discharge protocol of yogic life style can be included in ICMR guidelines.
- ii. PM may be requested to announce in ‘mann ki baat’ highlighting the importance of AYUSH systems as a part of the treatment protocol, as his words are taken as vedavakya by common man as he is a mesmerizer-’mere pyare bhayiyo behno’’ has a miracle effect.
- iii. Media can play a provocative role by advertising and interviewing the healthy and recovered cases/families like PM did in his ‘mann ki baat’.
- iv. Development of specific drinks based on Ayurvedic concepts can be taken up & publicized with its health benefits.
- v. To consider employing volunteers and AYUSH faculty to monitor the house visits as was done in Chennai.
- vi. Ways to replicate and implement Tamil Nadu model of incorporating yoga and naturopathy in hospitals can be sought out for all the states of India.
- vii. Assessment of Ayurveda Prakriti at mass level can be taken up, as this may help in understanding and taking timely prophylactic measures by balancing the aggravating dosha.

3.2. Long term goals

- i. Integrative Medicine faculty shall be considered for recruitment in all government medical institutes so that the yoga trainer can report to them and the yoga program is monitored in the hospitals with appropriate research protocols. This can be done following the NIMHANS model of opening the Department of Integrative Medicine in the mainstream tertiary care centres.
- ii. Integrated MBBS or Integrated BAMS, or Integrated MD or Integrated PhD-MD (Research) program should be considered for implementation in all government medical institutes in collaborations with Integrative medicine departments in other institutes of India. This is in alignment to National Educational Policy for IM education (for sustainable integrative health or IM inclusion of Yoga/Ayurveda).
- iii. Generation of a good level of evidence Publications in Integrative Medicine is recommended as the target
- iv. Implement the available research database in clinical settings.
- v. Statement papers writing can be considered for taking up to guide policy decisions.
- vi. Public mental health education and education on AYUSH lifestyle advices can be taken up as the goal to total population intervention and empowerment by preparing multimedia educational materials and in school education curriculum.

- vii. The smart health card (via digital health mission) planned by the health ministry may include Prakriti status assessment which will create a huge data set for many researches such as:
 - a. understand the differences in community behavior, disease vulnerability etc both in Communicable (e.g Covid -19) and NCDs.
 - b. make suitable changes in management strategies including dosage of pharmaceutical drugs and life style advices.

Enclosures

Enclosure 1 & 2: Webinar Flyer & Program Schedule

Webinar
Meeting the Challenge of
Covid-19
An Integrative Medicine Approach

on 1st & 2nd Aug 2020, Sat & Sun | at 5:00 - 7:30 pm (IST)
Google Meet Link: <https://meet.google.com/civ-wvkb-ooq>
Facebook Live Link: <https://www.facebook.com/svyasyoga/>

Chief Guests

Dr. Ramesh Pokhriyal ji
Minister, Govt

Dr. Harsh Vardhan ji
Minister, Govt

By
Inter University Center for Yogic Sciences (IUC-Ys)

In collaboration with
Sri Sri Vivekananda Yoga Anusandhana Samithana (S-VYASA), Bengaluru
and
Department of Integrative Medicine
National Institute of Mental Health and Neuro Sciences (NIMHANS), Bengaluru

For queries please write to: svyasamediameet@svyasa.edu.in

Webinar
Meeting the Challenge of
Covid-19
An Integrative Medicine Approach

Program of 1st Aug 2020, Saturday
at 5:00 - 7:30 pm (IST)

Moderator for the Programme: **Dr. Aarti Jagannathan**
Associate Professor of Psychiatric Social Work, NIMHANS, Bengaluru

Time	Program	By
5:00 - 5:05 pm	Starting prayer: Sangachadhwaam	
5:05 - 5:10 pm	Welcome and a brief Introduction of the Webinar and IUC-Ys	Prof. Avinash Chandra Pandey Director, IUC-Ys
5:10 - 5:15 pm	Inauguration of Webinar by Lighting of the Lamp	Dr. Ramesh Pokhriyal ji Minister Dr. Harsh Vardhan ji Minister
5:15 - 5:45 pm	Chief Guests Address	Dr. Ramesh Pokhriyal ji , Minister Dr. Harsh Vardhan ji , Minister
5:45 - 6:15 pm	Special Address	Prof. D.P. Singh , UGC Chairman, India
6:15 - 6:35 pm	Keynote Address	Dr. H.R. Nagendra ji , Chancellor, S-VYASA
6:35 - 7:00 pm	Expert Talk - "Latest developments on diagnosis, preventive and treatment modalities to deal with Covid"	Prof. Prabhu Dev Former Vice-Chancellor of Bengaluru University
7:00 - 7:20 pm	Expert Talk - "Latest AYUSH dimensions on meeting the challenge of Covid"	Dr. N. Srikanth Deputy Director General, CCRAS
7:20 - 7:25 pm	Vote of Thanks	Prof. K. Subrahmanyam Adviser to Chancellor, S-VYASA
7:25 - 7:30 pm	Closing Prayer: Sarve Bhavantu and National Anthem	

Google Meet Link: <https://meet.google.com/civ-wvkb-ooq>
Facebook Live Link: <https://www.facebook.com/svyasyoga/>

For queries please write to: svyasamediameet@svyasa.edu.in

Webinar
Meeting the Challenge of
Covid-19
An Integrative Medicine Approach

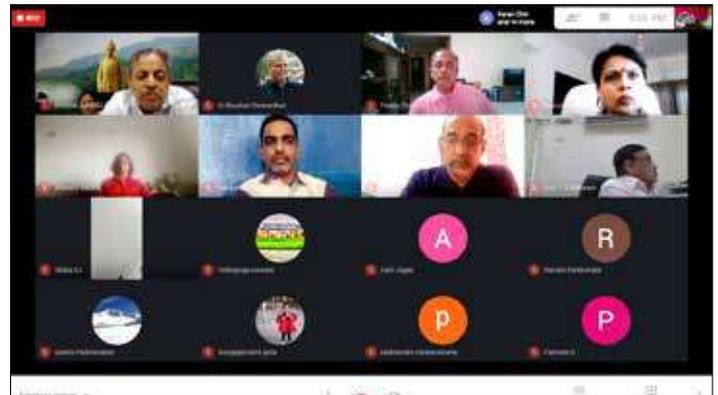
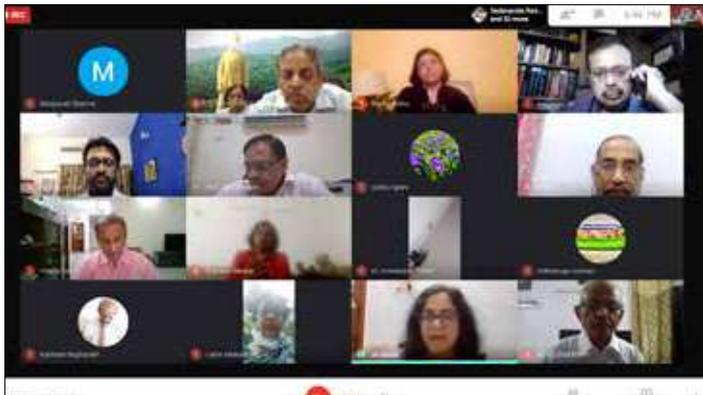
Program of 2nd Aug 2020, Sunday
at 5:00 - 7:30 pm (IST)

Moderator for the Programme: **Dr. Hemant Bhargav**
Assistant Professor of Yoga, Department of Integrative Medicine, NIMHANS, Bengaluru

Time	Program	By
5:00 - 5:05 pm	Starting Prayer: Sangachadhwaam	
5:05 - 5:10 pm	Welcome Address	Dr. B.N. Gangadhar , Director, NIMHANS
5:10 - 5:30 pm	Keynote Address - "New approaches to meet the challenge of Covid crisis"	Dr. V. Ravi Professor of Neuro Virology, NIMHANS and Member Covid Taskforce, Govt
5:30 - 6:00 pm	Expert Talk - "Developments on the role of AYUSH for Covid"	Dr. Bhushan Patwardhan Vice Chairman, UGC
6:00 - 7:15 pm	Panel Discussion: "Out of the box innovative approaches to meet the challenges of Covid" Panelists: Dr. B.N. Gangadhar , Director, NIMHANS Dr. V. Ravi , Professor of Neuro Virology, NIMHANS Dr. Prabhu Dev , Former Vice-Chancellor, Bengaluru University Dr. R. Nagarathna , Chief Medical Director, Arogyadhama, S-VYASA Dr. Manjunath N.K. , Director of Research, S-VYASA Dr. Shirley Telles , Director, Patanjali Research Foundation Dr. Raghavendra Rao , Director, CCRYS Dr. T.G. Sitharam , Director, IIT-Gurubani Dr. Akshay Anand , Associate Professor, PGIMER, Chandigarh Dr. Indranil Basu Ray , Consultant Cardiologist & Cardiac Electrophysiologist, The University of Memphis, USA	
7:15 - 7:20 pm	Summary and Action Plan	Dr. Bhushan Patwardhan Vice Chairman, UGC
7:20 - 7:25 pm	Vote of Thanks	Prof. Avinash Chandra Pandey Director, IUC-Ys
7:25 - 7:30 pm	Closing Prayer: Sarve Bhavantu and National Anthem	

Google Meet Link: <https://meet.google.com/civ-wvkb-ooq>
Facebook Live Link: <https://www.facebook.com/svyasyoga/>

For queries please write to: svyasamediameet@svyasa.edu.in



Enclosure 3: Questions posed in the panel discussion

Part-1: Challenges in Diagnosis

Question 1: What is the latest tool for diagnosis of COVID-19? How much time and cost are involved? How reliable is the method?

Question 2: We see a spectrum of clinical symptoms including extra-pulmonary manifestations in India. How to overcome this challenge in clinical screening for COVID-19?

Question3: Is there a possibility of developing a faster and more cost-effective way of diagnosis of COVID-19 infection?

Question 4: Is there a valid tool available to screen high-risk populations online? If not, what probable components such a tool should have?

Question 5: How does AYUSH systems look at the problem of COVID-19 infection? How do they diagnose?

Question 6: As COVID-19 infection continues to rise, serious mental health consequences of the pandemic are now becoming apparent. Can there be an online strategy that can be applied at mass level to screen the population for such problems?

Part-2: Prevention

Question 7: Is COVID-19 infection preventable through means of hygiene, mask and social distancing?

Question 8: Is it possible to develop Herd Immunity in India?

Question 7: What are the latest developments towards vaccines against COVID-19? Can the COVID problem be completely solved with a vaccine?

Question 9: How can the immunity be strengthened through

- a) Modern medicine?
- b) AYUSH systems?

Question 10: How can mental resilience be improved through

- a) Modern medicine?
- b) AYUSH systems?

Question 11: What are the ways in which Healthcare workers who are exposed to COVID-19 can prevent infection?

- a) Modern medicine approach
- b) AYUSH systems approach

Part-3: Treatment

Question 11: What are the latest developments from a bio-medicine perspective in treatment of COVID-19 infections of moderate to severe category?

Question 12: Is there any evidence from ancient medicine texts that AYUSH systems could help in managing pandemics? Any scientific evidence in the current scenario?

Question 12: Is it possible to add AYUSH systems as an adjunct with modern medicine to treat COVID-19 infections? If yes, then what role can AYUSH systems play?

Question 13: Is it possible to integrate AYUSH systems in COVID-19 treating modern hospitals in India? If yes, what may be the road map for the same?

Part-4: Post-COVID Recovery

Question 14: What are recommended guidelines in Bio-medicine for a patient in the recovery phase after COVID-19 infection? Can reinfection occur? Will it be more severe or less? How to prevent re-infection?

Question 15: How can AYUSH systems help in the recovery phase? Are there any guidelines from ancient texts on lifestyle to be observed during post-infection recovery?

Question 16: Any modern scientific evidence that AYUSH systems can help post-infection recovery and prevent re-infection?

Part-5: Implementation Strategies

Question 17: What are the best possible implementation strategies to reduce the impact of COVID-19 pandemic in India?

Question 18: Are there any guidelines in Ancient texts for implementation strategies in current situations to minimize impact of COVID-19 infection?

Question 19: Have AYUSH systems been integrated with medicine in managing COVID-19 anywhere in India? If yes, then how has been the experience so far?

Question 20: How can technology be utilized to integrate health care delivery systems (Modern medicine and AYUSH systems) for possible care?

Question 21: How to overcome the shortage of healthcare professionals in the current scenario? How could professionals from AYUSH systems be trained for their optimal utilisation

Enclosure 4:

List of Speakers, Resource Persons, Chair & their brief CV

Prof. Avinash Chandra Pandey, current acting director of IUC-YS. He was Director, Institute of Interdisciplinary Studies, University of Allahabad since 2016 before joining IUAC. He was Vice Chancellor of Bundelkhand University from 2012 to 2015. He has earlier been Professor at University of Allahabad after obtaining Masters (Physics, Mathematics) and D.Phil. Degree from University of Allahabad. He has earlier been Professor & Founder Head, Department of Atmospheric & Ocean Sciences and Co-ordinator of K Banerjee Centre of Atmospheric & Ocean Studies, M N Saha Center of Space Studies at University of Allahabad. He is also an Adjunct Professor at Michigan Tech, USA.

Dr. Ramesh Pokhriyal, is an Indian politician serving as the Minister of Education in the Second Modi ministry. He represents the Haridwar Parliamentary constituency of Uttarakhand

in the 17th Lok Sabha. He was the 5th Chief Minister of Uttarakhand from 2009 to 2011. He was member of 16th Lok Sabha and chairperson, Committee on Government Assurances.

Dr. Harsh Vardhan, is an Indian Otorhinolaryngologist and the incumbent Minister of Science and Technology, Minister of Health and Family Welfare and Minister of Earth Sciences in the BJP-led NDA government of Prime Minister Narendra Modi. He represents Chandni Chowk in Delhi as a Member of Parliament in the 17th Lok Sabha. He was elected to the office of Chairperson of Executive Board of the World Health Organization from May 22, 2020.

Professor D P Singh, present Chairman of UGC has about 34 years of professional experience in different aspects of educational planning & administration, institution building, teaching & training, research & development, international cooperation etc. in various capacities in different institutions including Director, National Assessment and Accreditation Council (NAAC) – an Autonomous Institution of University Grants Commission (UGC) & Vice Chancellor of three universities - Banaras Hindu University (BHU), Varanasi; Dr. Hari Singh Gour University, Sagar; and Devi Ahilya University, Indore.

Dr. HR Nagendra, mechanical engineer, Yoga therapist, academic, writer and the founder chancellor of Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA), a deemed university located in Bengaluru. He is best known as the personal yoga consultant of Narendra Modi, the prime minister of India and is a recipient of Yoga Shri title from the Ministry of Health and Family Welfare. He has authored 35 books and over 100 research papers on Yoga. The Government of India awarded him the fourth highest civilian honour of the Padma Shri, in 2016, for his contributions to society.

Professor Prabhu Dev, Former Vice-Chancellor of Bangalore University. He is Cardiac Surgeon and has served as Assistant Professor & Professor for 6 years, the Institute of Sri Jayadeva Institute of Cardiovascular Sciences.

Dr. N Srikanth, MD in Ayurveda, is the current Deputy Director General, CCRAS. He supervises overall research activities of the Council (Medico Botanical Survey, Pharmacognosy, Chemistry, Pharmacology, Ayurveda, Literary Research etc.)

Professor K Subramanyam, Vice-Chancellor of S-VYASA University and Advisor to the Management. He is MA, PhD holder and retired principal of National Defence Academy, Khadakwasla, Pune, and Vivekananda College (Gurukula), Madurai. He has several books to his credit. His life and Character rooted in Indian and Values and he has inspired hundreds of young men and women by setting an example to them.

Dr. BN Gangadhar, Senior Professor of Psychiatry & current Director of NIMHANS, Bangalore. He has over 30 years of extensive experience in the field of mental health, from both clinical and academic perspectives. Other key posts held by Dr. Gangadhar include Honorary Dean, Life Sciences at S-VYASA Yoga University, Bengaluru (from 2013); Adjunct Faculty on Consciousness at National Institute of Advanced Studies (from 2014); President, Indian Psychiatric Society Karnataka Chapter (2012-13); Visiting Fellow (IBRO), Vienna, Austria (1987-88); Consultant to WHO for inspection of Tsunami relief projects (2008). He is also part of the expert committees of DST and the National AYUSH Committee for Integrative Medicine.

Dr. V Ravi, Senior Professor and Head of Department of Neurovirology at National Institute of Mental Health and Neuroscience (NIMHANS), Bengaluru. His areas of interest include Public health virology, Japanese encephalitis, Acute encephalitis syndrome, Development of indigenous kits, Antiretroviral therapy, Immunology and Pathogenesis of viral infections of CNS and Psychoneuroimmunology.

Dr. Bhushan Patwardhan, Vice Chairman of UGC, New Delhi. He is a biomedical scientist, Professor and Former Director of Interdisciplinary School of Health Sciences, Savitribai Phule Pune University. He is the Chairman (Additional Charge) of Indian Council of Social Science Research, New Delhi and member, National Board of Examination. He has worked on Boards of several Universities and had been member of important national committees like UGC, CSIR, DST, DST, CCRAS and ICMR. Also he has worked on several policy making committees and Taskforces of National Knowledge Commission, Planning Commission, NITI Ayog and Ministry of AYUSH. He has made original contributions in evidence-based Ayurveda especially in Ayurvedic biology, ethnopharmacology, natural product drug development and integrative approaches to improve public health system. He is recipient of many orations and awards including award from WHO, Geneva for his study on the role of traditional medicine in public health.

Dr. R Nagarathna, one of the pioneers in the field of Yoga therapy. She is the Dean, Division of yoga and life sciences and chief consultant at Arogyadhama, S-VYASA. She did her MBBS from Bangalore medical college, MD in internal medicine from Mysore medical college, Her MRCP and FRCP from Edinburg, UK. She has over 80 publications in national and international journals and has 11 books on series of yoga for different ailments published. She has been felicitated with numerous awards such as the: Patanjali Award” (2000) for contributions in the field of yoga by Indian Systems of Medicine and homoeopathy (ISM & H), MoHFW, Govt. of India, “Dr P S Shankar Vaidya Shree” award (2001) by Dr P S Shankar Pratistana, “Woman of Excellence” award (2003) by the Badaganadu Sangha Association, Bangalore, for service to humanity through Yoga Therapy & “Karnataka Kalpavalli” award (1995) for ‘Service to women through Yoga’ awarded by ‘Shaswathi’ a women’s organization, NMKRV College, Bangalore.

Dr. Manjunath NK, Heads the research department (Anvesana Research Laboratories), at S-VYASA University, Bangalore. He is also the Editor of International Journal of Yoga (IJOY), a Pubmed indexed yoga research publication of S-VYASA. He is also director of VYASA health care global pvt. ltd. which is an outreach partner of VYASA and industry partner of S-VYASA University. He has 25 years of research experience and holds more than 30 research publications on Yoga.

Dr. Shirley Telles, has MPhil and PhD in Neurophysiology seeing the effects of yoga practice. Dr. Telles received a Fulbright fellowship in 1998 and in 2001, an award from the Templeton Foundation for creative ideas in neurobiology. In 2007 she received a grant from ICMR for Advanced Research to study meditation’s effects through autonomic variables, evoked and event related potentials, polysomnography and fMRI. Currently, she is the director of Patanjali Research Foundation, Haridwar, India, since 2007. Dr. Telles has 7 books and around 198 research papers cited in bibliographic databases. She is an enthusiastic practitioner of yoga.

Dr. Raghendra Rao, present Director of Central Council for Research in Yoga & Naturopathy. Dr Raghavendra Rao holds a PhD in Yoga and Life sciences from Swami Vivekananda Yoga Anusandhana Samsthana University, Bengaluru, India. He has completed several research projects in rheumatoid arthritis, prediabetes, diabetes, CVD risk prevention, the use of both yoga and naturopathy interventions. He has written many international research publications and book chapters on yoga and its application. He is a member of the Ministry of AYUSH, Unani, Siddha and Homoeopathy research portal, Government of India. He has also won awards in the fields of Ayurveda and Yoga research.

Dr. TG Sitharam, Professor of Civil Engineering & Director of IIT, Guwahati, Assam and Chairman of Board of Governors of IITG. He is the Chairman of Research Council, CSIR-Central Building Research Institute (CBRI), Roorkee & Executive Council of Visvesvaraiya Industrial & Technological Museum Bangalore India. He is Governing Council member of National Council for Science Museums (NCSM), Govt of India and EC member of AICTE, Govt. of India, New-Delhi. Also the present Chairman, AICTE South western zonal committee, Regional office at Bengaluru He is the founder President of International Association for Coastal Reservoir Research (IACRR), registered in NSW, Australia. He is the President, Indian Society for Earthquake Technology (ISET), Roorkee.

Dr. Akshay Anand, Professor at PGIMER, Chandigarh & also the Vice Chairman of Indian Yoga Association, with strong interest in understanding cell survival mechanisms using cell culture, animal models and mindfulness based Yoga approaches. He has more than 180 publications, 4 patents, 12 national awards including from UT administration & PGI besides being nominated for Padmashree in 2020. He has publications to his credit in reputed journals like Nature Medicine, IOVS, JAD and Scientific reports.

Dr. Indranil Basu Ray, is a cardiac electrophysiologist and a professor of public health at the University of Memphis, Memphis Tennessee, USA. He's also a professor of Cardiology and head of Integrative Cardiology, AIIMS, Rishikesh, Uttarakhand, India. He is the president of American Academy for yoga and meditation – an International Organisation for Research in Yoga.

Dr. Aarti Jagannathan is an Associate Professor of Psychiatric Social Work at NIMHANS, Bengaluru. She has done PhD in the domain of Yoga for Caregivers of Schizophrenia. She is actively involved in yoga research and its application as a psycho-social intervention. She has more than 80 research publications.

Dr Hemant Bhargav has a degree in conventional medicine (MBBS) with MD and PhD in yoga therapy. He is currently working as Assistant Professor of Yoga in the Department of Integrative Medicine at National Institute of Mental Health and Neurosciences (NIMHANS), an Institute of National Importance, Bengaluru, India. His research areas of interest are Yoga therapy and Integrative Medicine, particularly its applications in the field of mental health and neurosciences. He has more than 60 research publications in these areas.

